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”THEY COME FROM ABOVE”

EXPLORING FINNISH DEVELOPMENT COOPERATION IN THE FIELD OF METEOROLOGY, 1968-2015

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ACADEMIC DISSERTATION

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ABSTRACT

Finnish development cooperation in the field of meteorology has continued for nearly 50 years and over 100 countries have been beneficiaries of this aid. Cooperation in this field is complex, it brings together public and private sector actors and experts from different backgrounds. Projects have succeeded in capacity development, but have struggled with sustainability. Local capacity often lowers after projects ends.

Data includes interviews (n=56) with experts from the Finnish Meteorological Institute, Vaisala, Ministry for Foreign Affairs and 8 recipient countries. Archive material and policy documents are also included in analysis. Exploratory case study method applying conventional content analysis is used. The objective of the study is to explore the underlying issues influencing the challenge of sustainability.

Theoretical framework includes a combination of concepts and theories: governmentality (Foucault) and analytics of government (Dean), power theories (Lukes, Clegg and French & Raven) and approaches regarding patterns of aid behavior.

Historical analysis shows the various phases of these projects, and reflects them to the history of Finnish aid from the late 1960s to the 2010s. Experts' experiences from the grass-roots level form an important basis for the analysis. Policy analysis shows that projects have been well-fitting with development policies up until the 2000s, after which the gap between policy and practice has widened. Cooperation is focused more on technology and less to the societal aspects of meteorology. The Ministry is not involved in practice, allowing projects to be driven towards more technology-oriented goals by the experts of meteorology, many of which who have adopted an "apolitical" strategy. This weakens connections between projects and local people. Private sector experts have adopted an opposing strategy, and engage actively with politicians, who are able to make financially beneficial decisions for them.

Analysis shows that all important decisions within the aid system "come from above", bureaucracy is heavy and control is tight. Lack of flexibility and trust in the system lowers the influence of the projects. Differences between the donor stakeholders are found in general approaches to key issues. Power analysis shows that the Ministry holds the most influential forms of power, while FMI and Vaisala hold mainly dispositional power. Recipients of aid lack access to important forms of power, yet they are expected to sustain capacity after projects ends. Several "donor traps" are also found to actualize, which influence outcomes of aid.

In order to make projects truly sustainable for the aid recipients, the donor would have to give up some power and through that, also some accountability. This is nearly an impossible choice, since both are highly important for the donor. This study finds that within the current system, there is no one actor who has both motive and power to change aid. For the sake of the future, this is a significant challenge to overcome regarding the role of the developing nations, as well as the renewal of the aid system.

Key words: development cooperation, development aid, complexity theory, meteorology, climate change, capacity development, governmentality, power, sustainability, ownership, public–private partnerships.

ABSTRAKTI

Suomalainen kehitysyhteistyö meteorologian alalla on liki 50-vuotisen historian aikana tavoittanut yli 100 maata. Meteorologia on ala, jossa Suomella on kansainvälisesti arvostettua erityisosaamista. Kehitysyhteistyöhankkeet on toteutettu julkisen ja yksityisen sektorin yhteistyönä. Projektit ovat onnistuneet kapasiteetin kehittämisessä, mutta vaikutusten ylläpito on ollut keskeinen haaste yhteistyöhankkeiden päättymisen jälkeen.

Tutkimusaineisto koostuu haastatteluista Ilmatieteen laitoksen, Vaisalan, Ulkoasiainministeriön ja 8 eri avunsaajamaan asiantuntijoiden kanssa (n=56). Näiden lisäksi on käytetty arkistomateriaaleja sekä politiikkadokumentteja. Menetelmänä on tapaustutkimus ja perinteinen sisällönanalyysi. Tarkoituksena on selvittää mitkä tekijät vaikuttavat avun kestävyysongelmaan.

Teoreettinen viitekehys rakentuu eri osista: governmentality käsitteestä (Foucault) ja siihen pohjautuvasta analytics of government teoriasta (Dean), kolmesta eri valtateoriasta (Lukes, Clegg ja French & Raven) sekä erilaisista lähestymistavoista avunantajien toimintaan ruohonjuuritasolla. Historiallisessa analyysissä esitellään meteorologisen avun eri vaiheita ja haasteita, peilaten niitä suomalaisen kehitysavun vaiheisiin 1960-luvun lopulta 2010-luvulle asti.

Asiantuntijoiden kokemukset hankkeista muodostavat tärkeän pohjan tutkimukselle. Politiikka-analyysi osoittaa että projektit ovat olleet hyvin linjassa kehityspolitiikan kanssa 2000-luvulle asti, jonka jälkeen on ilmennyt enemmän haasteita. Ministeriö ei osallistu aktiivisesti hankkeiden käytännön toteutukseen, mahdollistaen sen että meteorologian asiantuntijat voivat ohjata projekteja haluamaansa suuntaan. Yhteistyö sektorilla on keskittynyt enemmän teknologiaan kuin meteorologian yhteiskunnallisiin ulottuvuuksiin. Monet meteorologian asiantuntijoista ovat omaksuneet ei-poliittisen lähestymistavan, joka heikentää projektien yhteyttä kehitystavoitteisiin ja paikalliseen yhteiskuntaan. Yksityisen sektorin asiantuntijoiden tulee sen sijaan toimia aktiivisessa yhteistyössä poliitikkojen kanssa, koska vain heillä on päätäntävaltaa laitehankintojen suhteen.

Analyysi osoittaa että apujärjestelmässä päätökset tulevat yläpuolelta, byrokratia on raskasta ja kontrolli on tiukkaa. Joustavuuden ja luottamuksen puute heikentää hankkeiden vaikuttavuutta. Toimijavertailussa tuodaan esille eroja lähestymistavoissa Ilmatieteen laitoksen, Vaisalan ja Ulkoasianministeriön asiantuntijoiden kesken. Valta-analyysi osoittaa miten ministeriöön on keskittynyt merkittävin valta, kun taas Ilmatieteen laitos ja Vaisala voivat käyttää valtaa, joka tulee heidän organisaatioiden roolin mukana. Avunsaajamailla sen sijaan ei ole tärkeitä vallankäytön muotoja saatavilla, silti heidän oletetaan ylläpitävän projektien saavutuksia yhteistyön päättymisen jälkeen. Lisäksi projekteissa toteutuu erilaisia ”avunantajien ansoja”, jotka myös heikentävät vaikuttavuutta.

Jotta projektit saavuttaisivat kestäviä tuloksia, avunantajien tulisi luopua jossain määrin vallasta ja sitä kautta osin myös vastuullisuudesta. Tämä on liki mahdoton vaihtoehto, sillä molemmat ovat avunantajamaalle tärkeitä. Tutkimuksessa tuodaan esille, ettei ole yhtään sellaista toimijaa, jolla olisi sekä valtaa että motiivi tehdä muutoksia apujärjestelmän rakenteeseen. Tämä on merkittävä haaste tulevaisuuden kannalta sekä kehittyvien maiden aseman että apujärjestelmän uusiutumisen näkökulmista.

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Minna Mayer

CONTENTS

ABBREVIATIONS

ACMAD	African Centre for Meteorological Applications for Development
BPOA	Barbados Programme of Action
CAI	Central American Isthmus
CAP	Common Alerting Protocol
CD	capacity development
CDEMA	Caribbean Disaster Emergency Management Agency
CIMH	Caribbean Institute for Meteorology & Hydrology
CIMO	Commission for Instruments and Methods of Observation
CLICOM	climate computing
CRED	Centre for Research on the Epidemiology of Disasters
DAC	Development Assistance Committee
DRR	disaster risk reduction
DWD	Deutscher Wetterdienst
EM-DAT	Emergency Events Database
ENDA	Environment Development Action in the Third World
EPA	Extent of Power Analysis
EU	European Union
FGGE	First GARP Global Experiment
FIM	Finnish mark (currency of Finland before euro)
FINNIDA	Finnish International Development Agency
FMI	Finnish Meteorological Institute
FPPICS	Finnish Pacific Project for Increased Capacity of SPREP and PIC NMS Staff to Meet the Growing Demand for Meteorological and Climatological Information
FTC	Free-standing Technical Cooperation
GARP	Global Atmospheric Research Programme
GATE	Garp Atlantic Tropic Experiment
GDPFS	Global Data-Processing and Forecasting System
GOS	Global Observing System
GTS	Global Telecommunication System
ICI	Institutional Cooperation Instrument
ICSU	International Council of Scientific Unions
IDEAM	Instituto de Hidrologa, Meteorologa y Estudios Ambientales (Colombia)
IDNDR	International Decade for National Disaster Reduction
IFRC	International Federation of Red Cross and Red Crescent Societies
IMF	International Monetary Fund
IMO	International Meteorological Organization
IMC	International Meteorological Commission
INAM	Mozambique National Meteorological Institute
INAMHI	Instituto Nacional de Meteorologa e Hidrologa (Ecuador)
IRADe	Integrated Research for Action and Development
IRDPS	Integrated Rural Development Projects
KMD	Kenya Meteorological Department
LFA	Logical Framework Approach
LRRD	Linking of Relief to Rehabilitation and Development
MDGs	Millennium Development Goals
MFA	Ministry for Foreign Affairs (Finland)
MSP	multi-stakeholder process
NGO	non-governmental organization
NIEO	New International Economic Order
NMS	National Meteorological Services

NMHS	National Meteorological and Hydrological Services
NORSAD	Nordic SADC-Fund
NWS	National Weather Service (United States)
ODI	Overseas Development Institute
OECD	Organization for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
PPP	public-private partnership
PR	permanent representative
PRSP	Poverty Reduction Strategy Paper
RCCC	Red Cross / Red Crescent Climate Centre
RDMC	Regional Drought Monitoring Centre
SADC	Southern African Development Community
SADCC	South African Development Cooperation Conference
SATCC	Southern Africa Transport and Communication Commission
SIAC	Sistema De Informacion Para Colombia
SIDS	Small Island Developing States (Caribbean Region)
SHOCKS	Strengthening Hydro-Meteorological Operations and Services in the Caribbean
SMA	Sudan Meteorological Authority
SPREP	Secretariat of the Pacific Regional Environmental Programme
SSMD	South Sudan Meteorological Department
SWOT	strengths, weaknesses, opportunities, threats
TA	technical assistance
TEB	Tropical Experiment Board
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VAP	Voluntary Assistance Programme
VCP	Voluntary Cooperation Programme
WMD	weapon of mass destruction
WMO	World Meteorological Organization
WWW	World Weather Watch

1 INTRODUCTION

> The aim of Finland's bilateral development cooperation activities is to achieve sustainable, long-term effects by supporting developing countries to implement their own development. Development policy and development cooperation should be transparent and consistent. Partner countries should be the owners of their own development and everything related to it, and all methods and approaches should be democratic and participatory.
>
> -Ministry for Foreign Affairs (2013)

> We cannot solve problems until we change the way of thinking that led to these problems in the first place.
>
> -Albert Einstein

This study is about Finnish development cooperation in the field of meteorology. Aid in this field began in 1968, and since then it has become an interesting niche field of development cooperation, in which the complexities of aid are well reflected. Although Finland is a small donor in global comparison, in the field of meteorological aid, Finland is among most active and substantial contributors. More than a hundred countries have received aid from Finland in this field.

Fundamental issues in the field of development research include grand questions with global relevance. This study is no exception. This study sets out to explore the highly relevant issue of aid sustainability. Why do so many development cooperation projects achieve change in the short term, but fail to leave a permanent mark? Why does capacity typically lower after projects and cooperation finish? This path leads to an analysis regarding the structure of aid, power asymmetries between various stakeholders and patterns of donor behavior.

This dissertation explores the history and current practices of Finnish development cooperation in the field of meteorology from various perspectives, shedding light on the different phases, practices and influence of the projects. This study focuses especially on the structure of aid, the asymmetries of power and donor behavior in the context of development cooperation. The issues underlying the surface of cooperation are of key interest. The actors who are at the core of this study include the Finnish Meteorological Institute (FMI), Vaisala Corporation and the Finnish Ministry for Foreign Affairs (MFA) along with the National Meteorological and Hydrological Services (NMHSs) in the developing countries.

During the past nearly 50 years of cooperation in this field, Finland has had practices in this field in all continents. However, while Finland has managed to establish itself as a highly respected actor in the field of meteorology and has cooperated with many countries, the goal of achieving sustainable change at the recipient level has not been reached. In this thesis, I explore the reasons behind this, with the objective of finding better solutions for the future.

Through examining a combination of expert interviews (n=56), relevant historical project documentation and policy document data, this study presents the interesting history of Finnish meteorological aid with a focus on the complexities of meteorological aid in theory and practice. I analyze past and present practices on the level of policy, and aim to understand the daily challenges of experts in these projects. A more specific analysis is presented regarding aid structure, governance and the asymmetries of power. Overall, this study contributes to aid and development

cooperation research, especially technical aid in the context of high-technology in "low-tech" environments.

1.1 STATEMENT OF THE PROBLEM

> Politicians do not understand the role of the meteorological service, and they are not aware of how it may serve the society.
>
> -Meteorology expert

Developing meteorological services in developing countries is a complex process, no matter what the chosen perspective is. Projects include various donor and recipient side stakeholders, each with their own motives and incentives for action. Met-offices have their own dynamics and ways of working, which do not always benefit from external intervention. In terms of administration, in different countries, meteorological services are placed under different ministries, which influences their actions, role, societal prestige and available resources. For instance, a meteorological office placed under the Ministry of Defense has a different position than one under the Ministry for Environment. However, what is common, is that having better quality meteorological services benefit all of the actors in the society. Good and reliable weather data is relevant for weather forecasts and warnings, disaster prevention and mitigation, agriculture, safety of air travel, disease control, as well as climate research. Many developing countries still use manual systems for data collection, and there are still many relevant gaps in the observational network around the globe. Transferring from manual to automatic systems would enable access to faster and more reliable data, and bridging the gaps of the observational network would enhance the quality of weather forecasts and enable further understanding of weather phenomena and the development of forecasting methods. It is clear that the improvement of meteorological capacity in developing countries, where it is needed the most, is highly beneficial on a global level. However, things tend to become complicated when politics and economics are added to the equation, and even more so if we look beyond them, to the level of values, motives and incentives for each stakeholder involved with cooperation.

Nevertheless, like many other development cooperation projects, aid in the field of meteorology has struggled with various challenges. It is typical that the capacity decreases after projects end. In addition to the issue of sustainability, there are many factors, which influence the project outcomes that one is simply unable to change. Developing systems to support high technology in low technology environment is by definition quite a challenge. Donor and recipient countries often have a major gap in terms of the level of expertise. Meteorological offices in the poorest developing countries are often highly dependent on external support and assistance. They do not hold a strong societal position, which influences the availability of various financial, technical and human resources. Meteorologists often think that local politicians are not able to understand their societal role and relevance. Meteorological development cooperation projects in the past have been mainly focused on merely technical issues and not necessarily the societal and political aspects of weather, such as disaster preparedness, protection of human lives and property, local empowerment and grass-roots level participation.

The most developed met-offices are located in countries with a high general level of development. These are also countries where a high level of expertise is needed due to extreme variations in temperature, such as Finland and the United States. However, when it comes to the meteorological offices in developing countries, there

is a lot of variation in terms of the level of know-how and expertise, as well as needs. Some poor countries may still have a decent meteorological office, while its neighboring countries might have very poor met-offices. Poor capacity usually leads to even poorer performance, since not being able to function easily creates a negative cycle. The less you are able to perform, the less resources you are most likely given. Historical and political issues have a strong influence on the development of local capacity. For example, countries which had strong ties with the Soviet Union, have been able to develop a fairly good level of meteorological know-how through training programs and expert exchange. In addition, many countries with a colonial past had well-working meteorological offices during the colonial period. Unfortunately, much of the meteorological expertise left these countries as the colonies became independent. As the Soviet Union collapsed, much of the benefits of the cooperation disappeared over time. Currently, the capacity in many developing countries is actually worse than what it was in the past, making capacity development now and in the future even more important.

Poor public services in the field of meteorology have recently started to give way to increasing private sector practices. Many international companies, working for example in the agriculture sector, require reliable and daily up-to-date weather data. If those services are not locally available, companies either build their own systems or purchase the services from private sector weather services. The privatization of weather services is a controversial topic. Since weather is so closely connected to societal security issues, the traditional view is that weather services should always be public. However, in situations where the public services are not reliable and information is still needed, private sector services seem to provide the only viable short-term solution. Some argue that competition is the key to bring best practices forward.

Meteorological capacity is defined in this study as

> The ability of the local meteorological service to operate, function and provide services to the public in a sustainable manner, so that the local society is provided with up-to-date weather information and forecasts, and that the general public is aware of the current state of weather also when extreme meteorological phenomena and weather-related disasters are happening.

The ideal situation would naturally be that one day all countries would have a similar, great level of meteorological expertise and capacity. Technology would be internationally compatible and all data would be collected automatically. The current situation is far from this ideal. Most developing country met-offices still collect and analyze either all or part of their data manually. See Figure 1. for an example of manual weather forecasting maps taken from the fieldwork site in Barbados.

Figure 1. Manual weather forecasting maps at the Barbados Weather Service.

(Photo credit: Author, 2/2013)

1.1.1 THE MAIN STAKEHOLDERS

The main stakeholders of this cooperation include the Ministry for Foreign Affairs (MFA) as the project financer, the Finnish Meteorological Institute (FMI) as the main executor, Vaisala as the supplier of technology and the local National Meteorological and Hydrological Services (NMHSs, also referred to in this study as met-offices or meteorological offices) as recipients of aid. All organizations involved have their own goals for cooperation. The WMO and its Voluntary Assistance Program later known as the Voluntary Cooperation Program (VAP/VCP) is also briefly presented.

Ministry for Foreign Affairs (MFA) - The key functions of the MFA are foreign and security policy and other foreign matters with political significance. The operating and financial plans are based on the Government Program, the Strategy of the Ministry for Foreign Affairs, the Future Review of the administrative branch, and other policy documents prepared by the Government, as well as policy guidelines adopted by Parliament. The objectives concerning effectiveness and operational efficiency, which have been set for the administrative branch, guide the activities, the establishment of priorities and the allocation of resources. (Ministry for Foreign Affairs, 2014c) The Ministry for Foreign Affairs has three ministers: the Minister for Foreign Affairs, the Minister for Foreign Trade and Development and the Minister for Nordic Cooperation. The Ministry also has a Secretary of State, and Four Under-Secretaries of State, who are responsible for development cooperation and development policy, external economic relations, foreign and security policy, and internal and external services. The duties of the Ministry are currently divided into eight departments[1] (Ministry for Foreign Affairs, 2016d). In 2010, the Ministry

[1] The Political Department, the Department for External Economic Relations and Department for Development policy are responsible for policy coordination. Regional matters

employed 1 531 people (Ministry for Foreign Affairs, 2010: 8). The key functions of the Ministry are foreign and security policy, and other matters of political significance.

> The Ministry promotes Finland's commercial and economic interests, takes responsibility for development policy and development cooperation and participates in the management of globalization, develops international and EU law and human rights, and takes care of public diplomacy. (Ministry for Foreign Affairs, 2014a)

The role of MFA is essential in this study. The development policy and practices managed by the Ministry, currently and in the past, are presented in detail in the following chapters. Chapter five discusses the details of Finnish development policy history and Chapter six analyzes development policy. The role and perspectives of the Ministry employees are included in the analysis as well.

Finnish Meteorological Institute's (FMI) roots go all the way back to the year 1838. The first 24-hour weather observations began in 1844 and weather forecasts to the public were started in 1882. Weather information for the use of aviation was started in 1924, and the first weather forecast was broadcasted on TV in 1958. (Finnish Meteorological Institute, 2014f) The main objective of the FMI is to:

> Provide the Finnish nation with the best possible information about the atmosphere above and around Finland, to ensure public safety in relation to atmospheric and airborne hazards and to satisfy requirements for specialized meteorological products. (Finnish Meteorological Institute, 2014c)

Currently, the FMI employs about 640 persons. (Finnish Meteorological Institute, 2014c) FMI is also engaged in international research, and publishes about 300 scientific publications per annum (Finnish Meteorological Insitute, 2014a). The international practices of the institute include engaging in international cooperation.

> International co-operation is a natural part of the day-to-day operation of the Finnish Meteorological Institute. In addition to being a leading expert in several research areas, the FMI is also committed to help other countries, especially the developing world, in the development of their meteorological services. (Finnish Meteorological Institute, 2014b)

Vaisala is a company established by Professor Vilho Väisälä in 1936. Since then, it has grown into an internationally recognized company and a global leader in the field of meteorological equipment. Vaisala develops, manufactures and markets products and services to cater to the various measuring needs of the environmental sector and industries. It exports 96 percent of its products. Its main customers are meteorological institutes, meteorological research organizations, road and aviation authorities, defense forces, public organizations responsible for natural resources, insurance companies, as well as energy companies around the world. (Vaisala, 2014a)

> Vaisala is a global leader in environmental and industrial measurement. Building on 80 years of experience, Vaisala contributes to a better quality of life by providing a comprehensive range of innovative observation and

are handled by four departments, the Department for Europe, the Department for Russia, Eastern Europe and Central Asia, the Department for Americas and Asia, and the Department for Africa and the Middle East. The Department for Communication is the eight Department.

measurement products and services for chosen weather-related and industrial markets. (Vaisala 2016)

Vaisala is listed on the Nasdaq Helsinki stock exchange. At the end of 2015, its market value was 431.6 million euros. Vaisala employs 1 600 persons in Finland and abroad, of which 43 percent are based outside of Finland. (Vaisala, 2016) Vaisala provides services in over 150 countries, and it has international offices in for example Brazil, India, Malaysia and China. (Vaisala, 2014b)

Vaisala has acted in the meteorological development cooperation projects in the role of a supplier of equipment, and as such involvement with the development cooperation projects forms only a small part of its practices.

The Meteo-Technology website is the leading website on meteorological equipment and its sole purpose is to provide up-to-date information of companies providing meteorological instruments and equipment. In 2016, the website listed over 300 companies providing equipment and instruments for the use of meteorology. (Meteo-Technology, 2016) By 2002, Vaisala was producing about 70 percent of the radiosondes used globally (Dabbert et al., 2002)

World Meteorological Organization (WMO) is a specialized agency of the United Nations. It was established in 1950 with headquarters in Geneva and it became affiliated with the United Nations a year later. It replaced the International Meteorological Organization (IMO), which was established in 1873. The WMO aims at promoting international cooperation between the meteorological stations of the world, standardizing meteorological observations, encouraging research and training, extending the use of meteorological findings to different fields, and helping to protect life and property from weather-, climate-, and water-related disasters. Satellites, used to collect meteorological data and in communications, have made possible the rapid exchange of observations for forecasting in the WMO-sponsored World Weather Watch (WWW). The WMO operates through the World Meteorological Congress, which holds meetings every four years with delegates from all member countries. The WMO has an executive committee, eight technical commissions, a secretariat and six regional meteorological associations in Africa, Asia, South America, North and Central America, the South West Pacific and Europe. (Lagasse, 2013) The permanent representatives (PRs) of member countries are typically Directors of National Meteorological or Hydrometeorological Services, who act on technical matters for their governments between sessions of the Congress. The permanent representatives provide the regular channel of communication between the WMO and member states, and they maintain contacts with governmental or non-governmental authorities on matters concerning the work of the organization. Permanent representatives appoint, when appropriate, hydrological advisers representing respective National Hydrological Services or equivalent national agencies. (World Meteorological Organization, 2013a) Finland's past and present development cooperation initiatives have been channeled in part in coordination with the World Meteorological Organization. Currently, there are 185 member countries and six regional members in WMO. Out of the 185 member countries, 144 countries are labeled as developing nations[2] (IMF, 2012). Finland is a founding member, having joined in the early stages of the organization, since 1949. (World Meteorological Organization, 2014a)

As a member state, Finland pays an annual membership fee to the WMO. The annual fees are determined by the WMO and they vary from one member state to another. Poor countries pay less. In the late 1990s, the fees were between 1.2-1.3

[2] Using the IMF definition for a developing nation.

million Finnish marks (FIM), and in the 2000s between 200 000–300 000 euros. Finland joined the EU in 1995 and adopted the euro currency in 2002[3].

WMO's Voluntary Cooperation Programme (VCP) originally known as the Voluntary Assistance Programme (VAP) was set up in 1967. Its aim is to encourage support and collaboration between the National Meteorological and Hydrological Services (NMHSs). The VCP focuses on meeting the needs of the member states through either direct financing, and/or transfer of expertise and technology between the member countries. Since the program was started, it has been successful in providing significant support to mainly the least developed and developing countries. Its success is due largely to the willingness of WMO Members to share scientific knowledge and the latest technological advances. While the donor countries provide equipment, fellowships, expertise and financing, the recipient countries ensure their effective use by providing considerable counterpart contributions from national resources, such as local infrastructure, staffing and operational costs. The WMO is striving to expand this network by creating more linkages among NMHSs, bringing more members into the program and therefore strengthening the spirit of cooperation and friendship. (World Meteorological Organization, 2013b) Finland's participation in the VAP/VCP is analyzed in this study as a part of meteorological development cooperation practices.

This study includes aid recipient interviews with experts from eight different countries. Fieldwork for this study was done in Barbados, where the Caribbean Institute for Meteorology and Hydrology (CIMH) is located. Other countries included are Sudan, South Sudan, Malawi, Zambia, Ecuador, Colombia and Thailand. The institutes located in these countries are briefly presented in chapter seven where the perspectives of recipient-side experts are discussed.

1.1.2 POLITICAL PROCESSES RELEVANT FOR METEOROLOGY

Meteorology is directly linked with environmental issues, which were brought to discussion in the field of development during the 1980s. The Vienna Convention of 1985[4] and the Montreal protocol of 1987[5] raised awareness for environmental issues. The Resolution 43/53 of the General Assembly of the United Nations stressed the importance of protecting the atmosphere, the Rio UNCED meeting in 1992 (also known as the Earth Summit), along with its product the Agenda 21[6] and international conventions on desertification and drought and on climate have stressed the importance of restoring the atmosphere. The importance of maintaining and developing worldwide observation, monitoring and the synoptic data transfer network has also been included in these discussions. (Niemelä et al., 1999:103)

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[3] One euro = 5.9 FIM

[4] The Vienna Convention for the Protection of the Ozone Layer is a Multilateral Environmental Agreement which came into force in 1988. It provides a framework for international efforts to protect the ozone layer, and is one of the most successful treaties of all time, as it has been signed by 197 states.

[5] The Montreal Protocol on Substances that Deplete the Ozone Layer is an international treaty to protect the ozone layer through banning ozone depletion causing substances. It came into force in 1989. As a result, the ozone hole in Antarctica has started slow recovery. The treaty has been used as an example of one of the most successful international treaties.

[6] Agenda 21 is a non-binding voluntarily implemented action plan of the United Nations regarding sustainable development.

Currently, Finland's development policy includes three cross-cutting objectives for development cooperation: promotion of gender equality, reduction of inequality and promotion of climate sustainability (Ministry for Foreign Affairs, 2012). The cross-cutting objectives are promoted by including the objectives in all activities, by implementing projects targeted particularly at these objectives, and through policy dialogue with decision-makers. Regarding the third objective, it is stated that:

> The impacts of climate change are felt the most severely in the poorest developing countries. The human and economic losses caused by natural disasters are a major obstacle to development. Finland supports measures that strengthen the capacity of partner countries to prepare for catastrophes and reduce vulnerability to natural disasters. (Ministry for Foreign Affairs, 2015c)

Additionally, in September 2015 as part of the post-2015 process, the UN Sustainable Development Summit adopted the Sustainable Development Goals (SDGs). The goal of the 17 SDGs is to steer the promotion of sustainable development until 2030. Many of the SGDs include goals, which are relevant for meteorological institutes, especially (SDG 13) "Take urgent action to combat climate change and its impacts" (Ministry for Foreign Affairs, 2015d).

1.1.3 THE SCOPE OF THE STUDY

The scope of this study includes Finnish meteorological development cooperation projects during 1968–2015. Relevant historical events occurring in the field before these projects were started are also briefly presented and analyzed, as they provide insight into the meaning of these projects and Finland's role in the history of meteorological cooperation. Projects are contextualized in the wider context of Finnish development cooperation and development policy. As I move forward in history from the earliest stages to the current projects, the political significance of the practices and the field of meteorology is discussed and thoroughly examined. The relevance of meteorology for power politics, war technology and civil protection is very strong, and over time it has become even more complex[7]. Another important, related issue is the interaction between the public and private sector, which is further complicated by the political relevance of the field. Cooperation between public and private sector actors in this field has grown more problematic over time as the globalization of markets has increased the number of relevant actors in the field. Public and private sector actors are dependent on each other, but their practices are based on very different values and ideologies. The number of private companies in the field of meteorology has grown significantly during the history of development cooperation and this has influenced how cooperation is viewed from outside. In practice and in the context of this study, the tight relationship between public and private sector actors creates challenges, as many experts have worked for both private and public sector organizations. Public and private sector actors cooperate despite different incentives for action and goals. Many experts have discussed being

[7] After forecasting methods were developed and technology became available, meteorological equipment and weather forecasting have played a strategic role in most wars. Weather forecasting had a relevant role already in World War II, but also in the post-war scientific and technology race after it, which only increased the urgency of understanding "weather" more profoundly. The United States and the Soviet Union competed with experimental weather satellites, and in a way the development of scientific meteorology opened a Pandora's Box. Complex issues were to be tackled before basic functions and dynamics could be understood. (Michelsen 2006:85)

internally confused over means and goals. As a result of bureaucracy and structural limitations of aid, practices are often slow, and fairly low in impact and efficiency.

A typical Finnish meteorological development cooperation project is executed by the Finnish Meteorological Institute (FMI) and financed through the Ministry for Foreign Affairs (MFA). Vaisala, an international company focused on the production of meteorological equipment, is usually in a role of supplier of technical equipment. Since projects have a strong technical focus, Vaisala's role is important. The Finnish Consulting Group (FCG) also has a role, as the Ministry has outsourced to them the management of the Institutional Cooperation Instrument, ICI-instrument. Many of the recent meteorology projects have utilized the ICI-instrument, which has been in use since 2008. Finland has acted in this field in active cooperation with the World Meteorological Organization (WMO). The WMO is the main channel used for international influence and cooperation in the field of meteorology by most countries in the world.

The year 1968 marks the official starting point of Finnish meteorological development cooperation. Development aid in this field began in cooperation with the WMO, first through its Voluntary Assistance Programme (VAP), later known as the Voluntary Cooperation Programme (VCP). Since then, Finnish cooperation has grown into various regional, bilateral and multilateral projects. Currently, Finland is among the leading countries doing development cooperation in the field of meteorology, along with the United States, the United Kingdom and France.

1.2 THE PERVASIVE QUESTIONS CONCERNING DEVELOPMENT AID

Official Development Assistance (ODA), allocated since the end of the Second World War, has been aimed at relieving the situation of those in need. Since its beginning, development cooperation has evolved into its own industry, into a developmentalist complex, where money and funds are moved in a top-down manner, and where its various effects can be observed bottom-up (Koponen and Seppänen, 2016). Research on development has been focused on understanding the complexities regarding the development of societies and solving problems relating to these problems. The actors involved with this work in practice, such as governmental stakeholders, multilateral organizations and NGOs, have each participated in this work, each with their own motives and incentives that have undeniably influenced cooperation. Helping those in need has not been done without some expectations of reciprocity. Various instrumental motives have inspired aid-giving. The development aid system also has some hierarchy built directly into the system. Not all actors are equal in terms of their influence and getting their voices heard. Relevant asymmetries exist in terms of power as well as knowledge.

Throughout the history of development cooperation, practices have been modelled after various ideals, which changed as time has passed and lessons have been learnt from past mistakes. Recently, during the 2000s, the importance of local ownership has been emphasized. Projects have been aimed at creating sustainable change in partner countries and other aspects of effectiveness have also been brought to the focus of cooperation projects. The concerns for the effectiveness and sustainability of aid are related to the responsible use of public funds. The practices and achievements of development aid are under constant public scrutiny.

1.2.1 THE ASPIRATIONS IN DEVELOPMENT POLICIES: AID EFFECTIVENESS, OWNERSHIP AND SUSTAINABILITY

Aid effectiveness is being driven globally by the Global Partnerships for Effective Development Cooperation, which was launched in Busan in 2011[8], where the development community convened to discuss and agree on the principles on how to deliver effective assistance to developing countries. The outcome of Busan introduced important shifts in the "aid effectiveness" framework, the contours of which had been defined at the previous High Level Forum on Aid Effectiveness in Paris (2005) and were reaffirmed in the Accra Forum (2008). Busan made space for more inclusive partnerships in international development, for example by highlighting the role of South-South cooperation and non-governmental actors. The shared principles included country ownership (developing countries lead the process of setting the priorities for partnerships), development results (with focus on the lasting impact of investments and efforts in reducing poverty, inequality and sustainable development, as well as improving the capacity of developing countries to tackle these issues), inclusive partnerships (with partnerships based on openness, trust, mutual respect and learning) and transparency and accountability (ensuring that this applies not only within the partnership but also in relation to the intended beneficiaries of development processes). (Russo et al., 2013:4)

Country ownership is central to aid effectiveness. "Partnerships for development can only succeed in they are led by developing countries". Nevertheless, there are worrying signs that in practice, these efforts for ownership have not been progressing and in some cases, they have even been moving backwards. The majority of European donors have not produced a Busan implementation strategy. (Bond and UK Aid Network, 2016:2) Country ownership means that developing countries lead their own development, including the vision, strategy, implementation and where necessary, the capacity building to enable this. Country ownership is essential for aid effectiveness for at least four reasons. Firstly, developing countries themselves prioritize it (they want to have autonomy over their own future). Secondly, ownership is value for money (micromanaging projects from the donor country often leads to more costly outcomes). Thirdly, studies show that ownership delivers results[9]. And finally, studies also show that ownership improves accountability (country ownership promotes accountability to citizens while donors driving development undermines it) (Bond and UK Aid Network, 2016:3).

Aid Sustainability

> Sustainability is the ultimate goal of all development aid and is the ability of host country entities to continue to apply new and evolving capacities and sustain achievements through providing reliable resources generated from a country's own efforts. (Malmqvist, 2000)

Aid effectiveness and sustainability issues tend to go hand in hand. Sustainability is this study refers primarily to the definition above. Additionally, sustainability can also refer to its use in the context of the sustainable development of the environment, defined as development that meets the needs of the present, while safeguarding the

[8] The Busan Partnership for Effective Development Cooperation (2011), the 4th high level forum on aid effectiveness, Busan, Republic of Korea, 29 November to 1 December 2011.

[9] See for example Kharas et al. (2011).

Earth's life-support systems, on which the welfare of current and future generations depend (Huge et al., 2015:5736).

Aid sustainability is a serious issue and it is important to acknowledge that low quality project design or poor donor behavior lowers sustainability. Clemens et al. (2004) have argued that development aid projects would have to last at least five years, in order to be able to provide sustainable outcomes. Additionally, vulnerable populations, ones on the receiving end of aid, suffer from inconsistent donor behavior. Needs of the recipients change, and for that reason there are benefits from a system that allows flexible, yet predictable practices. (Clemens et al. 2004)

The sustainability of aid came up in the research interviews early on and it became evident from the content of the archive materials as well that this issue is a central concern for many involved. However, there were other reasons as well. Primarily, aid sustainability reveals many important issues about the aid system in general. If aid sustainability is low, meaning that the influence of the projects lowers or disappears after active cooperation ends, it means that there is something wrong with the system and how things have been done in practice. Money and time is wasted. It also may be an indication that secondary motives are driving aid (primary motives being those aimed at helping those in need), which is an interesting topic to explore, especially in a sector where private and public sector actors cooperate. Additionally, low sustainability is interlinked with the larger question regarding the existence of the aid system overall and whose benefits the system is serving.

Another reason for placing the sustainability aspect in central focus, is the fact that meteorological aid revolves around technology. This type of aid is more easily disconnected from the society because there are no natural links between the project and the local people, other than those working in the meteorological organizations. There is no need to undermine the importance of the technical equipment, but the ways this technology is used to benefit the local society, is something that needs attention. In development cooperation, it is always important that there is a link between practices and poverty reduction, for example. Moreover, the clearer that link is the better from the point of view of aid efficiency.

Furthermore, one additional reason for focusing on the sustainability aspect is that this is a problem shared by many other aid projects, not just those in the field of meteorology, or ones focused on technology. Because meteorology is a non-typical and small sector of aid, it was important that the overall focus of this thesis is something that resonates with other areas of development. Then, the results of this study are possibly beneficial for a larger group of people.

1.2.2 DEVELOPMENT AS TECHNICAL BLUEPRINTS OR POLITICAL NEGOTIATION PROCESSES

Projects in the field of meteorology relate to a central dilemma in the context of development cooperation: the emphasis and conceptualization of development as either a process of creating technical blueprints or as one of political negotiation. Aid in the field of meteorology is highly interesting because it brings together experts with different backgrounds. Differences in education and training, as well as in the values of the organizations they work for, can be observed when experts work together in the same projects.

Development is a concept that is both theoretically and politically contested, and is inherently ambiguous and complex (Sumner and Tribe, 2008:9). Chambers (2004), defines it as simply "good change" (Chambers, 2004), while Sen defines it as "expanding the real freedoms that people enjoy" (Sen, 1999), and the first Human Development Report defined it as "a process of enlarging people's choices" (UNDP,

1990). The vision of the liberation of people and peoples, which was central in the early aid practices in the 1950s and 1960s, has been replaced by a vision of economic liberalization. The goal of structural transformation has been replaced with the goal of spatial integration. (Gore, 2000 in Sumner and Tribe, 2008:9). One of the main confusions regarding aid is between development as immanent and unintentional process compared to development as intentional activity, as argued by Cowen and Shenton (1996), who have written about the invention of development. They examined the confusion that exists in the intention to develop, the process of development and the positive or constructive and negative or destructive dimensions of development. Incidentally, they argue that the modern intention to develop hold the destructive dimensions of development as a starting point. (Cowen and Shenton, 1996:ix)

The interconnectedness of development and politics is naturally high, but there are different aspects to the importance of this relationship, as is shown in this study. Unsworth states that "development is essentially a locally driven political process" and that if external players are going to be effective in influencing how that process takes place, they have to understand it and look for ways to engage with it (Capacity4dev.eu, 2011). However, it has been shown that important political processes do not play as relevant a role in practice as they perhaps should.

Ferguson presented a Foucauldian critique of the development apparatus in his well-known book Anti-Politics Machine (1994), where he discussed the non-economic functions that "development" serves, and argues that it is essentially an anti-politics machine, where political decisions regarding resource allocation are made to appear as "technical solutions to technical problems". He also found that development projects, which failed on their own terms, were redefined and "sold" as successful projects, and were later even used as models for new projects. (Ferguson, 1994). Li (2007a), analyzed interactions between different development actors in Indonesia, and showed how colonial and neo-colonial regimes have viewed the less powerful as backward, deficient and in need of improvement. She argued that by focusing merely on technical problems, the organizations involved with development did not recognize the structural conditions which had created the problems in the first place. The people responsible for the development programs did not recognize their own practices as potentially part of the problem of further marginalizing the local people. (Li, 2007a:123)

Three major models of development cooperation have been distinguished: the traditional (e.g. France, the United Kingdom), the socially responsible (e.g. Sweden, EU institutions) and the horizontal (e.g. China, Brazil). The traditional model is characterized by a long-term relationship at relatively high intensity. This model relates to the theory of development assistance. The traditional donors use aid as an instrument of their foreign policy and participate in for instance democracy building. The donors in the traditional model claim to be driven by a moral obligation based on the wrongdoings of the past, but at the same time make use of their superior position in negotiations. The socially responsible model is based on the assumption that aid should be given to the poorest countries with the profound purpose to lift them out of poverty. The horizontal model is based on partnerships and business relationships. No party is presumed to be ideologically weaker than the other ones; however, it also means that market forces influence the relation. This places the economically weaker party in a worse negotiation position. (Andrzejczak, 2014:188-189) It is clear that different donor countries have different aid policies, which are reflected in these models. However, in the context of this study, it is brought forward how different stakeholders acting within one country's aid system can also have different approaches, despite having a common policy guiding the practices. One argument brought forward in this study is how aid policy allows for different types of practices to exist within one system, even if and when they have contradictory goals.

1.2.3 THE QUESTION OF POWER IN DEVELOPMENT COOPERATION

Asymmetries in power and power relations have been a central theme in studies on development cooperation practices. It has however been argued that power has been somewhat neglected in the theoretical analysis of development cooperation and aid relations. Power inequalities have a significant impact on the achievement of poverty reduction goals, as argued by for example Mosse (2004). Power is best explored in the context of development cooperation with a multidisciplinary approach (Profant, 2013). Social sciences offer a variety of theoretical approaches to grasping the issue of power. In this study, power is explored through statements and practices, and analyzed with three separate yet complementing theories by French and Raven (1959), Lukes (1974, 2005) and Clegg (1989).

Mosse states that power can be either formal or informal. It can be domination from the top, or the exercise of power at the bottom. It can be seen as the power to do things or the power over things. Power may also be understood as political representations. The actor-oriented view of power sees it as a resource that individuals or groups want to maximize. (Mosse, 2004) Power plays a key role in all development aid and cooperation projects, as well as in the global relations between nations. Power can be defined as "the ability of human agency to exercise control over its social and physical environment" and power imbalances as “asymmetrical relations of power among persons, institutions or states". Power imbalances in North-South relations reside in military and economy spheres as well as in knowledge. Imbalances in terms of economic power are embedded in the operation of global markets and in the ownership and governance of international institutions. Imbalances in terms of knowledge can be conceptualized both as a set of epistemic and ideological systems, with "international" (Northern) knowledge at the top and "local" (Southern) knowledge at the bottom. The dominance of Northern actors is derived from their enormous resources, the North’s role as international centers of intellectual innovation, their close ties with funding agencies and from the intellectual socialization of Southern decision-makers. (Girvan 2016:2)

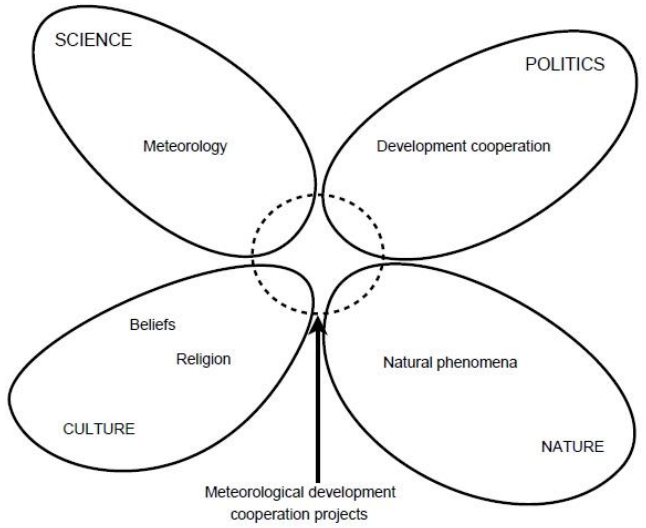
In the context of this study, various power theories are used to formulate an Extent of Power Analysis (EPA) model, where the availability and forms of power for each stakeholder are analyzed. This model offers a way to approach power in a concrete manner. The results of the analysis show that there are great differences between the various stakeholders, which in turn influence the outcomes of projects.

1.3 METEOROLOGY PROJECTS AT THE CROSSROADS OF SOCIETAL CONTEXTS

As for contextualizing meteorological projects in the wider societal environment, meteorological development cooperation projects are thematically interlinked with interesting divides and juxtapositions. Latour (1999) argues that the most important divides in societies are those between science and politics, and nature and culture. Meteorological development cooperation "exists" in the center of these, see Figure 2. for an illustration. Development cooperation in the field of meteorology has a strong scientific basis in physics, but its phenomena have vast political importance as well. Meteorology also has a significant cultural dimension, and different cultures have different interpretations for various weather phenomena. Weather is generally considered one of the most non-political topics in the world, but when the systems and practices related to it are analyzed more closely, it is revealed that many of them actually have significant political relevance.

Guston (2000), states that the relationship between politics and science has been acknowledged as a collaboration among the "ignorant" and the "expert", and that this relationship has been complex since the very beginning. The relationship between politics and science has been analyzed by using for example the principal-agent theory. The principal-agent theory applied in this context means that the government is the principal, who requests the agent, scientific experts in this case, to perform certain tasks, because the principal is not able to perform them directly. The agent then performs the task, out of self-interest, but with benefits to both parties. (Guston, 2000:14-15)

Figure 2. Meteorological development cooperation projects in a wider societal context.



This is mainly the case also in the meteorology projects. The government has "outsourced" the projects to the Finnish Meteorological Institute, who has vast expertise in the field of meteorology. It performs the task with benefits to both, yet in the end something is perhaps missing. The part that is missing could be characterized as a common goal or shared objective, which are not essentially the same for the involved stakeholders. As is known, science is based on data and politics is based on values. In the case of climate change for example, scientific data and policies are not directly aligned. Politics is perhaps always an outcome of a compromise, and science aims to be objective and free of values. This is one central conflict, which influences the outcomes of meteorological projects, which are mainly operated by scientists, but overseen and controlled by politicians.

The second central divide, that between culture and nature, is also interesting. This divide refers to the theoretical foundation of contemporary anthropology, where theoretical insight has been sought from the perceived tensions between culture as a social entity and nature as a bio-physical entity. (World Heritage Encyclopedia, 2016) The central question has been whether the two entities have a continuous biotic relationship or whether they function separately from each other (Greenwood and Stini, 1977). The dichotomy exists in Western societies, but not always in non-western societies. In the context development cooperation, this becomes important. It has been argued that smaller-scale societies have more of a symbiotic relationship with nature. The concept of indigenous knowledge is also relevant. It can be defined as accumulated experience, expertise and wisdom, which are unique to the cultures, communities and societies of people who live in an intimate relationship with their surrounding environment. Bakari (2014) has studied the contemporary society-environment relationship and noted that the rise of modern capitalism is the main

cause of human society's alienation from nature, which has led to a disturbed society-environment relationship. (Bakari, 2014:126)

Sayer (1992) argues that different types of knowledge are appropriate to different functions and context; for example engineering for molding nature according to our design, and ethics for the harmonization of conduct of people in a given society. These different contexts are not mutually exclusive but overlapping. Sayer argues that the scientific practice embraces several types of knowledge, also those that are generally excluded as non-science or even anti-science. (Sayer, 1992:17)

Different types of knowledge are highly important for this study, because meteorology projects bring together experts representing various types of knowledge organizations, which in turn represent different knowledge systems. Separate knowledge systems exist for the communities of development cooperation, meteorology and the private sector. They are strong communities in the sense that all of these systems have managed to establish their own practices and ways of operating, which have been deeply rooted in the minds of the individuals working for these organizations. This becomes clear in this study, as experts within the same organizations shown to have fairly coherent perspectives, values and motives for action.

Complexity adaptive systems research has focused on complex systems. Complex systems consist of many parts, which act and react based on each other's behavior. For instance, nation-states within the international politics environment can be described in these terms. They are highly dynamic and develop through an evolutionary process. The self-organization theory has been used to tackle one of the main themes of complexity theory, namely how differentiated components work together and how differentiated components become integrated into a coherently functioning organization without centralized coordination. Focus can be put on for example how agents synchronize their behavior, with the result being a process of self-organization as patterns of organization emerge from the bottom up. Researchers can try to model complex adaptive systems by capturing local rules and using computational tools such as agent-based modeling to simulate how their interactions and evolutionary forces shape their systems. (Complexity Academy, 2016) Drawing on complexity theory, Jervis has argued that many social science theories, especially those in political science, are faulty. Using complexity theory as a point of departure, Jervis argues that we live in an interconnected world, where unintended consequences of our actions are unavoidable and unpredictable. The total effect of behavior is not equal to the sum of individual actions. Jervis highlights the interconnectedness of the political world and argues that history portrays numerous examples of unintended consequences, one bundle of such, which eventually led to World War I. Jervis has examined the various types of positive and negative feedback, bargaining in different types of relationships and the polarizing effects in these relationships. He has explored how political actors modify their behavior in anticipation of system effects and how a systemic theory of political behavior might account for the role of anticipation and strategy in political action. (Jervis, 1999)

Complexity theory can be applied as a general research framework. For example, Proches and Bodhanya (2015) have explored stakeholder interaction through the lens of complexity theory in the context of the sugar industry. Their aim was to identify challenges in multi-stakeholder relationships and provide recommendations how to manage complexity within these complex systems. In many ways, their research set-up was similar compared to this study. The sugar industry is composed of diverse stakeholders who pursue various objectives, and complexity arises from these multiple interactions. They applied complexity theory to analyze stakeholder relationships in a mill area in the sugar industry, and used semi-structure interviews with various stakeholder groups. They found that the relationships are characterized by a lack of trust, control and bureaucracy. Their findings emphasized the importance

of high information flow, low power distance and low control in the face of increasing uncertainty and difficult operating conditions in a multi-stakeholder systems. Results spoke for a dire need for cooperation and collective culture to achieve competitive edge. (Proches and Bodhanya, 2015)

By applying complexity theory as a theoretical framework for the research set-up, this study observes the complex relationship between the different knowledge systems represented by the Ministry, the FMI and Vaisala as well as aid recipients. These relationships include important juxtapositions between scientists and politicians, public and private sector actors as well as nature and culture. Meteorological development cooperation has been mainly done in the form of technical assistance (TA). TA started out as a promising approach to capacity development, but slowly it has become recognized that perhaps it is not the most productive option. Projects have been expert-led, and the challenge of poor meteorological capacity has been understood merely as a problem of "lacking equipment". The ways in which the problem is framed and conceptualized naturally has an influence on the proposed solutions. The issues and challenges in this field have been framed differently during different times, and the interactions between the different systems have varied as well. The reasons behind poor capacity have been framed as more technical than societal or political. Considering the divides between science and politics, the public and private sector, and nature and culture, one observation is that these projects have emphasized the role of technology and give less attention to political and cultural aspects. International competition between donors, and the power struggles and commercial interests of the various stakeholders involved, muddy the waters even more. There are challenges in accurately defining the problems, which causes the proposed solutions to be ill fitting to address low-level capacity.

1.4 METEOROLOGY PROJECTS AS A PART OF FINNISH DEVELOPMENT COOPERATION AND AID

Cooperation in the field of meteorology has been a part of Finnish aid for nearly half a century, officially starting in 1968. Overall, aid in this field is small-scale in terms of financial allocations, when compared to the total ODA allocations of Finland. Meteorology projects have not been large in terms of their total budget, but highly interesting in terms of the dynamics between different stakeholders and the fact that these projects have spread to so many countries. Much can be learned from the complexities of aid by studying these projects.

Previous research on the field of meteorological development cooperation is very limited. No previous academic research into the projects in question here has been done. Information regarding Finnish practices in this field is mainly available in project evaluation documents. These include an evaluation of the World Weather Watch program published in 1992, the Thematic Evaluation on Environment and Development in Finnish Development Co-operation report published in 1999, Report on the role of natural disasters, climate change and poverty in 2009 and an ICI-instrument evaluation published in 2014. The evaluations bring forward various good and challenging qualities of the meteorology projects. This study focuses on exploring the reasons behind these issues.

Finland's cooperation with the WMO in the World Weather Watch (WWW) Program was a project that reflected some of the typical challenges of these projects. Finland, among other donors, has financed this program for many years. One part of this cooperation was a support program for the WWW atmosphere radar system, which was evaluated by international experts in 1991–1992. The evaluation was based

on the following criteria: the established weather station had been in use for at least five years, they do at least one measurement per day, and that the data is freely available for use in the national weather service of that country, but also in the international weather watch network. The results, published in March 1992, showed that only 20 percent of the stations had been in use for more than ten years, 44 percent for more than five years, and 80 percent for more than two years. Only one-third of the stations were still in use at the time of the evaluation. The report emphasizes how difficult it is to maintain these operations in a developing country context. Furthermore, the stations operate in hazardous geographical areas, such as deserts, or areas where storms and floods occur frequently. The report showed that the training for the station operators had been sufficient, the equipment was overall reliable and that the practices of these stations were useful for the different end-users of the data. The end-user sectors include for example, aviation, food production and agriculture in general as well as the production of drought warnings and climate change monitoring. Problems were experienced with purchasing equipment (with foreign currency), slowness with telecommunication and maintenance. The evaluation also criticized the WMO for not analyzing local capacities adequately enough in developing nations prior to execution, and that there were also challenges in systematic project follow-up procedures. The report suggests that in the future the local infrastructural, operational and human resources should be investigated in detail. In addition, implementation and follow-up should be coordinated in cooperation with local national weather services. (Sågbom, 1995:6)

The Thematic Evaluation on Environment and Development in Finnish Development Co-operation report, published in 1999, states that meteorology is directly recognized in a number of International Conventions, especially the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD). In addition, FINNIDA meteorology projects are stated to provide the recipient countries assistance in regards to all areas required by the international conventions relevant to meteorology. Project achievements included helping target countries to prepare their own national laws and to combat environmental threats. Negative findings in regards to policy included the fact that meteorology at the time was not fully recognized in the environmental and development priorities of all countries. In addition, despite the important contributions of NHMSs in environmental issues, they still do not possess a leading role. (Niemelä et al., 1999:9-10)

The thematic evaluation focused mainly on two regional projects implemented by Finland during the late 1980s and the 1990s. The first was a project is Southern Africa (SADC), including nine recipient countries and the second was a project in the Central American Isthmus (CAI), including seven recipient countries. The objective of the SADC and CAI projects was to strengthen the national meteorological services in the region to ensure that weather services operate at the highest level possible to meet local needs.

Projects in both regions helped in combating environmental problems as required by international conventions. The development and immediate objectives and expected results were strategically clear. Regarding the issues of environment and development in the regional projects, it was found that the linkage between meteorological development and sustainable development was very strong. The project practices proved to act as a spin-off for further and faster development, and from that perspective, the projects were successful. Regarding the planning of met-projects, it was concluded that the projects were closely related to WMO programs and coordinated well with the WMO, so that development in both regions was in line with World Weather Watch activities. Many aspects of the success of the projects were found to be connected with the ability of the FMI and the WMO to involve NMHSs in various WMO programs. Regarding implementation, it was concluded that the

coordination of projects with other related projects implemented by other donor agencies was done well and overlapping was avoided. Overall, these first big meteorology projects done by Finland were concluded to have made substantial contributions to the development of the core of well-trained scientific and technical experts, in various specialized areas of meteorology. In the SADC region, projects made a significant improvement to the performance of local met-offices in terms of disaster management and early warning units for floods and droughts. The projects also succeeded in enhancing national observation networks and communication systems by improving the quantity of both real-time and non-real time data. Data processing systems also improved, as well as the capability to digitize data and develop user-oriented products. Regional activities had gained great benefits from increased data quality and availability. Government recognition and support to the NMHSs had also increased. The project coordination received praise for taking remedial actions after problems had been identified, and all parties made an effort to identify potential risks and undertook actions to solve any encountered problems. (Niemelä et al., 1999:10-16)

The challenges and negative findings included several issues. Finnish development cooperation projects had different levels of achievements in different target countries. Both the SADC and the CAI regional programs were executed at a time when some of the target countries were fragile in terms of stability and internal strife. The negative issues included an improper distribution of responsibilities and a lack of measurable indicators relating to the objectives and expected outcomes of the projects. There were too many parties involved in the implementation process and as experts were distributed within the region, implementation was very complex. The projects did not include time targets, and they were overall very general, and did not relate to any of the major development problems of the countries. The objectives also lacked performance indicators, which hinders evaluation and enables false findings. None of the parties had evaluated the sustainability of the project results after completion, and there was no feedback to the donor at this point. The achievements of the projects were activity-oriented. They did not show the ability of the local met-offices to satisfy user needs with user-tailored products and services. The maintenance of the observation network continued to be a problem in many countries due to a lack of national resources, and projects did not manage to change that. Aid recipients were still far from self-sustainability, and differences between countries were substantial. Project failures included having too ambitious objectives and outputs and a lack of well-trained workers at the management level. Budgets did not correlate with the objectives and outputs. The legal aspects were not taken into consideration well enough, relating to for instance setting-up of regional facilities and in the case of the SADC project, the sudden termination of the project. The local met-offices did not manage to develop direct links to the user communities. The project impacts were seen in the meteorological offices, but not in the local communities, and for this reason, the target groups and beneficiaries had remained more or less anonymous. All of the target countries still needed some kind of external assistance at the time of the publication of the report. (Niemelä et al., 1999:10-16)

Of the two more recent evaluations, one included the role of natural disasters, climate change and poverty (2009) and the other the Institutional Cooperation Instrument (ICI) in 2014[10]. The FMI's combined ICI-budget has been 4.6 million euros, which was about 13 percent of the total funds allocated for ICI-projects. (Bäck et al., 2014:35) The ICI-instrument evaluation showed that cooperation between donors and recipients of aid should be equal. It was also stated that the greater political context should be taken into consideration more closely, and that there have

[10] Out of the total 59 ICI projects done during 2008–2012, with a total budget of 30 million euros, both the FMI and the Geological Survey of Finland have had 13 projects.

been problems with sharing of information and making it available to the public. There were also some challenges in project planning, reporting, monitoring and evaluation, and not enough information was available regarding the impact of the projects. In addition, the relatively small size and short time period of the projects means that not that much can even be anticipated in terms of long-term impact. (Bäck et al., 2014).

Some evaluations of meteorology projects have been included in separate country evaluations, where for example Finnish practices in Nepal have been evaluated as a whole. The first regional project done by Finland in the SADC region (1987–1993) has been internationally evaluated three times. Some additional, smaller reports have also been published by the FMI staff (regarding FMI practices in the field). These general reports have mainly been used for internal development purposes. One more specific program report by Sågbom was published in 1995, which discussed Finnish practices in the field during 1989–1994. This study is however the first social scientific study regarding Finnish meteorology projects, where the projects and practices are analyzed coherently.

Additionally, meta-evaluations of Finnish aid have brought forward some relevant aspects to be taken into consideration. In a meta-evaluation report published in 1991, it was concluded that the projects of the 1980s had serious deficiencies and problems. The projects were mainly led by Finnish instead of local experts, making local ownership weak. Reaching sustainability was mainly accidental, the efficiency of the projects was not evaluated and there were problems with estimating the long-term impact of the projects. Overall, the projects of the 1980s were good at achieving narrowly set short-term goals (often technical in nature), but there were problems with reaching long-term goals, which naturally relates to the sustainability problems of the projects. (Hirstiö-Snellman, 1991)

In another meta-evaluation published in 1996, the project evaluations from 1988–1995 were analyzed. The evaluation concluded that especially cultural and social issues should have been taken into better consideration. (Koponen and Mattila-Wiro, 1996) The third meta-evaluation, published in 2009, regarding evaluations done during 2007–2008 found that in general the quality of reports and projects was found to be at a good level, but somewhat uneven. I.e. there were clear accomplishments, but also clear needs for improvement. Sustainability, the impact of aid and follow-up procedures were found to need more attention. It was also concluded that the use of evaluations must be more efficient, so that both the Ministry as well as the public interested in development cooperation, can learn from the evaluations. (Williams and Seppänen, 2009)

Although over 15 years have passed since the publication of the evaluation of the SADC and CAI regional projects, the reported problems of these projects are still relevant today. The challenges mentioned in the more recent ICI-evaluation reflect the situation. The main issues of concern include sustainability and local ownership. In this study, the aim is to look behind these problems and discover the issues, which create these problems and discuss how to change things for the better.

The Characteristics of Finnish Aid

In global comparison, Finland is a small donor country. In 2015, Finland allocated 1.164 billion euros as aid, which translates to 0.56 percent of GNI. Out of the total ODA allocations, 624 million were allocated as bilateral and 540 million as multilateral aid, and 105.7 million as humanitarian aid. The ten largest recipient countries or regions in 2015 were Afghanistan, Tanzania, Mozambique, Nepal, Ethiopia, Kenya, Somalia, Zambia, Syria and the Palestinian Territory. (Ministry for Foreign Affairs, 2015d)

Koponen has defined three stages in the history of Finnish aid. The first is the stage of formation, from the beginning of Finnish aid[11] to the year 1972. The second is a period of national-realism, from 1972 to 1991. The third is the period of globalization, starting from the year 1991. (Koponen, 2005) Artto, on the other hand, has divided the history of Finnish aid in four parts. The years 1965–1978 formed a period of development optimism, but with only a small financial input. The years 1979–1991 were a period of extensive growth but a tug-of-war in terms of content. The years 1992–2005 constituted a time period of financial meltdown and quality improvement. Finally, the period starting in 2005 is the fifth decade of development cooperation, representing partnership, ownership and coherence. (Artto, 2005)

In Finland, development aid funding has been exceptionally dependent on the state of the national economy. Development cooperation funding has been the first to be cut during recessions. At first, Finland participated in development cooperation together with other Nordic countries, emphasizing its Western affiliations in contrast to the influence of the Soviet Union. Finland's aid allocations have been smaller than that of other Nordic donors. Commercial interests and the instrumental role of aid in promoting security have also played a role in Finnish aid practices. Finnish aid has been allocated to international development organizations, especially to the UN, and bilateral aid practices have been directed at the poorest countries, especially in southern Africa. It was not until the 1990s when Finland diverged from the Nordic context group and aid to Africa and other poorest countries decreased, and EU replaced the UN as the main channel for multilateral aid. At the end of the 1990s, China became the most significant aid recipient, showing how economic interests can bypass political deliberation. (Siitonen, 2005)

Finnish aid politics has been interpreted through the point of view of identity politics, as introduced by Siitonen (2005). The constructivist theory proposes that international norms not only limit and regulate the actions of countries, but may also give them goals. This happens through a dualistic process: international norms become a part of the national political discourse, where they may then be absorbed as a part of national identity politics. During the early stages of the Cold War, Finland did not receive Marshall aid, was left out of the OECD and was not engaged in early aid practices. Things changed when Finland started to take part in UN practices and began cooperating with other Nordic countries. This brought development aid into the national discourse and made it more familiar to the public as well. (Siitonen, 2005)

Koponen and Siitonen (2012), argue that the whole approach of Finnish aid has changed from its heyday in the late 1980s and early 1990s to the 2000s. The previous big projects, which maximized the use of Finnish resources, have been replaced by smaller projects, aimed at sustainability and aid effectiveness. Still, the transition from donor-driven aid to genuine partnership is more of an ideal than actual reality. Koponen and Siitonen argue that Finnish aid has been justified by a multitude of motives, and a belief in the compatibility of different interests. Finland has used its aid for various purposes, such as profiling itself as a Western nation and a member of the European Union, but also for supporting Finnish companies. (Koponen and Siitonen, 2012) Much of Finnish aid practices have been influenced by the geopolitical position of the country and the insecurities resulting from its at times ambivalent position between the East and the West (Hoebink and Stokke, 2012).

Finnish aid during 1995–2010 has been characterized by for example T. Savolainen (2016), who argues that during this time period it included elements, which originated from the earlier phases of Finnish cooperation, such as close ties with the UN and its organizations as channels of multilateral aid and as arenas of discussion regarding development policies. More recently, the World Bank and

[11] The first bilater project was done in 1965 in Tunisia. (Ministry for Foreign Affairs, 2016c)

regional development banks have become more relevant and are rising as an important equal to that of UN organizations. The EU has become an important context group and cooperating partner. The traditional sectors of Finnish aid are rural development, forestry, water and the environmental sector, healthcare and education. These central sectors have guided cooperation. Cabinets and individual ministers responsible for development aid have brought forward additional areas of focus. The biggest contribution of Prime Minister Lipponen's first cabinet (1995–1999) was to start to increase the amounts allocated to development cooperation after the severe cuts during the recession of the early 1990s. Lipponen's second cabinet (1999–2003) was responsible for initiating the sectoral and geographical focus areas of aid. During Vanhanen's cabinets I (2003–2007) and II (2007–2010), the focus areas of development cooperation included the strengthening of the private sector, increasing cooperation between trade and development, promoting sustainable development and the utilization of Finnish expertise. (T. Savolainen, 2016)

1.5 RESEARCH OBJECTIVES AND QUESTIONS

The objective of this research is to provide a full picture of the development cooperation projects done by Finland in the field of meteorology. Meteorology projects are contextualized as a case within Finnish aid. The aim is to present the practices of development cooperation, but also to look deeper into the projects and analyze the motivations, incentives and goals over the period from the late 1960s to the 2010s. I examine the various stakeholders involved; look into their roles and interaction, without forgetting the role of the recipient side as well. I present the projects in the wider context of Finnish development cooperation history, reflecting on how changes in policies have been seen in the projects, and how the structure of aid defines and influences aid practices. Previous academic research in related fields has focused on climate change, natural disasters, humanitarian aid efforts, and the role of natural disasters in global poverty. Quite surprisingly, the political aspects of these issues have been less explored.

In this study, development cooperation in the field of meteorology is thoroughly examined by first describing what kinds of projects have been done, where and when, then by presenting how the practices fit into the context of development policy of each time period. This is followed by a presentation of the perspectives and experiences of donor and recipient side experts from these projects and a discussion on the political aspects of cooperation and the experiences of experts with the politics of these practices. This is followed by the perspectives of stakeholders on the structural aspects of aid and an analysis on the dynamics between the stakeholder organizations, mainly regarding power asymmetries. Donor behavior is also analyzed. The study ends with a summary of the main findings and an analysis regarding the contribution of the projects to global poverty reduction — the general goal of development cooperation.

This study starts with the realization that the key challenge in meteorology projects is sustainability. How to ensure that the achievements of the projects are sustained after cooperation ends, so that the time, effort and financial resources put into the projects do not go to waste? This is a challenge shared by many development cooperation projects. To be able to solve this issue, the practices, challenges and opportunities must first be understood, in order to have an understanding of what is going in these projects overall. Then, it is important to look at the elements that contribute to the issues of sustainability, and how these projects fulfill the goals of Finnish development policy and the goal of poverty reduction.

Research Questions

This study sets out to explore meteorology projects from the "inside out". Special issues of interest are those elements of cooperation, which contribute to the challenge of sustainability shared by many fields of development cooperation. Understanding the various factors influencing this can help to frame and plan future development cooperation projects in a more productive manner.

The main research question addressed in this thesis is:

What have been the main practices, challenges, motives and incentives present in Finnish development cooperation projects in the field of meteorology, and which elements of cooperation have contributed to the challenge of sustainability?

Answering the main research question includes solving the following sub-questions outlined for each analysis chapter of this thesis:

- What have been the main phases, practices, challenges and opportunities of Finnish meteorological development cooperation projects? (Chapter 5)
- How effective have these projects been from the perspective of Finnish development policy goals and global poverty reduction as the overall goal of development cooperation? (Chapter 6)
- How different stakeholders perceive challenges in development practices in this field, and in what ways these perceptions relate to stakeholders' incentives, motives and values? (Chapter 7)
- What kinds of experiences have the experts had with the political aspects of cooperation? What types of political challenges are present in this field? (Chapter 8)
- What types of differences are there between the stakeholders in terms of conceptualizations and approaches overall? What role does power and the structure of the aid system play in cooperation? (Chapter 9)

The behavior of donor-side stakeholders are a focus of this study due to their relevance for overall project success. The analysis focuses not only on the behavior of donor-side experts, but also their differences regarding approach, values, motives and incentives. The theoretical analysis is focused on the availability and use of different types and forms of power for stakeholder organizations as well as recipients of aid. Additionally, the structure of aid is analyzed in more detail. It was chosen as a central theme because it defines most of what happens in these projects. The term "the structure of aid" refers here to the official practices of development cooperation projects. These are analyzed with the concept of governmentality, which provides insight into the mentality of governing development cooperation projects.

The data collected for this study includes interviews (n=56), project documentation collected from FMI and MFA archives and Finnish development policy documents. The chosen method is exploratory case study and the technique used is conventional content analysis. Finnish meteorological development cooperation projects are viewed as a case within the history of Finnish aid. The research methodology and methods are presented in more detail in Chapter three.

Although many aspects of donor stakeholder practices and the structure of aid are discussed separately, towards the end of the study, the interaction between the actors and the system are analyzed, which sets the path for the discussion on how to change the existing practices and outcomes of these projects for the better. Throughout the

thesis, I build on the argument that the structural aspects of aid limit the actual practices of aid, and the development of the aid system is prevented by practices created by the system itself. The bigger issue this study additionally contributes to is the question of incentives. Whose benefit is the system serving overall — those who receive aid or those who allocate it?

Regarding the relevance of this study, the analysis focuses on topics, which are relevant in the context of aid in the field of meteorology, but they are also important for development cooperation in general. In addition to the sustainability issue, these include topics such as the role of local ownership, the challenges with public-private partnerships in development cooperation and the motives of aid giving. Meteorology is a field where the public and private sectors work in close cooperation with each other, and while they share the interest in developing meteorological capacity globally, their approach, motives and practices are different. During a time like this when it has become clear that development aid alone cannot lift the Global South permanently out of poverty, the need for research into the relationship between the public and private sectors is needed more than ever.

This study brings forward new information on various, previously understudied topics. Since Finnish aid in the field of meteorology has spread to more than a hundred countries around the world (some of which are "untraditional" recipients of Finnish aid), these projects can be considered as "flagship" projects of Finnish aid, making their influence more significant than what the small budgets of the projects would otherwise indicate. The presence and role of Finland in the global arena of meteorology has also not been analyzed from the political perspective, which will be included in this study. Extensive research data into the experiences and perspectives of meteorology experts in the field of development cooperation will be presented. This study will contribute to the discourse on the structural aspects of aid as well as discussions on aid effectiveness. Analyzing the role of the private sector in development cooperation is also an important part of this thesis.

1.6 THE STRUCTURE OF THE THESIS

Chapter 2 presents the vast background for this study, including the societal, political and cultural aspects to weather and natural disasters. The chapter includes a short introduction to meteorology, a discussion on weather, humanitarian crises and aid and a separate section for climate change and its relevance for developing countries. The modern and traditional approaches to meteorology are also discussed, as well as the meaning of weather for individual countries and politics overall. The purpose of this chapter is to explain the wider context, which is relevant for development cooperation in the field of meteorology.

Chapter 3 presents the theoretical framework of the study. Complexity theory has inspired the approach of the study, and will be discussed first along with the actor-oriented approach. The chapter is divided in two main sections, with the first presenting the theoretical background and second examining the conceptual tools used in the analysis. The theoretical background includes arguments for and against aid and important issues within the field of Capacity Development (CD). The section "Conceptual tools" starts with a discussion on the concept of governmentality, while the second section presents various theories to power. The third section presents previous research into donor expert behavior in development cooperation. The purpose of this chapter is to explain the theoretical discussions and debates that this study contributes to and the theoretical concepts used in the analysis.

Chapter 4 presents the epistemology, research methodology and methods in more detail. This chapter begins with a discussion on the foundations of exploratory case study as a method and includes the research design, a description of the data collection process and issues to be considered when using semi-structured thematic interviews with experts and historical documents as data sources. The purpose of this chapter is to explain what methods have been chosen and the reasons for choosing those methods, and to describe how the study was executed.

Chapter 5 summarizes the history of Finnish meteorological development cooperation and contextualizes the events in the wider political context of each specific time period. The first section presents the period from the time prior to official projects to their early stages, from the 1930s to the 1970s. The second section discusses the enthusiastic 1980s with a focus on the ambitious regional programs in Southern Africa and Central America. The third section includes the impact of the recession on aid and the disappointing reality of the financial cuts development cooperation experts were faced with in the 1990s. The final two sections discuss the new rise of meteorology projects in the 2000s, introduce the new ICI-instrument and the various forms of cooperation in the 2010s. The purpose of this chapter is to present the main stages of meteorological development cooperation and how they can be contextualized in the overall history of Finnish aid.

Chapter 6 presents the content of the main Finnish development policy documents from the late 1960s to the mid-2010s and compares this content to the actual practices in meteorology projects. Practices in the field of meteorology are analyzed from the point of view of policy. The purpose of this chapter is to show how development policy and practice have interacted in the context of meteorology projects and how well policy has been implemented in practice.

Chapter 7 dives deeper into the practical aspects of the projects. This chapter presents the experiences, perspectives, values, motives and incentives of actors. Project challenges are presented throughout the project cycle – from the beginning of the projects to the end. Then, more detailed comparison of the perspectives of stakeholders is provided, starting with the experiences of experts in recipient organizations. The purpose of this chapter is show what kinds of experiences the experts have from the practical aspects of these projects and how their way of speaking about the projects reflect their values and motives as well as their incentives as actors in aid. Additionally, the aim is to explore how the experiences of the donors relate to the theoretical approaches to donor behavior.

Chapter 8 discusses the politics of meteorological development cooperation. This chapter starts with an overview of the perspectives of experts. The second section presents their experiences with the WMO. The third section discusses the politics of data, which is an important issue in the field of meteorology. The fourth section of this chapter discusses the political relevance of private sector actors. The chapter ends with a discussion on the relationship between politics and science as well as the public and private sectors. The purpose of this chapter is to explore all of the central political aspects of the projects and the field of meteorology.

Chapter 9 includes an analysis on the perspectives of the interviewees regarding the structure of aid and stakeholder dynamics. The chapter starts with a presentation of the differences between the approaches of experts to the aid structure, followed by the differences in the overall approaches to the development of capacity in meteorological organizations. The ways of governing development cooperation is analyzed with the concept of governmentality and analytics of government. The

different types and forms of power available to the main stakeholders are compared, the Extent of Power Analysis (EPA) model is presented and the sustainability paradox of development aid is discussed. The chapter ends with a summary discussing the most central obstacles to sustainability.

Chapter 10 is the final chapter of this thesis. It presents a summary of the main findings. Separate sections have been included for discussing meteorological capacity in a wider perspective, exploring the situation of the projects in the cross-section between science and politics as well as nature and culture. Additionally, the solutions provided by complexity theory for the improvement of aid practices are also included, as is a critique of aid and a discussion on the future of development cooperation in the field of meteorology. The chapter ends with suggestions for future research topics and some personal reflections on the study.

2 POLITICAL AND CULTURAL ASPECTS OF WEATHER AND NATURAL DISASTERS

In this chapter, I will present some of the most relevant issues regarding the political and cultural aspects of weather and natural disasters in the context of developing nations. I will present basic definitions, some relevant statistical data, as well as previous research on various aspects relating to the topic. I will discuss issues such as natural hazards, the global impact of disasters and the relevance of climate change. I will also present modern versus traditional approaches to weather forecasting, and explore the relevance of state and politics in the development of meteorological capacity.

Since the turn of the millennium, more than a million people have been killed by natural disasters, and over 2.3 billion people have been affected by natural disasters around the world (Debarati and Santos, 2013). According to the EM-DAT CRED database, during the years 1968–2015, 8 815 extreme meteorological and hydrological events have occurred globally, and have caused over 1.3 million deaths. These events have affected the lives of 4.6 billion people and caused massive damage (refer to Table 1.). (EM-DAT CREd database) According to the World Bank, since 1980, natural disasters have caused USD 1.3 trillion worth of costs. Economic losses caused by natural disasters have nearly quadrupled during the past three decades. The average reported losses went from USD 50 billion per year in the 1980s to almost USD 200 billion per year during the past decade. The total costs for the years 1980 to 2012 is a staggering USD 3.8 trillion, of which nearly three quarters (74 percent) are due to extreme weather. Disaster prevention and preparedness saves both lives and money. Early warning systems typically yield benefits that are 4–36 times higher than the initial cost outlay. (World Bank, 2014) Table 1. summarizes the total amount of meteorological and hydrological disasters during 1968–2015. By far the area of greatest impact is Asia, where over four billion people have been affected by disasters. The amount of people affected is enormous, even when taking into account the long period under focus.

Table 1. Meteorological and hydrological disasters by region (1968-2015).

Region	Number of Disasters	Deaths	Total Affected	Total Damage (Billion $)
Africa	1167	29 462	88 844 905	12.3
Americas	2288	130 668	149 688 738	812.1
Asia	3661	994 604	4 366 958 199	684.6
Europe	1274	153 611	24 712 726	254.8
Oceania	425	2698	12 473 313	38.1

(Source: EM-DAT CRED Database, 9/2016)

The history of extreme weather phenomena is filled with tragedy and human suffering. Extreme weather events can be easily listed in the statistics, but their impacts on local communities and the individual human suffering involved is easily forgotten. In March 2014, during the process of writing this thesis, a devastating sequence of events took place in the state of Maharashtra in India, brought on by unforeseen weather patterns. Hailstorms destroyed vast amounts of crop, which led

to several incidences of suicide among local farmers. The storms in the region destroyed a total of 1.6 million hectares of agricultural land. Each extreme event, be it heat spells leading to drought or torrential rain resulting in floods, has a strong human component, which often disregarded in the news coverage of these events. The focus of political action is most often concerned with what is happening "now", not on how to be proactive or how to prevent future catastrophes.

Although weather is commonly thought of as a neutral and non-political topic, extreme weather phenomena have the power to change societies and mold us as human beings. The role of culture and religion in weather-related actions is also important, there are many issues concerning traditions and involving how we interpret, manage and politicize weather phenomena. The political aspects related to weather remain an understudied topic, especially in the context of developing countries, where extreme phenomena can have devastating effects. Huge masses of people live under a continuous risk of being affected. As climate change continues to progress, and the global hazards related to extreme weather increase, global action is needed to prevent the situation from worsening. Considering the lack of resources and difficult social realities of developing countries, the work to enhance capacities to combat these problems in the developing world is both highly challenging and urgently needed.

Relevant definitions

Weather is one of the most common topics of discussion around the world. Weather has an influence on many things humans do and on how they act on a daily basis. Weather defines how we live, dress and what kind of a home we build. It even influences our hobbies. Weather, together with geological factors, has affected life in many ways throughout history, and life on earth has always adapted to varied weather conditions. (Burroughs et al., 1998:14)

Meteorology is defined as (1) "The study of the physics, chemistry, and dynamics of the earth's atmosphere, including the related effects at the air-earth boundary over both land and the oceans. Fundamental topics include the composition, structure, and motion of the atmosphere. The goals ascribed to meteorology are the complete understanding and accurate prediction of atmospheric phenomena." Alternatively (2) more generally as: "The underlying science of weather and weather forecasting." (American Meteorological Society, 2012d)

Weather forecast is defined as "An assessment of the future state of the atmosphere with respect to precipitation, clouds, winds, and temperature. Such assessments are usually made by government or private meteorologists, often using numerical simulations. Such simulations are the result of representing the atmosphere mathematically as a fluid in motion." (American Meteorological Society, 2012b)

To survive, the earliest farmers must have learned from experience how to maximize harvests in good seasons and how to minimize their losses in bad seasons. The roots of Agricultural Meteorology are based on the centuries of experience of farmers in various parts of the world. (Monteith, 2000:5) Agriculture as an industry is highly dependent on weather. Agriculture is the main source of income for most Africans, for example, and several recent studies have shown that climate change heavily reduces the productivity of agriculture all over Africa. (Lobell and Burke, 2011:120) Despite advantages in modern technology, weather has a direct impact on food production. Short-term bad weather can interrupt food transportation and harvesting, and long-term heavy weather patterns can cause shortages in food and

raise prices. In developing countries, many suffer from famine caused by drought or floods. Pollution and contamination of the environment, as well as population growth are some of the most challenging global problems. Because of these issues, food production needs to be optimized and accurate weather forecasts are a great help for farmers around the world. For example, long-term forecasts regarding rainfall assist farmers in deciding exactly when to plant seeds, so that crops will be optimal. Short-term forecasts help in deciding when to use herbicides so that their impact on the environment will be as small as possible. (Burroughs et al., 1998:14-15)

Agricultural meteorology is defined as "meteorology and micrometeorology as applied to specific agricultural systems and of agriculture as applied to specific atmospheric conditions. This discipline may emphasize atmospheric transport of insects, pathogens, etc., that impact agriculture as well as energy and mass exchange of plants and animals with the atmospheric environment. The effect of soils and vegetation on the ratio of sensible and latent energy exchange is representative of the impact of agriculture on meteorology." (American Meteorological Society, 2012a)

Meteorology is especially relevant for agriculture, which makes it pertinent for most developing countries. The growing season in agriculture and forestry requires both long-term and short-term meteorological information, in for example sowing, irrigation, yield estimates, protection from frost, harvesting, as well as pest control and the protection of plants and livestock. Climate information, such as long-term average precipitation, sunshine and temperatures are required in plant selection, planning the use of water resources, and distribution of seeds, fertilizers and land use. Monitoring drought, rainfall and wind is important in preventing desertification, which is a significant problem in many developing countries. (Finnish Meteorological Institute, 1999:6) Agricultural meteorology is a field where meteorologists, soil scientists, agricultural hydrologists and agronomists study the effects of weather and climate on plant distribution, crop yield, water-use efficiency, the phonology of plant and animal development, and the energy balance of managed and natural ecosystems. They are also interested in the influence of vegetation on climate and weather.

Other sub-fields of meteorology include for instance aviation meteorology, which is concerned with the impact of weather on air traffic management. It is important for aircrews to understand the implications of weather on their flight plans and aircrafts. Marine, air and overland traffic all require specific weather information, with aviation being the most dependent on specified weather information. The aeronautical forecast system is needed in flight planning, fixing routes, assessing the amount of fuel needed, in take-offs and landings, as well as during flights (Finnish Meteorological Institute, 1999:6). Hydrometeorology is the branch of meteorology that deals with the hydrologic cycle, water budgets, and the rainfall statistics of storms. A hydrometeorologist prepares and issues forecasts of accumulating (quantitative) precipitation, heavy rain, heavy snow, and highlights areas with the potential for flash flooding. Nuclear meteorology investigates the distribution of radioactive aerosols and gases in the atmosphere. Maritime meteorology deals with air and wave forecasts for ships operating at sea. Organizations such as the Ocean Prediction Center, the Honolulu National Weather Service forecast office, the United Kingdom Met Office, and the Japan Meteorological Agency prepare high seas forecasts for the world's oceans. Military meteorology refers to the research and application of meteorology for military purposes. The focus of this study is on local, national meteorological services of aid recipient countries. The most central meteorological services for all countries receiving aid are agricultural meteorology and hydrometeorology.

2.1 AN INTRODUCTION TO METEOROLOGY

Meteorology, like all other modern sciences, is based on observations. The quality of the observations determines much of the quality of the forecasts. The discovery of the barometer in the 17th century, made it possible to monitor air pressure and weather in specific locations and to discern rough correlations. It was discovered that once air pressure goes down, the weather usually worsens. Low and high pressure areas were not however studied until multiple, simultaneous observations could be made, and subsequently be drawn on maps. This kind of comparison is based on synoptic observation networks, which produce internationally standardized weather forecasts, which are generated simultaneously, and for which the data is collected in the same way. International weather observations officially began in the 1850s, through the invention of the telegraph. The most influential sequence of events that influenced the commencement of weather forecasting was the Crimean War (1853–1856). A strong storm destroyed entire fleets in the Black Sea. When it was noticed that the same storm had passed Central Europe the day before. It was thought that European weather observation data could be used in the future to forecast similar events. (Karttunen et al., 1998:132)

The first rational attempts to understand meteorological phenomena are unknown. Ancient Babylonians and Chaldeans were pioneers in the science of astronomy; they attempted to connect the phenomena of weather with the motions of heavenly bodies. As early as 3500 B.C, Egyptians practiced Sky Religion, which had its own rainmakers. The first people to take a scientific interest in meteorological phenomena were ancient Greek natural philosophers and mathematicians, who made up the scientific community of Antiquity. It was Aristotle's *De Meteorologica*, published circa 340 B.C., which marked the beginning of systematic inquiries into the physical causes of earth, sky and air. De Meteorologica not only presents Aristotle's theories, it is also a collection of facts gathered from historians and other philosophers of the time. For a long time, meteorology was simply a branch of astronomy. It was not recognized and accepted as a distinct field of its own until the late 19th century. (Frisinger, 1971:1078)

People who are able to make weather forecasts have been valued since the beginning of time. Forecasts were originally made by priests and shamans, who were tasked with not only forecasting weather, but also the job of influencing weather phenomena, for the benefit of the local community. Rituals and sacrifices were made to the weather gods, in attempts to appease them. Prayer was also used. Rain dances were common among the native people of Central Africa, North America and Australia. Numerous expressions and proverbs regarding weather have been invented all around the world, and they have been passed on by one generation to the next. In the Western world, scientific methodology has been used in weather forecasting since the 15th century. (Burroughs et al., 1998:15)

The historical background of weather forecasting can be seen in for example the etymology of the words used to describe weather phenomena. For instance, the word “hurricane” is derived from "huracan," a Taino and Carib god, or "hunraken," the Mayan storm god. (American Meteorological Society, 2012c) Throughout time, things like the flight of a bird or the antlers of snails and even frogs have been used to forecast weather.

Up until the 1950s, the quality of weather forecasts was dependent on the expertise of the meteorologists analyzing weather maps. Due to the complex nature of weather phenomena, this kind of methodology was not able take all factors into consideration. After computers were introduced and complex computer models were developed, the accuracy of forecasts was significantly improved. Calculating a one-day forecast in the 1920s would have required several months’ worth of computations by thousands of employees. In the beginning of the 1950s, a research group in

Princeton University programmed a simple model for the atmosphere. This model, although rudimentary, was able to display the ability to make one-day forecasts. This model encouraged researchers to develop the concept of weather models further. (Karttunen et al., 1998:242, 244)

Synoptic observations (surface weather observations) are made every three hours, by about 10 000 observation stations globally, 50 of which are located in Finland. These stations collect for example wind, air pressure, temperature, moisture, cloud and rain data. All observations are logged into the same system, and within 20 minutes, all stations, which are included in the data exchange, are able to share and see each other's data. (Karttunen et al., 1998:132) Most developing countries, however, do not share this convenient situation, as most weather stations are located in developed areas, and there are critical geographical gaps in the system. Most of the gaps are located in Africa. See Figure 3.

It should be noted that the radiosonde observations made in developing countries are not as frequent and reliable as those made in most developed countries. Radiosondes are fairly costly, and most meteorological offices in the Global South are not able to send them in the atmosphere as frequently as needed, which can eventually lead to unreliable or even missing data.

Many weather phenomena, like tornadoes, span so far that they are in fact unobservable from a single place, but are still too small or too short-lived to be observed through the synoptic observation network. Modern equipment, such as satellites, radars and automatic weather stations can be used to forecasting these kinds of phenomena. Automatic weather stations have microcomputers, which collect and store weather data. The basic models include equipment for measuring temperature, wind, air pressure and moisture, but also for making cloud coverage and visibility measurements. The collected data is automatically transferred via internet. (Karttunen et al., 1998:132) Automatic weather stations require regular maintenance and a reliable network access, both of which are often difficult to secure in a developing country context.

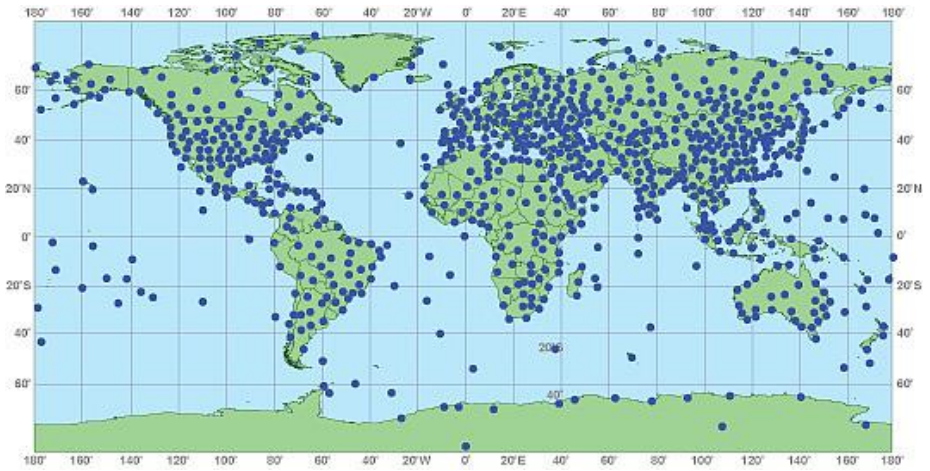


Figure 3. Map of locations where radiosonde observations are made.

(Source: NOAA, 2016)

Weather balloons, radars and satellites are also used in weather forecasting. Weather balloons are sent up into the atmosphere, where they usually reach altitudes between 15 and 25 kilometers, but are able to go as high as 40 kilometers. Weather

balloons have measuring devices, called radiosondes, attached to them, usually for measuring temperature, moisture and air pressure. The radiosondes also measure the balloon's altitude. Vaisala manufactures a significant portion of the radiosondes used globally. (Karttunen et al., 1998:153-155) Since it is possible to use one balloon only once and several balloons need to be sent out each day, using them can end up being quite expensive – they are a cost challenge for all meteorological stations in developing countries. The selling price for a Vaisala radiosonde is about 150 euros (Finnish Broadcasting Company, 2012). If a balloon is sent in the air every three hours, the cost per day is 1 200 euros, and annually approximately 438 000 euros. However, most often radiosonde measurements are done twice a day, or only once, bringing the price down significantly. The price also includes the actual balloon, expertise regarding its manufacturing and the technical components to send it up.

Radiosonde data is used for instance to get input for computer-based weather prediction models, for severe local storm, aviation and marine forecasts, weather and climate change research, air pollution research as well as to gain ground truth to verify satellite data. (NOAA, 2016) Weather radars are mainly used to measure the intensity and geographical area of rainfall. Typically, weather radars have a radius of circa 250 kilometers. Effective computers are needed to analyze the vast amount of data collected by the radars. Weather satellites observe the atmosphere, and especially clouds, from above. Satellites orbit the earth around the Equator, so the observations are of best quality for countries close to the Equator. (Karttunen et al., 1998:157-158)

Many meteorological organizations in developing countries still conduct manual observations. These are typically done every three hours and the observations include visual reports on visibility, cloud coverage, current weather and ground observations. For example, in Barbados, a local met-office assistant stated that at the beginning of each work shift, she goes up to the roof of the building and observes the weather, cloud coverage, visibility and so on. Observations are documented and then sent to a database. Previously, Finland had as many as 50 manual weather stations, but currently only a few are in operation (Finnish Meteorological Institute, 2016).

Figure 4. Meteorological measuring equipment at CIMH offices, Barbados.

(Photo credit: author, 2/2013)

Typical weather stations use instruments and devices measuring atmospheric conditions to provide information for weather forecasts. These include thermometers to measure temperature, barometers for measuring atmospheric pressure,

anemometers for measuring wind speed, pyranometers for measuring solar radiation and rain gauges to measure rain. Additional devices may include transmissiometers for measuring visibility, ceilometers for measuring the cloud ceiling and disdrometers for measuring drop size distribution. (North Carolina State University, 2016) Figure 4. shows weather-measuring devices at the CIMH training facility in Barbados.

2.2 WEATHER, HUMANITARIAN CRISES AND AID

Various natural phenomena cause humanitarian crises across the globe every year. Developing nations are in a particularly difficult situation, since they are more vulnerable to weather phenomena than developed countries. Figure 5. presents the differences between countries on a world map of risk. A single storm can cause major damage to local infrastructure and destroy the lives of thousands, either directly or indirectly. For instance, in 2010, hurricane Thomas caused major destruction in the Caribbean region. In St. Lucia, the damage was equivalent to over 40 percent of the nation's GDP.

Vulnerability has been defined by Blaikie et al. as "The characteristics of a person or a group in terms of their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard." Vulnerability involves a combination of factors, which determine the degree of the risk posed on one's life by a distinct and identifiable natural or societal event. Some groups are more vulnerable than others; the key characteristics involved include class, caste, ethnicity, gender, disability, age or seniority. (Blaikie et al., 1994:9) The risks related to injury or death from for example floods, landslides or strong winds are higher for children, the elderly and women in general, and especially for those belonging to the lowest income groups. The strong gender inequality in disasters, such as disparate opportunities and capabilities as well as access to resources, systematically disadvantage vulnerable groups within the population. (UNDP, 2011:9) Developing nations often do not have the required weather forecasting systems, or even the most basic warning systems. They also lack the infrastructural back-up systems needed to survive the most extreme weather phenomena. Discrepant challenges caused by climate change are further accentuated by weak governmental and institutional structures. (Helm and Hepburn, 2009) Researchers have only recently begun to examine the potential health implications related to climate change; key risks include issues such as an increased exposure to infectious diseases and population displacement (Ford, 2012:1260).

A map of global risk areas is presented in Figure 5. As can be seen from the map, developing nations are often located in areas of high risk. The World Risk Index is calculated based on various indicators of exposure, susceptibility, coping capacity and adaptive capacity (UNU-EHS, 2016).

In disaster research, it is superficial to separate disaster analysis from everyday life, and it is necessary to show how disaster-related risks are connected to the vulnerabilities present in the "daily existence" of many groups. Better policies can be created when natural disasters are understood within the broader patterns of society. Disasters are not caused by natural phenomena alone; they are also the product of the social, political and economic environment, which structure and organize the lives of different groups of people. Disasters are often a complex mix of natural hazards and human action. Vulnerability is generated through social, economic and political processes, which influence how hazards affect people in varying ways and intensities. For instance, in many African countries, continuous wars have made the rebuilding of societies and lives impossible. Blaikie et al. also argue that there is danger in treating disasters as something abnormal since this approach essentially puts too

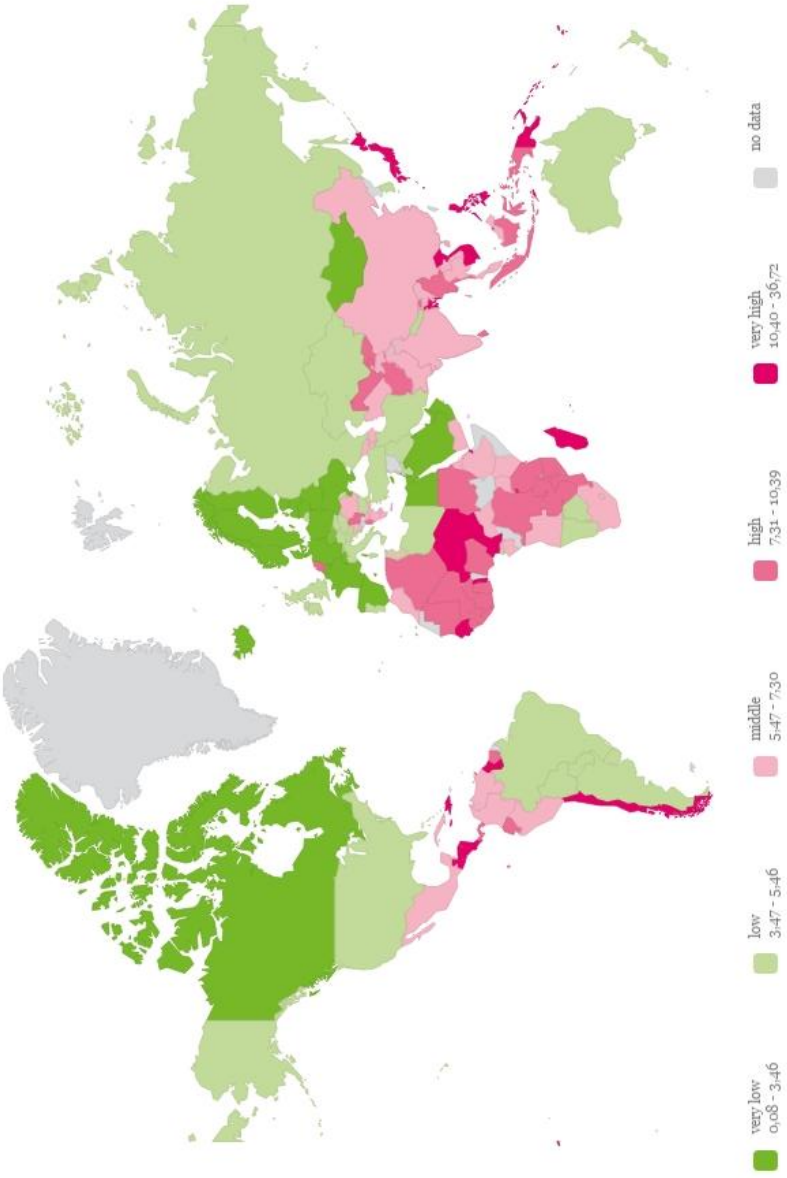


Figure 5. World map of risk.

(Source: UNU-EHS, 2016)

much focus on the natural hazards themselves, and subsequently away from the highly relevant social environment and social processes. (Blaikie et al., 1994:1-2,5)

A well-known paradox in the field of disaster research is the imbalance between preventive and reactive practices. Development aid, in the form of humanitarian aid given as disaster relief, is substantially larger than the development aid allocated to disaster prevention. A shift from the emphasis on reactive practices to supporting preventive practices is needed to provide better civil protection all over the world. Developing meteorological capacities is an important part of this work. Aid statistics show that during the years 2005–2014, the percentage of aid allocated to disaster prevention and preparedness for DAC countries has been between 0.1–7.7 percent of total humanitarian aid (sector VIII in OECD DAC statistics). When compared to total ODA allocations during the same time, disaster prevention and preparedness have been allocated less than one percent of total ODA. (OECD Statistics)

2.3 CLIMATE CHANGE – RELEVANCE FOR DEVELOPING COUNTRIES

Global climate change is underway and global temperatures have risen by nearly one degree Celsius on average since 1850. Arctic temperatures have risen three to four degrees over the past 50 years. Changes in global temperatures influence a wide range of human and natural systems. There have also been changes in the timing of the seasons, the range of animal and plant species, flooding, drought and regional patterns of precipitation. Sea levels have risen and glaciers are retrieving. The IPCC reports that temperatures will continue to rise by 1.1–6.4 degrees by the end of the 21st century. The exact degree of the increase will be determined by future greenhouse gas emissions. Expected outcomes will be negative and in some areas even disastrous. Some areas might also benefit from climate change (Jepma and Munasinghe, 1998:37). In regards to weather patterns, global warming will have various effects. Warming may shift seasons, rainfall patterns will change, and storms, heat waves, floods and droughts will become more prevalent. Global warming will have ominous impacts on water supplies in many developing countries. Hurricanes might become stronger. Many dry areas will see less rain, while wet areas will see even more rain. (Downie et al., 2009:xv,17)[12]

Climate change is an unusually challenging global environmental problem, involving vast political, social, environmental and scientific complexities, which have proven to be especially difficult to resolve. (Taplin, 1996:394) Climate change as a process began in the 1700s with the Industrial Revolution, when machines replaced manual labor, horsepower and waterpower. This revolution transformed European nations and North America from agricultural and trading societies to manufacturing societies. The Industrial Revolution was the starting point for the use of subterranean energy sources: oil, coal and natural gas. These fuels can be contrasted to those coming from the air: wind, hydroelectric, biomass and solar power. These are endlessly renewable and do not produce harmful emissions. At the start of the second half of the twentieth century, an understanding began to emerge that the excessive accumulation of pollutants was affecting the climate. The relationship between expanded greenhouse gas emissions and global warming has been widely studied, and while it is natural to have variations in temperature, the rapid rise in global temperatures during the late twentieth century cannot be explained by natural variability. In 2007, the IPCC concluded that without a dramatic reduction in human-induced emissions, climate change might bring about abrupt or irreversible effects on

[12] See also f.ex. Whyte (1995) and Jepma and Munasinghe (1998).

land, air, coastlines, species, oceans and glaciers. Hurricane Katrina was an example of what unmanageable climate change could look like. (Friedman, 2009:68-69, 71-72, 80)

The economic impacts of disasters are also significant. Weather events affect stocks rather than flows, and in the aftermath of an environmental crisis, economic activity may well increase. Economic indicators do not measure the damage to stock at risk, or the misery caused by the actual event, but rather the efforts to restore the society under impact. Therefore, economic indicators give a somewhat misleading picture of the economic impacts of weather disasters. Evaluating the economic impacts of disasters is also challenging due to the nature of disasters. They are irregular, hit different places and are never the same. Therefore, it is hard to compare one disaster to another. Direct damage is also difficult to measure. Assessing damage after a disaster is not the first thing people think of, and disasters often have the largest impact on the poor who are often excluded from insurances, bookkeeping, formal markets and other economic activities that visible in statistics. (Tol and Leek, 1999:308-309)

Although Africa and other regions of developing countries are greatly affected by climate change, thus far they have had only a minor role in accumulating the global stock of carbon and their portion of global emissions has been trivial. (Collier et al., 2009:125–127) Africa contributes only five percent of the total global greenhouse gas emissions (Downie et al., 2009:99). Climate change will however have strong negative impacts in developing nations, especially in Central America, central South America, the Arabian Peninsula, Southeast Asia and most of Africa (Samson et al., 2011).

Climate change as a phenomenon has brought concerns regarding justice and equity back to the discussion. The balance of power is unequally distributed in favor of the developed countries, since they control most of the global capital, natural and knowledge resources, and military power. Their influence on the rules of bargaining is the main reason for justice concerns for developing countries. While developed nations are historically the main producers of greenhouse gas emissions, their emissions are now declining, and the emissions of developing countries are increasing. The concerns related to the asymmetry between emissions and their impacts highlights the equity concerns present in the climate change problem. A greater burden of impacts is beared by poorer nations due to natural processes, while most greenhouse gas emissions caused by people come from economic activities in wealthier nations. In addition, since impacts are inadequately understood, higher risks are imposed on developing countries. Impact evaluations are complicated, especially in developing nations where the insurance markets are either undeveloped or underdeveloped, and valuations are plagued with controversies related to the value of life and future purchasing-power parity trajectories. (Shukla, 1999:146)

The distribution of major climate-related risks around the world is skewed against developing countries. Developed countries are less dependent on climate-sensitive sectors, such as agriculture. Developed countries are often located in regions with cooler temperatures and therefore far from the critical temperature thresholds for humans and crops. Developed countries also have more resources to invest in adaptation measures. Their economies are more flexible and opportunities to increase resilience to climate change are far better than in most developing countries. (Nath and Behera, 2011:151)

Adaptation to climate change is increasingly becoming a focus area of policy action and concern in both industrialized countries and developing countries, where citizens live under threat. Most literature on adaptation to climate change is concerned with adaptation options, and related costs and benefits. Little attention has been given to aspects of justice, which is surprising given the large amount of literature on equity issues in the mitigation of climate change. The unjust distribution of climate change impacts has two sides. Firstly, physical processes distribute climate

change impacts unevenly across the world. As a result, some will face heavy impacts and others less severe ones. Secondly, vulnerability to climate change is also unevenly distributed. People in the Global South are more vulnerable, due to the globally unequal distribution of wealth, capacities and power. In addition, adaptation strategies create their own winners and losers, depending on the choice of solutions for the governance of collective and individual responses to climate risks. (Adger et al., 2006:1, 3-4) Jepma and Munasinghe (1998), have also explored climate change related equity concerns, and argue that equity considerations are important in addressing global climate change for a number of reasons, including moral and ethical concerns, and the need to facilitate effectiveness and sustainable development. (Jepma and Munasinghe, 1998:64)

Sub-Saharan African countries constitute some of the most drought-affected areas in the world, and thus also suffer from the strongest negative impacts on agriculture. South and Southeast Asia are the most disproportionately flood-affected areas. Storms have their greatest impact on countries located in the hurricane belt of the

Table 2. Top Ten Countries Most at Risk from Meteorology-related Events.

	Agriculture	Drought	Flood	Storm	Coastal area (1m)
1	Sudan	Malawi	Bangladesh	Philippines	Low-lying countries
2	Senegal	Ethiopia	China	Bangladesh	Vietnam
3	Zimbabwe	Zimbabwe	India	Madagascar	Egypt
4	Mali	India	Cambodia	Vietnam	Tunisia
5	Zambia	Mozambique	Mozambique	Moldova	Indonesia
6	Morocco	Niger	Laos	Mongolia	Mauritania
7	Niger	Mauritania	Pakistan	Haiti	China
8	India	Eritrea	Sri Lanka	Samoa	Mexico
9	Malawi	Sudan	Thailand	Tonga	Myanmar
10	Algeria	Chad	Vietnam	China	Bangladesh

(Source: World Bank 2007:4)

Pacific and Indian Oceans. Winter storms have an impact on land-locked countries. In terms of the frequency of extreme meteorological events, the prevalence of droughts has increased since the 1980s. Wind storms have become twice as frequent, floods have increased by four times, and the occurrence of extreme temperatures in the early 2000s (2000–2004) is fivefold when compared to the early 1980s (1980–1984). (World Bank, 2007:3) The World Bank has listed the countries at most risk of climate-related threats. The top ten countries at most risk regarding agriculture, drought, flood, storm and coastal areas are presented in Table 2. Numerous countries, for example Zimbabwe, Mozambique, Vietnam, China and India, are highly vulnerable in terms of multiple threats.[13] Many of these countries have also been recipients of Finnish meteorological aid.

[13] The overall risk of damage or losses is determined by the nature, intensity, and frequency of the hazard – for example the prevalence of floods of a certain level. The exposure to hazards is estimated by the number of people living in the affected area. Vulnerability refers to the conditions determined based on physical, social, economic and environmental factors or processes that influence the susceptibility of a community to the impacts of the hazard. (World Bank, 2007:42)

The estimated impacts of climate change on societies range from natural to social and economic issues. In most projections, agricultural production is estimated to change significantly because of climate change. It has been estimated, that agricultural production in developing countries will decline by nine percent by the year 2080, and simultaneously increase by eight percent in developed countries. Water stress will increase since projected rises in temperature will lead to a higher level of evaporation and often drier conditions. Rain is expected to fall less frequently but with higher intensity, which means that it will increase the occurrence of both droughts and floods. Coastal areas are at risk due to rising sea levels, flooding, stronger winds and storms. Flooding caused by rising sea levels will threaten the viability of some islands and delta areas, such as the Mekong and Nile regions. Urban areas are also at risk, due to increasingly intense rains and higher peak river flows. Subsequent problems with sewerage and water management systems can lead to major disease outbreaks. Dependence on air conditioning in urban areas might lead to major losses in productivity and life in cases of power supply failure. Migration patterns may also be affected by these emerging problems. Climate change has also the potential to escalate existing political tensions, and as a result, outbursts of violence and conflict may occur. Scarcity of renewable resources can fuel internal conflicts. This has already happened in for example Darfur, where multiple periods of drought, accompanied with disagreements over access to water and land, have contributed to the escalation of ethnic tensions. (World Bank, 2007:4–6)

The year 2015 was significant due to the signing of the Paris Agreement, a global agreement on the reduction of climate change. The Paris Agreement aims at retaining the level of global warming at 1.5 degrees, compared to pre-industrial times, and secures climate funding for developing countries as well as for countries suffering from the consequences of climate change. The agreement was criticized for not setting sufficiently strict limits for emissions. (Finnish Broadcasting Company, 2015)

Because of changes in the climate, patterns of diseases are also likely to change. This will make disease control more difficult. This applies especially to the occurrence of malaria and cholera. Malaria is a vector-borne disease, which is transmitted via mosquitoes.[14] Climate change will increase the distribution of mosquitoes able to transmit malaria, spreading the disease to new areas and might affect millions of people who do not have immunity to it. (Downie et al., 2009:19) Malaria has already reached new areas in the highlands of Kenya, Rwanda and Tanzania (World Bank, 2007:5–6). Albeit, the situation with malaria is not as concerning as before due to a recent decline in malaria incidence rates. During 2000–2015, the occurrence rate of new malaria cases fell by 37 percent globally, and by 42 percent in Africa. Malaria mortality rates have also reduced by 60 percent globally and by 66 percent in Africa. (World Health Organization, 2015)

Nath and Behera (2011) have also studied the impact of climate change on health issues and they argue that climate change will have a strong impact on global health in the future. In addition to changes in the patterns of malaria and cholera occurrence, the spatial and temporal distribution of illnesses such as dengue fever, encephalitis, yellow fever will be affected. In terms of illnesses, densely populated coastal areas, arid and high mountain states will be particularly vulnerable, as will small island states. (Nath and Behera, 2011:147–148). Food production and food security will also be affected by climate change. It will influence agricultural productivity, local access to food and the stability of food supplies. The number of people at risk of hunger and starvation will grow worldwide. (Downie et al., 2009:19). The more accurate and better weather data becomes available, the better authorities will be able to prepare for risks relating to diseases and food production.

[14] Each year, 350 to 500 million cases of malaria occur worldwide, and over 1 million people die, most of them young children in Sub-Saharan Africa.

In addition to effects on illnesses and food security, there is also an important gender bias to recognize. It is estimated that women and children will be more severely affected by climate change than men. Parikh (2008) argues that women carry a disproportionate burden of climate change consequences because of social role discrimination, intra-house inequity and poverty. Women are also usually in charge of meeting their family's needs for firewood and water. Lack of access to water and firewood compels women to travel long distances on a daily basis. This exposes them to multiple risks. (Parikh, 2008) Additionally, women are often responsible for keeping their family together in times of catastrophes, and their role is to nurture especially young children, in addition to taking care of other familial essentials. It has been noted that warnings are transmitted by men to men in public spaces and only rarely communicated to family members. In some cultures, women are not allowed to leave the house without a male relative, and are thus highly dependent on their family members to retrieve them to a safe place in times of catastrophes. (IRADe and ENDA, 2002:6)

On another note, Ulrich Beck has studied the social construction of risk and disasters. Interestingly, in the discussion concerning climate change, he argues that climate change exacerbates existing inequalities between the poor and the rich– but simultaneously it also dissolves them. He states that the greater the planetary threat is, the less the possibility that even the wealthiest and most powerful will avoid it. Therefore, climate change is a both hierarchical and democratic issue. (Beck, 2009:11)

Although climate change as a social and political phenomenon has been closely studied, what has been missing from this discussion is the practical role of meteorology and local meteorological offices. Local met-offices have often been left out of the scope of main actors in this field, although they have a natural role in the processes involved. In part, they have been "denied" this because of low local capacity and the inability of local met-offices to claim a more central role. Often, developed nations dominate the discussion because most of the research takes place in Western universities and research institutes. Strong private sector actors in this field can overpower weaker public sector actors, especially in developing country contexts.

2.4 MODERN VS. TRADITIONAL APPROACHES TO WEATHER

All countries and cultures have a large number of folklore and proverbs concerning weather. Animals, plants, clouds, fogs, dew, rainbows, halos, moon, red and gray skies, smoke, odors and winds have all been used in the interpretation of weather. (Koeppe and Long, 1958:8) Meteorology is a field where both "modern" and "indigenous" knowledge is used. Most of the Western world has officially abandoned the use of indigenous knowledge (IK) in the field, and what are left are merely some folktales. Yet, many cultures in the world harbor indigenous knowledge of weather and most of these cultures are located in the developing world. For example, in Peru, a method for forecasting the weather is based on observing the brilliance of the stars (i.e. the moisture content of the air), the occurrence of lightning, the taste of rain and so forth to determine when conditions are propitious for planting crops. A similar method is used in Nigeria, where weather is predicted based on the behavior of chameleons, hawks, grasshoppers, doves, the leafing and fruiting of certain trees as well as certain calendar and astronomical events. (Linacre and Geerts, 1997:323)

Despite the progress of Western science in the areas of climate modeling, forecasting and gaining a greater understanding of climate variability, there is an increasing recognition that Western ideas are not the only relevant aspects in the field

of meteorology (Huntington, 2000). Considering the progression of climate change and the acute need for adaptation strategies, understanding the dynamics and the relationship between these different approaches to weather forecasting is highly pertinent.

Virginia Garcia-Acosta, has conducted research on risk reduction, prevention and resilience on a global scale. Her approach has placed the cultural and ancestral issues at the core of analysis. She argues that communities have ancestral and culturally built knowledge relating to risk prevention as well as adaptation strategies. She emphasizes the cultural dimension to studying vulnerable groups. Hypothesis leading her work include that societies are not and have never been passive entities in the face of natural hazards. Historically, communities have formulated social and cultural ways to deal with risks and disasters, and throughout history, societies have developed social strategies for prevention and adaptation in their interaction with the natural world. (Garcia-Acosta, 2017)

Kalanda-Joshua et al. (2011) have studied how indigenous knowledge (IK) can be integrated with conventional science in the field of meteorology in Malawi, where Finland has also carried out meteorological projects. Their area of research was in Nessa, in southern Malawi, a region that is highly dependent on rainfall. Accurate and reliable climate and weather forecasts are needed to guide decision-making in agriculture, which is the main livelihood in the region. African farmers have traditionally used IK to understand weather and climate patterns and make decisions about farming practices. However, recent changes in the climate have resulted in an increased rainfall variability in the region, therefore reducing their adaptive capacity and increasing their vulnerability to climate change. Their confidence in using IK as a method of forecasting has also diminished. Kalanda-Joshua et al. established commonly used IK indicators in weather and climate, and people's perceptions of climate change and variability in the village of Nessa. They compared people's perceptions on climate change and variability, supplemented with empirical data from a nearby weather station. Researchers were able to list various forms of traditional weather indicators, which have been used for generations, including certain patterns and behavior of flora and fauna. They found that people's documentation of climatic events over the years was well in concurrence with empirical evidence from the local weather station. They also discovered that people's perception was that current scientific weather and climate predictions in the region were not that useful on the village level because they do not incorporate the use of IK. (Kalanda-Joshua et al., 2011)

Guthiga and Newsham (2011) have approached the same theme by studying the policy processes arising from the interactions between indigenous rainmakers and meteorologists in Kenya[15]. They conducted a Participatory Action Research aimed at increasing the capacity of a local community in Kenya to adapt to climate change by creating interactions between meteorologists and rainmakers. Because of the interactions, the two groups, which initially faced each other with skepticism, were able to make joint seasonal weather forecasts that showed a good convergence. In Kenya, the nationally acknowledged meteorology service is the Kenya Meteorology Department (KMD), which is the lead agency under the Ministry of Environment and Mineral Resources. The KMD is the only officially recognized weather forecasting agency, and it relies on modern technology to carry out its duties. The Nganyi rainmakers, who were invited to participate in the research, are a clan from the Banyore community, in the western province of Kenya. The community has developed advanced methods of weather prediction and the art of rainmaking mainly takes place in shrines established on the graves of past rainmakers. The rainmakers hold the knowledge as sacred, and it should only be confided to selected male

[15] See also Moore (2010).

individuals from certain families, and information should never be shared with outsiders. In the past, community members had to pay the rainmakers to access their magical power. Possessing the knowledge of rainmaking bestowed the holders with a privileged position in the society, which also brought them certain economic benefits. As a result, the rainmakers were very skeptical of the research and feared that their knowledge would be "stolen" during this process. These concerns were overcome by sharing duties. As the process unfolded, it was found that there might not be such a great divide between the KMD workers and the rainmakers after all. The KMD meteorologists noticed that the rainmakers made distinct observations, some of which were grounded in science, and based on the local flora and fauna. Similarly, the rainmakers also learned from the project and realized that joining the project was a way for them to validate their knowledge. (Guthiga and Newsham, 2011: 104–108)

Additional arguments for the incorporation of indigenous knowledge systems to modern techniques of weather forecasting come from a phenomenological study of engaging the Shona people of Zimbabwe and the Maori in New Zealand. Muguti and Maposa (2012), argue that the indigenous methods of the Shona people, based on observing natural phenomena and celestial objects, have helped to predict the timing of the agricultural season and determine the patterns of climate change with a high degree of reliability. They criticize the current level of accuracy and the use of methods of the Zimbabwean Meteorological Service. They also state that knowledge of traditional weather forecasting could improve decision-making on matters affecting ecosystems and the vulnerability of communities. (Muguti and Maposa, 2012:102–105) The ability of the Maori people of New Zealand to understand, record and forecast weather has been an important factor in successfully responding to weather and climate change in New Zealand. The Maori people have interacted with local environments for centuries, and have developed a wealth of environmental knowledge. This has been incorporated into both modern and traditional practices of agriculture, medicine, fishing, education and conservation. The Maori example has also provided evidence that Western scientific ideas are not the only valid ones, and that indigenous environmental knowledge systems can and should be used as alternative forms of knowledge. (King et al., 2008, p 385–386)

In addition to influencing how data is created, used and understood, culture and personal characteristics also affect how we act and how we perceive meteorological events. West and Orr (2007) have studied the role of race, gender and communications in natural disasters, and although their research took place in the United States, its findings have relevance on a global scale. West and Orr used an opinion survey to research attitudes regarding vulnerability and evacuation in hurricanes. They found significant differences in how men and women, and majorities and minorities perceived natural disasters. In order to be able to ensure proper emergency planning, governments need to understand the different information processing approaches of various groups within a society. West and Orr also state that disasters are not situations where a "cookie-cutter" approach (i.e. all groups are treated identically) is the most effective. There are significant differences in for example how much attention people give to different sources of communication, such as government officials, mass media, and even friends and relatives. To be successful with all demographics, emergency planning needs to take consider these issues. (West and Orr, 2007) The role of the local society and deep knowledge regarding local populations is important when planning and executing capacity development projects.

2.5 SOCIETAL AND POLITICAL ASPECTS OF WEATHER

The climatic world is one even if politically we are not.
-Reid Bryson (1976)[16]

In the mid-1990s, the national meteorological office of Afghanistan was destroyed by the Taliban, which considered weather forecasting "sorcery". During the Soviet occupation of the country, the Afghanistan Meteorological Authority had been one of the most advanced weather organizations in the world, with a staff of 600 and data on the region's weather covering a period of over a century. Because of the Taliban's actions, the local agricultural sector did not receive drought warnings, which heavily influenced the country's food security. A couple of years later, in 1998, an Ariana Afghan Airlines flight flew into unexpected weather, causing it to crash into a mountain. An accident that could have easily been prevented with sufficient weather data, killed 45 people.

The role of the state and politics in weather is of central interest in this study. The state is essentially responsible for the provision of meteorological services. In addition to running meteorological departments, states coordinate nation-wide actions in crisis situations with other governmental bodies, such as the military forces, and engages in international cooperation with other countries. However, despite the fact that governments are responsible for these measures, the private sector is also involved in similar practices. Private companies provide weather forecasts, which are widely available online. They also manufacture meteorological equipment. Since private enterprises aim at making a profit, there is an important difference in motives, which needs to be acknowledged. The relationship between the public and private sector has been problematic in the field of meteorology, not only in Finland, but in other countries as well. For example, in the United States, the U.S. Weather Bureau/National Weather Service provides most of the forecasts, but there have been constant controversies over the role of the public service in private broadcasting, and in regards to how the public and private sectors compete with each other. (Henson, 2010) Additionally, the role and importance of politics in the field of meteorology has been an understudied topic. Most research has focused on the scientific aspects of meteorology and less so on the political, even though natural disasters have a high impact on political issues as well. Many historical facts reveal interesting linkages between, for example, meteorology and military forces, as much of meteorology was initially developed for military applications. The U.S. Air Force for example developed an accurate method for forecasting tornadoes in 1948, after one caused major damage to a military base in Oklahoma. Only gradually did this lead to the development of a warning system for civilians. (Henson, 2010:165)

2.5.1 IMO AND WMO HISTORY

The World Meteorological Organization was briefly introduced in the first chapter. In this section, I will outline the history of the organization in more detail, and discuss some of the political aspects involved with the organization's background.

The International Meteorological Organization (IMO) preceded the WMO. International cooperation practices in the field of meteorology began in September

[16] Testimony on May 26th 1976 in United States Congress by Reid Bryson, who was a scientist at the University of Wisconsin. His idea of the climate as a global system has since become a mainstay in the climatic discourse. (Bäckstrand and Lövbrand, 2015:52)

1873, when an international meeting was held in Vienna. Altogether, 32 representatives from 20 countries participated, including N. K. Nordenskiöld from Finland. The Finnish Society of Sciences and Letters sent Nordenskiöld to the meeting. In 1881, he became the director of the FMI (Nevanlinna, 2009:2). Topics under discussion at the meeting in Vienna included issues such as observation times, units, calibration of technology, and exchange of data. Permanent commissions were established, with the purpose of taking the lead in various areas of meteorology. These were the predecessors of the current WMO commissions. The members of the commissions were directors of national meteorological institutes. The following year, the permanent commission met in Utrecht to discuss issues such as weather observations from uninhabited regions and islands. International fund was planned for this purpose, but it was suggested that nations should be responsible for the establishment of these stations. The commission also stated that regular observations should be collected from 1 000 stations across the globe. The next meetings of the permanent commission regarded the organization of the second international congress to be held in Rome in 1879. In addition to discussing the practical aspects of weather services, the establishment of the International Meteorological Commission (IMC) was also decided. This committee included nine members, and was based solely on academic volunteerism. The congress in Rome also decided to hold the first international polar year in 1882–1883 and assigned the commission to take care of the organizing tasks. This started the process of defining international weather observation activities and simultaneous observations. The IMC convened four times but discontinued its practices in 1888. The responsibility for the development of international practices in the field was left to the meetings of the directors of national meteorological institutes. The first meeting was held in Munich in 1891. In this meeting, the basis for international cooperation was created. International cooperation continued in this form until World War I. This organization did not have any funds, and activities were based on volunteerism. Two separate meetings of the directors were organized before World War I, in Paris in 1896 and in Innsbruck in 1905. During this time, new countries also started to participate. In addition to European nations and the United States, also Canada, Japan, Australia, India and Brazil were active members. (Venho, 1973:18-21)

World War I brought all international cooperation in meteorology to a stop. The International Meteorological Organization IMO was still operating during the war. Soon after the war ended, actions were taken to organize the first meeting of the heads of meteorological institutes. In 1921, a meeting took place in London, and the next meetings were held in Utrecht in 1923, in Warsaw in 1935, in Salzburg in 1937, and on the verge of the new war, in Berlin in 1939. The central issue discussed in all these meetings was the organization of world meteorology. The main options were to either establish an organization, which would function under the meetings of the directors of the institutes, or a separate international organization. Solving this issue presented a true challenge, but the former option had been the initial goal. The decision to support this form of organization was reached in Berlin in 1939. When World War II started, all international cooperation was in principle cut again, but the secretary of the organization still received membership fees from previous members – there was only a ten percent decrease in the sums paid during the war. This was seen as a sign of the strength of international cooperation in the field. During the time between the wars, technology and science made huge advances, and the aviation industry grew immensely. The extent of the practices suitable for the organization grew ever larger. Since aviation already had a separate intergovernmental organization, there was quite some struggle over the organization of aviation weather regulations. In addition, during the period between the world wars, it was discovered that there were regions in the world that required the development of regional associations. Regional associations were first established for Africa and Asia. The final regional association

established was for Europe in 1946. The disorderly time after the war required European nations to solve various issues. Discussions regarding the organization continued during the World War II and several meetings were held before a consensus was found in Washington in 1947. It took another three years before agreements with 30 national organizations had been legalized. This is how the International Meteorological Organization was re-born as the WMO, functioning within the UN system. What was left of the IMO was that the directors of national meteorological offices formed the permanent representation of their countries. (Venho, 1974:2-4)

The WMO organizes the World Meteorological Congress every four years, bringing together delegates of the member countries. The goal of this meeting is to:

> "determine general policies for the fulfillment of the purposes of the Organization, to approve long-term plans, to authorize maximum expenditure for the following financial period, to adopt Technical Regulations relating to international meteorological and operational hydrological practice, to elect the President and Vice-Presidents of the Organization and members of the Executive Council and to appoint the Secretary-General." (World Meteorological Organization, 2014b)

The main benefit of the current system is that the organization is able to standardize weather observation work and the exchange of global weather data. It has also organized a lot of training, especially in developing countries, as well as voluntary cooperation efforts between countries. Overall, the WMO has been able to utilize the fast technological developments in the field and direct the industry to serve societal needs. (Venho, 1974:4)

2.5.2 DISASTER MITIGATION

When talking about catastrophes and their impact on local communities, one branch of research in this field is focused specifically on disaster mitigation and disaster management. Disaster mitigation as a concept is used in disaster research, but has been less applied in the context of "development". This issue needs to be changed. In part, this separation is due to the common disjunction between "disaster management" and "development efforts". Although these are closely interlinked, they are often thought of as completely separate issues. Yet, there is increasing evidence that sustainable development and poverty reduction objectives cannot be achieved if disaster risks are not managed more effectively. Naturally, this applies to all levels, from national to regional, as well as to individual households. Repeatedly occurring extreme weather events can trigger a disruption of public services, as well as damage to infrastructure, which in turn can set back a society's development by many years, if not decades. It is also clear that compared to wealthier communities, poor and fragile communities suffer more immensely. Efforts in disaster mitigation should be viewed as integral elements of planning for development. (Holloway, 2006:131)

The concept of disaster mitigation has its origins in the context of disasters and disaster risk management. It includes different measures, activities and strategies to minimize the impact of natural or technological threats. Both "structural" and "non-structural" mitigation measures are used. Structural mitigation refers to situations where public efforts are used to target hazards or threats directly by, for example, building a dam to avoid flooding. Structural mitigation requires engineering or some sort of infrastructure to avoid hazards or threats. Non-structural mitigation on the other hand refers to situations where disaster mitigation efforts target those who are

at risk by reducing their vulnerability to a specific threat. These efforts may include things like educating the local population and empowering them, or utilizing social mobilization initiatives to reduce the vulnerability of specific demographics, such as women, the elderly or children. (Holloway, 2006:130-131)

Another branch of research exploring some aspects relating to the political importance of meteorology has been focused on the links between natural disasters and civil conflicts. Nel and Righarts (2008) explored the occurrence of natural disasters and civil wars. Their study included tsunamis, floods, hurricanes, epidemics, heat waves, volcanic eruptions, earthquakes and plagues. Their dataset included a comparison of 187 political units during the years 1950–2000. They discovered that natural disasters significantly increase the risk of violent civil conflict, both in the short- and medium-term, especially in middle- and low-income countries that have intermediate to high levels of inequality, mixed political regimes, and slow economic growth. (Nel and Righarts, 2008) Interestingly, opposite findings have been proposed by Buhaug (2010) in the context of Africa, who found that climate variability, and the occurrence of phenomena such as drought, heat and civil war are poor predictors of armed conflicts. He states that African civil wars can be better explained by generic structural and contextual conditions, ethno-political exclusion, poor national economy and the end of the Cold War. (Buhaug, 2010) Despite the somewhat conflicting findings of these and other studies, it is clear that weather and climate change have a high political relevance. The high political relevance of the field is not a recent phenomenon, and has rather interesting roots in colonial history.

2.5.3 METEOROLOGICAL PHENOMENA IN COLONIAL TIMES

Weather and meteorological phenomena have had a significant role in the "making of the third world". The colonial period was the first time when Europeans were faced with extreme weather events of great magnitude, such as hurricanes. During this period, the colonists influenced and changed the methods of forecasting.

Muguti and Maposa (2012) have studied the role of indigenous weather forecasting in Zimbabwe from a post-colonial perspective. They argue that in the process of colonizing African countries, the indigenous methods of weather forecasting were both belittled and abolished by the colonists. According to their interpretation, there was a deliberate attempt by the colonialists to dismantle indigenous institutions, and thus pave the way for the establishment and perpetuation of European hegemony in the African continent. (Muguti and Maposa, 2012:106)

Davis (2001) has studied the connections between political economy and global climate patterns. He has explored the role of weather events in the political history of the colonial period, with a focus on the last quarter of the Victorian era. This was a period when major droughts devastated areas throughout the tropics, as well as in northern China. During this time, more than 50 million rural people perished in the famines and the epidemics that followed the droughts. Davis argues that the deaths were caused by a laissez-faire and Malthusian economic ideology adopted by the colonial governments, highlighting an important relation between policy choices and natural phenomena. Countries such as Ethiopia, India, China, Brazil, Korea and Vietnam were among those affected. Mortality rates were high and the famines of this time have been called the greatest human tragedy since the Black Death. Davis has analyzed the long-term economic impacts of this period. The discovery of the El Niño effect has explained some of the catastrophic crop failures of the 1870s and 1890s. However, Davis argues that the effects of the natural phenomena were multiplied

when combined with New Imperialism[17]. The division of humanity was decisively shaped by fatal interactions between the climate and the world economy at the end of the nineteenth century. (Davis, 2001)

A separate question in this discussion is how exactly did the weather conditions of the colonies influence the colonialists. The colonialists experienced many hardships, of which the most severe cases were possibly in the Caribbean region, where extreme weather was both feared and mystified. One example comes from the British Greater Caribbean, a region spanning from Barbados to South Carolina (a southern state of the United States) – a volatile and uncertain region for the colonists. Sugar and rice plantations generated great profits and made the area's planters the richest colonists of the entire British America. Both crops required large capital investments in land, labor and equipment and skillful management, but also good luck. There were numerous risks, and potential for calamities, losses and other inconveniences. These risks came in various forms, such as drought, insects, warfare and slave rebellions. However, nothing contributed to this climate of capriciousness more than hurricanes, which caused widespread destruction, significant losses and necessitated major reconstruction efforts. The storms in the region were a new experience for European colonists and they became the most feared element of the region's environment. (Mulcahy, 2004:635–637)

Hurricanes did not transform the plantation economy of the Greater Caribbean, but they did shape the experiences of plantership in the region throughout the seventeenth and eighteenth centuries. Colonists all over the world worried about bad weather, but the planters in the Greater Caribbean were confronted with hurricanes, which were a threat of a different order and scale. Hurricanes could inflict wholesale damage to crops and cause large-scale destruction to the social and economic infrastructure. Hurricanes destroyed ships and port facilities, which were essential for conducting trade in the colonies. In Barbados, the location of fieldwork for this study, during the hurricane of 1675, 12 ships were broken to pieces in the Bridgetown harbor. Significant damage to ships and docks were also caused by hurricanes in the region in 1712, 1722, 1728, 1752 and 1780. In 1780, a hurricane caused the death of over 2 000 slaves and 6 600 cattle, and economic losses of over 1,32 million pounds (Lambert, 1975). The hurricane season overlapped with the harvest season. Storms routinely flooded rice fields and ruined crops. The destruction of crops had important short-term consequences for the supply and price of sugar and rice in the British Atlantic market. Prices jumped as news of the hurricanes spread and ships arrived with less than expected amounts of products. The potential disruptions in production caused by hurricanes meant that correspondents in England waited anxiously for news from the colonies. The market prices of sugar and rice in London fluctuated wildly depending on the news. Therefore, merchants who received the news first were in a beneficial position to sell or buy products at better prices. Most planters in the Caribbean region survived these environmental shocks to their crops and the fluctuation of prices, but they often needed credit from English merchants or local lenders to do so. At times, hurricanes were the breaking point for more marginal or heavily indebted planters, who ended up having to give up their properties. These bankruptcies facilitated the consolidation of the sugar plantations in the hands of the richest planters, or in the transfer of estates to English merchant creditors. Nevertheless, the risks associated with planting in the region did not stop activities, because of the potential profits from sugar and rice production. (Mulcahy, 2004:637–638, 641, 643, 645, 648)

The hardships of the colonial period are not that different from the problems developing countries are faced with today. Storms and other extreme phenomena,

[17] New Imperialism was a period of colonial expansion by the Europeans, Americans and the Empire of Japan that took place during the late 19th and early 20th century.

although now often foreseen, still have the power to destroy infrastructure, influence commodity prices and cause environmental shocks, which can in turn have vast political and economic consequences. All nations share the responsibility and benefits of the development of meteorological capacities across the globe.

2.6 CHAPTER SUMMARY – RELEVANCE FOR RESEARCH TOPIC

The issues discussed in this chapter, the basics of meteorology, connection between disasters and aid, climate change's relevance for developing countries, modern and traditional aspects to weather, and the societal and political relevance, provide important background information regarding the content chapters of this thesis and understanding the overall results of the study.

The issues discussed in this chapter show how important aid in the field of meteorology truly is. It is relevant primarily for the sake of national and global security, and climate change has made this issue even more pressing, especially for the developing countries.

The historical issues relevant for this topic go beyond the time period discussed in detail in this study (1968-2015), and for that reason the links to colonial time have been discussed in this chapter. Although Finland didn't play a role in these activities, the countries which have received aid from Finland have been part of these practices. For that reason, it is important to understand the historical aspects involved since they are always in some ways tied to current relationships, especially in donor – aid recipient types of set-ups.

In this chapter I have brough up how weather has many political and social (as well as financial) aspects, but often they are not discussed. In the following chapters, I will show what the meaning of them is in practice, in the context of Finnish aid in the meteorology sector.

The topics presented in this chapter also relate to the juxtapositions between science & politics, and culture & nature. Although the scientific and natural aspects of meteorology are often emphasized, the meaning of them becomes more interesting when the political and cultural issues are added to discussion. In this study I aim to bring forward the relevance of politics and culture, and show that without taking into consideration all of the four components, the outcomes of aid practices in this field are simply less influential. This issue relates to the challenge of sustainability as well.

3 CONCEPTUALIZING DEVELOPMENT AND COOPERATION – THEORETICAL BACKGROUND AND ANALYTICAL CONCEPTS

The theoretical perspectives and selected concepts discussed in this chapter are based on a pluralistic approach to theory and have been selected because of the focus of the study and the main research question. In this study, development cooperation is analyzed through the framework of complexity theory, in which complexity rises from the cooperation between multiple stakeholders. Cooperation is understood as a multi-stakeholder process (MSP) aimed at capacity development (CD).

The analysis in this study is done on three levels: macro, meso and micro. The theoretical topics discussed in this chapter relate to these levels. Before presenting the actual analytical tools, I will present the theoretical discourses relevant for the topic under study.

This chapter starts with an overview of complexity theory and an introduction to the actor-oriented approach, both of which have inspired the research set-up of this study. Then, the theoretical background and central debates surrounding aid and development cooperation, capacity development ideology and history are discussed. These provide insight into the context in which meteorological development cooperation is conducted, and the kinds of controversies present in both theory and practice.

The fourth section of this chapter presents the actual conceptual tools used in analysis. These have been divided in three parts. The first part presents the concept of governmentality, which was formulated by Michel Foucault during the late 1970s and early 1980s. Here it is explored mainly through the works of Li (2007b) and Dean (2010). Governmentality is applied in analyzing the structure of aid as an analytics of government, referring to the process of how aid is governed through the system. The second part presents theories regarding power. Governmentality and power are conceptually interlinked, as power plays a major role in the process of governing aid. These theories include French and Raven's forms of power (developed in the late 1950s), Lukes' theories of power (1974/2005) and Clegg's Circuits of Power theory (1989). These three theories are combined to analyze the extent of power, as well as the forms of power available to different stakeholders. The third part, titled "Patterns of aid behavior", summarizes the works of various authors who have studied donor behavior in the context of development cooperation; these include Mosse (2011), Gibson et al. (2005), Hydén & Mease (1999) and Burnell (1997).

To summarize the purpose of the study, the main issue to solve is the problem relating to the sustainability of projects. A propositional pattern regarding the role of experts in development cooperation is formulated. The different actors involved in development cooperation are in a key role in this study. The adopted approach and inspiration for the research set-up has been derived from complexity theory and Norman Long's (b. 1936) actor-oriented approach.

3.1 THE APPROACH OF COMPLEXITY THEORY TO AID

> To understand the whole, it is therefore important to step back, to understand the relationships that link various actors and to view the system as a coherent whole with its own dynamism that can be influenced by individual actors.
>
> - R. Hinton and L. Groves, 2004

A new kind of optimism was heralded by the arrival of the 21st century and collective efforts were made towards reducing global poverty. The United Nations Millennium Declaration was signed by 189 countries, and the Millennium Development Goals (MDGs) were set to be achieved by 2015. At the turn of the millennium, poverty reduction became the overarching goal of international development, but the achievement of these goals was not considered possible, unless more pragmatic and people-centered policies were adopted and far greater trust, accountability and responsibility were reached among actors on all levels. A new focus on the socio-political dynamics of aid and an understanding of development as a complex system was also deemed vital. (Hinton and Groves, 2004:3)

Complexity theory is an interdisciplinary theory that grew out of systems theory in the 1960s (Grobman, 2005:350). Complexity theory attracted attention in the 2000s, when drastic changes occurred in the structure and scope of governmental, business, and nonprofit organizations. The list of challenges included issues such as globalization, workforce diversity, quality improvement and public service privatization, which put a premium on the ability to respond to change. Organizations wanted to become more adaptable and able to learn from experiences, in order to have the capability to reconfigure themselves when encountering new demands. (Cohen, 1999:373)

Ramalingam (2013) has explored international cooperation in a complex world. He argues that we are living in the age of the global, where not just opportunities, but also threats and risks have become globalized. Ramalingam criticizes the "development disaster" narrative, where development aid as an external intervention pushes local systems out of balance and into chaos. Ramalingam defines the "edge of chaos" as a delicate balance between the socio-cultural system, economic needs and environmental limits. He talks about how a growing movement within scientific thinking, known as complex adaptive systems research, is changing the way we think about complex problems. His argument is that aid is at a crossroads – there are those who want to protect and increase it, those who attack it and finally those who seek to re-think and improve it. In his book, Ramalingam reflects on the aid "business model" and “aid institutions". He analyzes the ways in which aid agencies learn and "think" and how they develop strategies and policies. He also examines how organizations and relationships work, and how they ensure accountability and performance. He then continues to explore ideas from complexity sciences and how they may be useful. Complexity is viewed through a system of four "lenses": systems, behaviors, dynamics and networks. With case examples, Ramalingam shows that a growing number of experts in this field have started to challenge conventional approaches by using the ideas of complex adaptive systems to discover what a more relevant and innovative approach to aid could be like. (Ramalingam, 2013: xii-xviii) Table 3 summarizes the typical aspects of conventional versus alternative approaches to aid.

The complexity theory approach starts with an understanding of the complex nature of human behavior and its unpredictable and non-linear aspects. Hinton and Groves (2004), have also argued for similar changes. In the past (and even currently), development organizations have emphasized bureaucratic conformity, upward accountability and achieving financial objectives. Hinton and Groves argue for an approach, which emphasizes flexible, innovative procedures, multiple lines of accountability and the development of skills for building relationships, such as language and cultural education. They also call for an exploration of the behavioral characteristics and choices by actors involved in development cooperation, as well as

Table 3. Conventional and new perspective approaches to aid.

	Conventional Thinking	New Perspective
Systems and problems	Systems and perspectives are closed, static, linear systems; reductionist – the parts reveal the whole.	Systems are open, dynamic and non-linear systems far from equilibrium. Macro-patterns emerge from micro-behaviors and interactions.
Human agency	Individuals use rational deduction; behavior and action can be specified from top-down; perfect knowledge of future outcomes is possible.	Heterogeneous agents that mix deductive / inductive decisions, are subject to errors and biases. Actors learn, adapt, self-organize and co-evolve over time.
Social structures	Formal relations between actors are most important; relationships are ahistorical, and can be designed; actors can be treated as independent and atomized.	Interpersonal relationships and interactions matter in the form of culture, ties, values, beliefs, peers. The informal matters, relationships are path-dependent and historical.
The nature of change	Change is the direct result of actions; proportional, additive, and predictable; can hold things constant, simple cause and effect.	Change is non-linear and unpredictable, with phase transitions.

(Source: Ramalingam 2013:142)

the interdependencies and power dynamics between stakeholders. Organizations are often presented in an overly simplistic form, when in reality they are at least as complex as the individuals that constitute them. (Hinton and Groves, 2004:6)

In addition to adopting the complex systems approach while developing more flexible procedures, it is important to address power, politics and rights separately. The current aid system is based on patterns of dominance, control and hierarchy, despite the rhetoric of ownership, partnership and participation. There are different theories of power and conceptualizations regarding its meaning, role and usage. (Hinton and Groves, 2004:10-11) The Oxford English Dictionary defines power as the

ability to do something or act in a particular way as a faculty or quality; and as capacity or ability to direct or influence the behavior of others or the course of events. Power is embedded in the system, terms and conditions of the relationship between the actors, and in some cases it is exerted through the direct provision of financial resources linked to the political interests of donors (Hinton and Groves, 2004:10-11).

The new policy framework proposed by Hinton and Groves would require donors to change their roles from managing development programs to becoming responsible and self-aware co-players in broader political processes. Previously, the focus of development initiatives has been on intra-organizational improvement, such as internal efficiency and improved performance, with a focus on outputs rather than processes. This has included the process of changing organizational policies and procedural tools. Hinton and Groves argue that these types of changes alone will not lead to the required transformations set forward in the poverty reduction agenda. Instead, a profound shift in the personal practices of individual development actors is needed. Organizations should encourage individuals to act flexibly and creatively in ways that promote relationship-building and the breaking down of power asymmetries, which are created by the donor-recipient set-up. People do not tend to change their attitudes or behavior quickly, and the organizations they work in have a great responsibility to provide incentives for change. People are often reluctant to examine or reflect upon their own attitudes and behaviors in regards to other cultures and their own organizational culture. Instead, they prefer to stay in familiar social environments. Language is another central issue. Language barriers between donors and recipients of aid can be both verbal and non-verbal. It is easy to create a dichotomy between "us" and "them" through language. In addition, the commitment of donor organizations to support language learning among their staff is often weak, and at the individual level there might be resistance to invest in socio-cultural skill development, especially if projects are short. The complex system theory view of international development focuses on the importance of individual agency. Individuals have the power to change the way a system functions by working at the local level to direct the flow of the wider system. Small shifts can contribute to radical restructuring on a whole. (Hinton and Groves, 2004:13-16)

Another scholar in the field of complex adaptive systems research is Jones (2011), who has written more specifically about the practical aspects of taking responsibility for complexity. He states several reasons for why complex problems pose great challenges for the traditional approaches. Mainly, the capacities to tackle complex problems are often distributed among the actors. Problems are manifested on different levels and in different ways. Because of this, it would be appropriate to have strong collaboration among actors, and not just have one organization be responsible for meeting a particular objective. Secondly, he argues that complex problems are difficult to predict. In cases where causality is not well understood, as is the case in many social, political and economic problems, success is more easily attainable if we rely on adaptation and flexibility, rather than pre-planned responses. Thirdly, he argues that complex problems often involve conflicting goals. Policy issues may have several equally plausible interpretations, and different groups approaching the same issue from different starting points and backgrounds tend to see it differently. If the communication between stakeholders is poor, there might not be any common understanding of what is happening. Jones also states that traditional tools tend to be based on inappropriate assumptions for complex problems, and when applied in the wrong context, may cause numerous negative side effects and key aspects of problems may be hidden from sight. Formal implementation tools may decrease in relevance, and managers may be presented with perverse incentives. However, the problem is usually not in the poor application of the right tools or intractable problems, but instead the use of wrong tools to start with. In recent years, complexity sciences have improved our understanding of complex problems and presented new

concepts and insight into alternative theories for change, along with a greater understanding of underlying processes, and better approaches for tackling complex problems in a strategic and direct manner. (Jones, 2011)

In terms of practice, Jones states that rather than working in a linear fashion, policy-makers should be mindful of any constraints and opportunities as to where, how and when knowledge and decision-making can be linked. Agencies need to work in a collaborative manner, and facilitate decentralized action and self-organization. They need to be flexible and deliver adaptive responses to problems. Implementation systems must draw on knowledge sources on different levels. Jones states that the complexity approach can no longer be ignored, and even though there is no comprehensive framework yet, there is a growing collection of tools available for the development of interventions. These new models will allow implementers to be systemic, explicit and rational in their approach to presented challenges. Jones also acknowledges that these new tools will make various areas more open and visible to the public, which may be an uncomfortable transition for some actors, but that openness is needed when striving for results in the face of complexity. (Jones, 2011) In terms of the aid system and how development cooperation projects have been organized in practice, it suffices to argue that the current system lacks both flexibility and openness.

3.2 ACTOR-ORIENTED APPROACH

Long conceptualizes development projects as social arenas, where numerous actors interact. This approach acknowledges that each actor has different interests. The focus of analysis is on knowledge and power. (Long, 1999) Long's approach has been widely used in analyzing the dynamics of development intervention and change.

The actor-oriented approach to development emphasizes social life as heterogeneous and polymorphic. Social action is co-produced and co-transformed. According to the approach, social and institutional constraints cannot be reduced to general sociological categories or hierarchies of class, status, gender, ethnicity and so on. Social action is always context-specific and contextually generated. (Long, 2002:49) The actor-oriented approach has several implications for the processes of intervention, in the fields of both development and organizational change (Long, 2002:50, see also Bosman 2004). Both of these are relevant for this research. Long argues that development intervention is often described as a discrete set of activities that take place within a defined time-space setting, involving interaction between different actors; "intervening parties" and "target" or "recipient" groups. Long continues to argue that this isolates intervention from the continuous flow of social life, and the ongoing relations that evolve between the social actors, including the many ways in which local actors interact with implementing officials and organizations. Development interventions are always part of a chain or flow of events, located within the broader framework of the activities of the state, international actors, and the actions of different interest groups in the civil society. It is important to remember that these are linked to previous interventions, have consequences for future ones, and might be a focus for intra- and inter-institutional struggles over the perceived goals, administrative competencies, resource allocations and institutional boundaries. (Long, 2002:50)

In this study, the focus of research is heavily on the actors involved with cooperation, and mainly the “intervening” donor-side stakeholders, who play the most important role as financers, executors and equipment suppliers. However, the experiences of the “target”, aid recipients are also included. The view of the actor-oriented approach that development interventions are part of a chain of events is embraced, and as a result, the practices are observed over a long period. The

compatibility of policy and practices is also analyzed. The main issues of interest in the actor-oriented approach include differing interests as well as knowledge and power, which are also the central themes in this study's analysis.

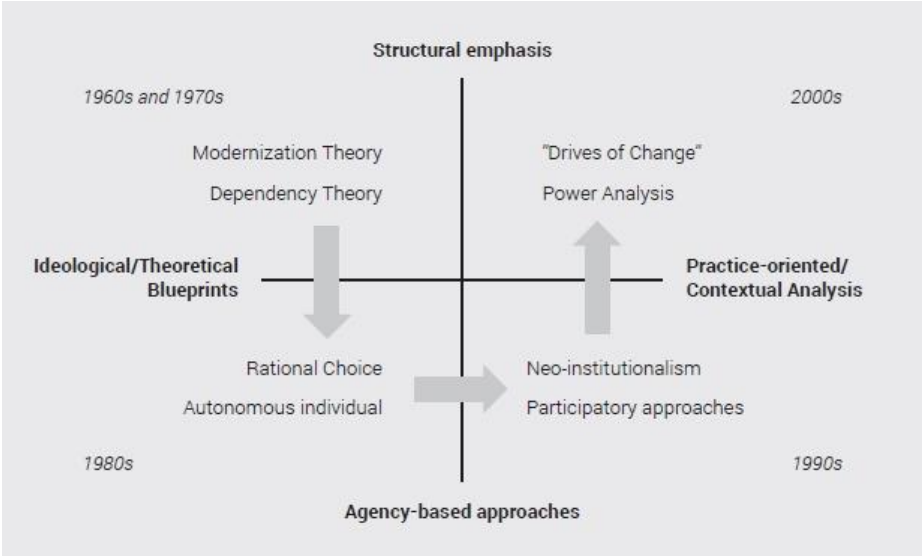
3.3 THEORETICAL BACKGROUND

In this section, previous research on the beneficial and detrimental aspects of aid are presented. Since the field of aid research is vast, not all aspects are covered in detail but instead, the aim is to highlight the main arguments for and against aid.

3.3.1 THE DEVELOPMENT COMPLEX – ARGUMENTS FOR AND AGAINST AID

The literature on aid and development naturally reflects the central debates present in the field. There are those who approve the logic of the developmentalist complex as it is, and those who question it. Aid has its defenders and adversaries, but aid can also be understood to have an innately dualistic nature, producing outcomes that are both effective and ineffective, positive and negative. The central dilemma regarding the true nature of aid as one creating well-being or only further maldevelopment influences cooperation, interaction, and the outcomes of development aid projects.

Figure 6. Emphases in development research, 1960s to the 2000s.



(Source: Hydén, 2015)

Over the decades of development research, the conceptualization of development in social sciences has seen three main movements with three contrasting theoretical orientations; firstly, modernization theory during the 1950s and 1960s; secondly, growth and development and dependency theory in the 1960s and 1970s; and finally,

critical approaches to development as cultural discourse in the second half of the 1980s, and during the 1990s. Since then, there has been talk of a post-development era. Figure 6. summarizes the main phases of development research as outlined by Hydén (2015). Post-development generally refers to an era in which "development" is no longer the central organizing principle of social life, and in which development is not solely viewed from the perspective of the Western world. There was a need to rely less on expert knowledge, and more on ordinary people's attempts at constructing more humane and ecologically and culturally sustainable worlds, and to recognize the importance of social movements and grassroots mobilization. While inter-paradigmatic dialogue has expanded during the 2000s, the challenges we face are perhaps bigger than ever. (Escobar, 2006:447-448, 450)

Primarily aid is, or at least should be, focused on improving the situation at the local level, in recipient countries. Nevertheless, it would be naive to deny the instrumental role of aid in forging political or economic benefits. Aid can be used in different ways, and past research has shown that aid-giving can be motivated by a variety of political and economic realities. As outlined in the introduction, the key stakeholders involved with these projects have various goals relating to development cooperation. The FMI is committed to supporting the development of meteorological services in developing countries. Vaisala's main customers are meteorological institutes from around the world. The Finnish Ministry for Foreign Affairs promotes Finland's political, commercial and economic interests. All these issues are relevant when examining the existing practices and outcomes of cooperation projects. All stakeholders in both donor and recipient countries take part in the "aid game", each with their own motivations, values and incentives, which might conflict with each other. Defining these is the first step in understanding how aid truly functions.

When looking beyond the surface, the system of aid is revealed to be full of controversies. As Koponen (2011) outlines, development aid is a system, or a complex, where money and other resources move from up to down, through different actors. They have some effects and impacts, from which information moves again upwards from the bottom. Decisions and choices are made based on the information that the system produces through this process. (Koponen, 2011:15) Development policy and development cooperation execute the goals of the development complex, producing or aiming to produce the development that the complex promises. In the process, they validate the existence and logic of the entire system. (Koponen and Seppänen, 2016:341)

Development policy, development cooperation and development aid are normative concepts used by the stakeholders of aid. They are what politics and cooperation depend on in practice. These concepts refer to the idealistic goals of aid and when outspoken, they are aimed at directing practices towards the ideals shared by the aid community. However, politics is human action and includes unspoken and even subliminal elements, which create contradictions and conflicts between policies and practices. Official and public goals and practices are mixed with unofficial and unexpressed ones, and these are not necessarily in line with each other. This happens in the field of development, but in other areas of societal actions as well. However, in development politics and development cooperation, the conflicts and collisions are often more glaring and blatant than in other fields, since the official goals are often so graceful and altruistic. For this reason, development politics and cooperation are morally very charged areas of inquiry, and conflicts arising from these practices can stir up strong emotions. (Koponen and Seppänen, 2016:343)

The approach in this study is to analyze aid as a social phenomenon. In the context of the fairly new theoretical field of complexity theory (applied to aid), aid is

interpreted, not as a conveyor belt solution[18] to a problem, but more as a catalyst for change. (Ramalingam, 2013) This approach demands a wider scope of analysis where the topic is studied from different perspectives and data is collected from various sources.

Since aid is a controversial and highly political topic, not all critique can be considered well-informed or soundly based on science. Much of the public aid critique is influenced by either political or economic motives. The critique brought to the discussion here is based on academic research. The aid critique within academia is quite vast and the scholars mentioned here are some that have inspired my own approach to the topic of aid.

Famous development economist and critic of development assistance Peter Bauer (1915–2002), who was most active from the 1960s until the 1980s, has described development aid as "...an excellent method for transferring money from poor people in rich countries to rich people in poor countries". Bauer challenged the widely held view that development in poor countries requires massive government intervention, detailed economic planning and protection from competition. He also showed that development had been held back by the use of various intervention mechanisms. He is probably best known for his critique of foreign aid in *Dissent on Development* (1971), which led to a heated debate. During this time, the commonly held view was that foreign aid was essential in promoting development. It was thought that aid was needed to make up for deficiencies at the local level, such as low levels of domestic savings. Development at the local level could not begin until there was a comprehensive infrastructure in place, mainly roads, schools, urban housing and clean water supplies, and aid was the only way to provide these. Bauer challenged this view and claimed that aid was neither a sufficient nor a necessary condition for development. By using examples from the past, he showed that much of development has in fact occurred without external aid. He also argued that many countries, which have received aid for long time, have not developed. Since aid was invariably paid to governments, it has helped to keep in power those who are corrupt, elitist and inefficient, and those who have suppressed the human rights of their own people. (Elkan, 2006:19, 21)

More recent critics of aid include Arturo Escobar, who argues that development policies are mechanisms of control and that they are just as pervasive and effective as the practices of the colonial period. The development apparatus, created by industrialized nations, even managed to shape the thinking of aid critics. According to Escobar, women, peasants and nature have become objects of knowledge and targets of power utilized by "experts". (Escobar, 1995)

Gilbert Rist on the other hand, presented in his book *The History of Development, from Western Origins to Global Faith* (first published in 1997), an overview of the long history of development trends, paradigms and reinventions, starting from the time of Aristotle and proceeding to the Millennium Development Goals. His approach focuses on deconstructing the ideas, practices, and discourse of development. Rist argues that all practices and policies of aid should be discarded, and even went as far as to argue that aid can be described as a collective delusion. (Rist, 1997) Wolfgang Sachs (b. 1946), agreed with Rist's criticism. He edited and co-authored the book *The Development Dictionary: A Guide to Knowledge as Power* (1992), which starts with an obituary for development. He states that the idea of development "stands like a ruin in the intellectual landscape" and steady companies of development have included delusion and disappointment, as well as failures and crimes. The historical conditions that catapulted the idea into prominence have since vanished and

[18] According to Ramalingam, a conveyor belt solution refers to a way of thinking where there is a solution for every problem. For example, a vaccination is a solution for a specific disease, and fertilizers to low crop yields.

development as such has become outdated. According to Sachs, over the years, piles of technical reports have shown how development does not work, and stacks of political studies have proven that development is unjust. (Sachs, 1992)

Thomas Dichter argues that the development industry has evolved into a system in which the benefits are increasingly in an inverse proportion to the amounts spent to achieve them. Like Rist, Dichter bases his arguments on major trends in development assistance from the 1960s to the 1990s, and shares case examples from his experience of being a development practitioner for more than 35 years. Dichter argues that development organizations are designed to create an illusion of effectiveness and many practices have in fact created further dependency. Overall, the efforts to reduce world poverty have been well-intentioned but largely ineffective. Development aid has failed to serve the needs of the people it has sought to help. Dichter's solution is a lighter version of the current system, in which fewer agencies and experts would be involved. (Dichter, 2003)

Adam Fforde has studied the aid industry and according to him, the dominant approaches of national economy and development studies fail to understand the complexities of current realities. He argues against the paradigm that development is a predictable process, and believes instead that reality is far more complex and varied than can explained with development theories. He also questions the role and usability of policy in understanding development. (Fforde, 2009) In an article published in 2010, Fforde reflects on the declining authority of the "one size fits all" policy advice, and states that there are no known robust cause-effect relations between policy and performance that would hold globally (Fforde, 2010). Forde cites an article by Levine and Zervos (1993), who reported econometric work showing almost no strong relations between policy settings and indicators of economic performance across time and countries. (Levine and Zervos, 1993) Fforde suggests studying the pragmatic actions of those in practice that are aware of cause-effect relations and limitations of knowledge. (Fforde, 2009)

David Mosse has studied the ethnography of aid policy and practice, focusing on the context of a development project that took place in western India. He states that the relationship between policy and practice is commonly understood in terms of an unintended gap between theory and practice, which can be reduced over time with better and more effectively implemented policy. Mosse challenges this notion and poses the question of what if development practice is not driven by policy to start with. What if the factors that make for good policy are different from those that make it implementable? He continues by asking whether the practices of development are in fact concealed rather than produced by policy. Here he refers to situations where actors devote their time to maintaining coherent representations, regardless of what happens. Mosse finds in his study that the actions of development workers are shaped by the need to maintain relationships, rather than policy, and that development actors work to uphold coherent representations of their actions as instances of policy. (Mosse, 2005)

The critique presented by these scholars has influenced this study. At times, the critique towards aid has been harsh and there are alternative perspectives to be considered. As brought up by one expert interviewed for this study: Aid as a system has its problems, but what is the alternative? The developmentalist complex that has been created during the past over 50 years has grown into a system that is hard to analyze as a whole.

Research on the success and effectiveness of aid has produced conflicting results. While the link between foreign aid and economic development can be questioned, there is plenty of statistical evidence available regarding global improvements in areas targeted by aid. In a more recently published study, Arndt et al. (2013), looked at the long-run contributions of foreign aid to growth in developing countries and found that the positive impact of aid on growth can in fact be confirmed. Over the past

forty years, aid has also promoted structural change, improved social indicators and reduced poverty. (Arndt et al., 2013) The UN Millennium Development goals report from 2014 shows that the number of people living in extreme poverty has reduced by 700 million between the years 1990 and 2010. In 1990, almost half of the population in developing countries lived on less than USD 1.25 a day, and in 2010 the share was 22 percent. The target of halving the proportion of people without access to drinking water was reached in 2010, five years ahead of the target period. Over 2.3 billion people gained access to an improved source of drinking water between the years 1990 and 2010. The political participation of women has continued to improve, and the share of undernourished people in developing countries decreased from 24 percent to 14 percent between the years 1990 and 2013. Child mortality has almost halved during the same time. (UN, 2014:4)

Still, even when positive developments can be shown, the question regarding the role of development aid in these developments needs to be scrutinized. What parts of these advances are due to development aid and what should be attributed to other factors instead? For example, much of the progress regarding the Millennium Development Goals has been widely credited to China's recent developments. (UNDP, 2015)

Additionally, several studies say that foreign aid works better in countries with a good institutional infrastructure and policy framework. In fact, aid has been found to be highly effective in countries where sound economic policies and a functioning institutional infrastructure are in place. A stable macroeconomic environment along with open trade regimes, secure property rights and efficient bureaucracies can deliver education, health and ultimately higher economic growth. In countries like this, a one percent increase in foreign aid translates into a 0.5 percent growth in GDP, an increase in private sector investment of 1.9 percent of GDP, and a reduction of poverty by one percent. (Weder, 2002:154-155) In addition to local conditions, the relationship between stakeholders also influences the success of aid. The effectiveness of cooperation largely depends on the quality of this relationship. (Carlsson and Wohlgemuth, 2000:8)

Based on various studies, foreign aid has not often been allocated to countries where it would be effective. Donors still tend to give most of the aid to their political allies, former colonies or countries that for example support them in UN votes. Bilateral donors have proven to be quite unproductive in targeting aid for the most effective use, because their funding decisions are driven by self-interest. Democracies receive more aid, but strategically important countries receive even more. It is also alarming that countries with high levels of corruption have received more aid than countries with low levels of corruption. Overall, the international community could be more effective in fostering development if aid is allocated where it can actually be effective. (Weder, 2002:157-158)

The problem with evaluating aid effectiveness is the fact that the appropriate tools for evaluating complex processes are yet to be developed. Knowing the exact impact of aid on one specific country would require separating it from other societal, political and economic processes. This in itself is a paradox, since "good aid" is always closely tied to these processes. Separating them for evaluation purposes does not make sense. In principle, it is not possible or purposeful to try to separate societal processes from each other, because it will always lead to an oversimplification of the phenomenon under study. Instead, embracing complexity and adopting a new approach in evaluation could lead to outcomes that are more productive.

Roger Riddell argues that the question regarding the impact of aid continues to be valid because aid is constantly changing. He states that in the 1950s, aid was about physical infrastructure and technical skill-sets, in the 1960s it was about savings and investment gaps, and in the 1970s about meeting basic needs. In the 1980s, aid was focused on the productive sector, in the 1990s it was concerned with governance,

human rights and human development, and in the 2000s mainly with the achievement of the Millennium Development Goals. In addition, the question regarding the impact of aid has been understood in different ways. Three decades ago, aid impact was about projects meeting their primary objectives, and more recently about making a lasting difference in the lives of the aid recipients and lifting people out of poverty. Now, in the mid-2010s, the entire existence of aid has been called into question by asking if whether poor economies would be better off without aid. Riddell argues that the vast majority of aid projects work in the sense that they achieve their near-term objectives and often make a positive contribution to poverty reduction and broader development goals. Expectations have often been too high. Albeit, the sustainability of those impacts has presented some challenges. He states that especially when aid is overwhelmingly focused on achieving visible short-term success, it can perpetuate and risk causing structural and systemic problems. Many of the weaknesses of the aid system require solutions that are more political than technical in nature. Riddell also states that instead of focusing on the problem of whether or not aid works, the focus should be shifted to how aid can be made to work better from a development perspective. (Riddell, 2014)

3.3.2 CONCEPTUALIZING ”DEVELOPMENT”

> By uncompromisingly reducing poverty to a technical problem, and by promising technical solutions to the sufferings of powerless and oppressed people, the hegemonic problematic of "development" is the principal means through which the question of poverty is de-politicized in the world today.
>
> - James Ferguson (1994)

The concept of "development" is central to all studies involving aid and development cooperation. Ferguson argues that the concept of development is central to so much of our thinking about the world, that it is impossible to deny the existence of "development". He compares the concept of development to the concept of "civilization" in the 19th century, or "God" in the twelfth century. He states that these kinds of central concepts define and form the framework within which argumentation takes place. Each of the central organizing concepts presuppose certain unquestionable values and "development" is one such value. In the name of development, wars have been fought and coups have been launched. Entire systems of government have been evaluated based on their ability to promote development. According to Ferguson, "development" is not only a value, but also a dominant problematic or interpretive grid through which the poor regions of the world are known to us. Ferguson also argues that while development is a dominant problematic, not everyone holds similar beliefs about the concept. Different people mean different things when they talk about development. This becomes clear in the context of this study as well – radically different views can co-exist and different outcomes are possible. How and why this central concept came to exist is one question raised by the dominance of the "development" problematic. Ferguson has studied the genealogy of development, and how this dominant problematic works in practice and what effects does it produce. Ferguson proposes the question of what happens differently due to the "development" problematic, that would or could not happen without it. Ferguson's argument is that development institutes generate their own form of discourse, and this discourse simultaneously constructs a particular object of knowledge. Interventions are organized based on this structure of knowledge, and have regular effects, which include the expansion and entrenchment of bureaucratic state power, side by side with the projection of a representation of economic and

social life, which denies the existence of "politics". His answer to what the development apparatus does in his case study area of Lesotho, is that the apparatus is an "anti-politics machine", which depoliticizes everything, whisks away political realities, while performing its own pre-eminently political operation of expanding bureaucratic state power. Ferguson's study explores how specific ideas about "development" are generated in practice and how these are then put to use, and demonstrates what kinds of effects they end up producing. (Ferguson, 1994: xiii-xv)

If aid is understood as a process of intervention, development can be seen as the transfer of the North's development culture to the "underdeveloped" South as a relentless accumulation of goods, know-how and services, that will somehow automatically deliver a better future. This is indeed impossible. Various factors support this argument, starting with the undeniable fact that no equivalent term for "development" exists in the conceptual "software" of many of the cultures to which the model is being transferred.

Development cooperation and the question of local participation is relevant for this study as well. The roots of participation in development can be traced back to the 1960s, when the World Bank, USAID and some other agencies were forced to reconsider their approach and face the consistent failure of linear development transfer. By then, it had become increasingly obvious that development by decree and technology transfer were singularly unsuccessful in delivering development to the local people. (Carmen, 1996:41-43)

3.3.3 DEVELOPING CAPACITY – CAPACITY FOR DEVELOPMENT?

Meteorological development cooperation projects inherently have a strong technical component. Most project practices are built around technology and daily operations in these organizations are often dependent on well-functioning devices. Technical cooperation as a type of aid is notorious for slow progress in terms of sharing knowledge and building capacity. Changing this dynamic has also proven to be difficult. (Denning, 2002:229)

Denning (2002), has evaluated the role of knowledge networks in technical cooperation and suggests that there are several lessons to be learned, which also explain the well-known and disappointing cost-benefit performance of technical cooperation. He identifies 12 different potential paths of reform.

According to Denning, knowledge-sharing is central and is seen as highly relevant for organizational survival. To succeed, knowledge should be shared between all actors. Knowledge does not flow quickly or smoothly between persons, and knowledge gatekeepers can create barriers. Therefore, there is a strong need for voluntary knowledge-sharing. Local knowledge is also highly important, but is systematically undervalued in projects. The local context should be carefully explored before any cooperation starts. Truly reliable knowledge is often hard to find. It should be considered that the provision of individual experts might not add extra value, unless sustainable links to broader networks of expertise are created. Taking the time to learn is also very important. In projects, real expertise takes a long time to develop, even a decade or more, depending on the needed skills. Therefore, technical cooperation projects should not consist of many short-terms assignments. Knowledge is not useful unless one has the appropriate time to actually learn from it. Tacit knowledge is also relevant. Every interesting piece of knowledge has two dimensions, that which can easily be talked about, and that which cannot be easily conveyed. Tacit knowledge is embodied in people, their practices, and their ways of thinking and acting. Tacit understanding is central to the capacity-building objectives of technical cooperation. There is no easy way to acquire tacit knowledge; every individual has to

rediscover it for themselves. There is also the challenge of unlearning and societal transformation, which is a huge challenge in technical cooperation. Unlearning unproductive practices is both necessary and essential for the success of projects. Tacit knowledge not only exists within people, it also exists between people. In successful organizations, people engage with each other interactively and systematically. Many problems arise from trying to make changes that do not resonate with existing practices and connections with people. It is impossible to simply "transfer" knowledge to people – in order for people to truly know something; they need to make it their own. For this reason, the central concepts in technical cooperation should be those of adaptation and innovation, not rediscovery or transfer. Technology cannot be transferred as such, it needs to be adapted and reinvented in the local context. What is also important to consider, is the inherent difficulty of sharing knowledge. Sharing of knowledge is not easy and it is hard to organize in practice. The non-linear evolution of knowledge is also of high relevance. Knowledge does not advance in a simple linear way, but rather in the form of paradigms. A new paradigm is formed once enough evidence against the old paradigm has accumulated, and this process takes a long time. Such paradigms are present in the context of development assistance. (Denning, 2002:229, 232–240) Estimates say that only one-third of technical cooperation is actually successful (Fukuda-Parr et al., 2002).

Capacity development in the context of meteorology projects started out as solely focusing on technology. The technological capabilities of local institutes were considered the main measurement of their capacity. The better the equipment and outputs of the organizations, the better capacity they have. Although this is true, capacity should be understood more widely to include social, political and economic aspects as well. In recent years, the conceptualization of "capacity" has widened and experts in this field have truly woken up to the fact that building capacity is not just about equipment. The main reason for this has been the lack of societal recognition. Getting politicians and the general population to understand the importance of meteorological capacity requires an emphasis on societal aspects. Capacity development projects have now started to include other issues in addition to improving technological capabilities.

Pamela Sitko (2012), has studied the interaction between the capacity building theory and practice in the Emergency Capacity Building (ECB) Project, which is a multimillion dollar capacity building initiative undertaken by six of the world's largest NGOs (Sitko, 2012). In her study, she applied Allan Kaplan's (1999) Framework for Capacity Development, which outlines seven elements of capacity that are considered the requirements upon which all other capacity is built on. Presented according to their hierarchy of importance, they are (i) a conceptual framework (which reflects the organization's understanding of the world), (ii) an organizational "attitude" (which incorporates the confidence to act in a way that the organization believes is effective), (iii) a clear organizational vision and strategy (sense of purpose and will), (iv) defined and differentiated organizational structures, (v) procedures (reflect vision and strategy), (vi) relevant individual skills, abilities and competencies, and finally, (vii) appropriate and sufficient material resources. (Kaplan, 1999)

Kaplan's model of capacity development is comparable to the ideas proposed by Walters (2007). According to Walters, institutions have been recognized as important and socially organizing principles underlying all societal, organizational and even individual change processes. There is a whole group of definitions for institutions, such as mental constructs, sets of socially prescribed patterns of correlated behavior, constitutional rule systems for society, and so on. (Walters, 2007:6) Developing an institutional perspective for development policy and capacity development requires a deep understanding of the diverse social, economic and political institutions, and their role in influencing the development agenda. If we are unable to understand the

institutional frameworks at play in development processes, we will not be able to process the policies, interventions, or solutions that would lead to the required changes. (Walters, 2007:8)

The History of Capacity Development

Technical assistance or technical cooperation forms about one-quarter of the total ODA[19]. Technical cooperation focuses on the transfer of knowledge and skills, which can be technical, economic, organizational or other. The aim is to strengthen the capacities of organizations and individuals for development and poverty reduction. Much of technical cooperation is not directly linked to poor communities. Rather than simply providing money or other benefits, technical cooperation focuses on strengthening capacity. (de Haan, 2009:94-95)

Since the 1960s, the classical form of technical and financial development assistance has been subjected to increasing criticism. The focus of this critique has been directed towards the discrepancies between high investments and unimpressive results. There is a growing understanding that development should not be conceptualized as something that can simply be brought into a country, and instead it should be understood as an endogenous process of transformation, that must be upheld by the developing countries themselves. (Kuhl, 2009:551) More specifically, critique has been given on the grounds of technical assistance being supply-driven, expensive, as well as poorly planned and integrated on the local level, and for failing to promote local ownership. Donors have taken steps to reform their technical cooperation policies in response to these issues, and to shift the focus to capacity building rather than technical support. (GSDRC, 2009)

Meteorological development cooperation projects are mainly concerned with improving the capacity of local meteorological institutes. The ICI instrument, launched in 2008, is focused primarily on capacity building. In the UNDP publication "Capacity is Development" (UNDP, 2010), the following definition of capacity development is given:

Capacity development is "about strengthening the capabilities of the local people and their institutions so that they are able to effectively and efficiently meet their objectives, adapt to change and stay resilient when confronted by external shocks."

Capacity development is not a specific theory, but rather a collection of views and research findings. It has been referred to by the UNDP as the "cornerstone of development" (Walters, 2007), and has been at the heart of international development assistance since the end of World War II and the beginning of the decolonization process. Capacity development has been firmly anchored in development paradigms and linked to the development processes of individuals, organizations, institutions and societies (Walters, 2007:1). Capacity development agencies, such as UNDP, theorists such as Morgan (2006), and local practitioners (for example James and Wrigley, 2006) all agree that capacity building is a complex human process that involves change in the relationship between the elements of open systems. It includes shifts in power and identity, but also cooperation between individuals in the process of empowering their own lives (OECD DAC, 2011). Current trends in capacity development include increasing country ownership and the use of local consultants, improving coordination and integration, pooling technical assistance funds, implementing shorter interventions, and shifting towards capacity building and untying aid. (GSDRC, 2009)

[19] OECD estimates say about one-quarter, but ActionAid suggests that the actual number may be much higher, maybe even half of the total aid. (GSDRC, 2009)

Capacity development is understood in this context to exist in differing degrees on various levels of organizations. There is no single general level of capacity in local meteorological institutes in developing countries, but rather different kinds of capacities, – that is different abilities, resources and motivation to follow the required practices in these organizations. Complex and large organizations, such as meteorological institutes, have different tasks, pursue different goals and fulfill different roles in both local and global arenas. Determining a specific level of capacity would be useless, since the interest should be on the smaller hindrances along the way in fulfilling the overall role in society, for example as the risk management of environmental hazards. It is clear that in complex organizations like meteorological institutes, there is no singular cause or explanation for all the problems related to capacity development.

UNDP has identified four different periods in capacity development history, each with their own assumptions, practices and results. First, capacity development was based on the need for financial aid in developing countries. As a response to this, developed countries lent and granted money to them, which (roughly put) resulted in a greater focus on investments and reporting than on the actual results, mounting debt, dependency on aid, and projects where money ran out. Then, it was thought that the developing countries should model themselves after developed countries. This was practiced mainly by using technical assistance, where foreign experts came in, operated their own projects and hoped to see similar results as in their own countries. This resulted in projects that were disconnected from local goals and priorities and created a dependency on foreign experts. Expertise was not transferred from the foreigners to the locals and local realities were largely ignored. Overall, the method highlighted the unequal relationship between developed and developing countries. After this, it was thought that developing countries should collaborate with developed countries in capacity development. Technical assistance was replaced with technical cooperation, and there was a greater emphasis on training and knowledge transfer. Cooperation was more closely based on national policies and priorities. This has resulted in enhanced local expertise and projects that are more in line with local priorities and goals. However, they are still driven by outside forces, and opportunities to develop local institutions and local capacities have been missed. Projects have also been expensive. Currently, the assumption is that developing countries should own, design, direct, implement and sustain the processes themselves. The practice used is capacity development, with a focus on empowering and strengthening endogenous capabilities. This should result in making the most out of local resources, favoring sustainable change and taking an inclusive approach in addressing issues of power inequality in the relations between the rich and poor, as well as emphasizing deep and lasting transformations through policy and institutional reforms and valuing "best fit" for the context over "best practice". (UNDP, 2009:8)

Kuhl (2009) has also characterized the different stages of capacity development. During the 1950s and 1960s, the main concept dominating this field was "institution building". It referred to building up a basic stock of functional institutions in developing countries, in accordance with the Western European model. The goals were the "management of programs of public investment" and the efficient use of existing funds. Emphasis was on individual institutions. During the 1960s and 1970s, the focus was on institutional strengthening and development. The idea was to strengthen and restructure existing local institutions. The same goals as in the 1950s and 1960s were used, and the emphasis was still on individual institutions. This changed in the 1970s and 1980s, when the discourse changed once again, and emphasis was put on individuals. The mantra of the time was human resource development, with a concentration on education, health and population development. The goal was to achieve development through competent citizens.

During the 1980s and 1990s, the thinking shifted again, and theorists began to talk about new institutionalism. The goal was to strengthen institutions in governmental, NGO and private sectors, including the relations between different sectors. The goal was also to achieve sustainable development with a comprehensive approach, where the institutions were the starting point. Emphasis was on networks of institutions, which included the general economic, political and social conditions. Since the 1990s to the present era, there has been talk about capacity building and later on capacity development. These concepts are used for linking the other approaches, and to support capacities on the individual, institutional and systemic level. The goal is to achieve sustainable development with a comprehensive endogenous approach, where emphasis is on individuals, institutions, and the systemic context, including general economic, social and political conditions. (Kuhl, 2009:561)

UNDP identifies the barometers of capacity development as the enabling environment, the organizational level and the individual level. The enabling environment refers to the broad social system within which people and organizations function. It includes the laws, policies, power relations and social norms that govern civic engagement. The enabling environment sets the overall framework for capacity development. The organizational level refers to the internal structures, procedures and policies that determine the efficiency of an organization. The benefits of the enabling environment are put to action at this level, where also individuals come together. Here the potential is the greatest for growing capacity, depending on how well resourced and aligned these elements are. On the individual level, there are the skills, expertise and knowledge that allow each person to perform. Some of these are acquired formally through education and training, while others are gained more informally, through observing and concrete experience. Access to resources and experiences are largely affected by organizational and environmental factors, which in turn are influenced by the degree of capacity development of each individual involved. (UNDP, 2009:11)

3.4 CONCEPTUAL TOOLS FOR ANALYSIS

In this section, the conceptual tools used in analysis are presented and discussed. The main analysis of this study involves power, its different forms and availability for different stakeholders. Power is closely interlinked with the concept of governmentality. The concept of governmentality supports the analysis regarding the structure of aid. The discussion on governmentality is here based on the works of Foucault, as explored by Li (2007b) and Patton (2009), and as applied by Dean (2010) as an analytics of government. The various power theories used in analysis include Lukes' Three-dimensional View of Power (1974) and Two Faces of Power (2005), French & Raven's Forms of Power (1959, 1965) as well as Clegg's Circuits of Power (1989). Analysis of donor behavior is also included, as explored by Gibson et al. (2005), Hydén and Mease (1999), Burnell (1997) and Mosse (2011).

3.4.1 THE CONCEPT OF GOVERNMENTALITY

Governmentality is a complex term, and includes different concepts and ideas, which have at their heart the notion that power can work through practices of freedom as well as simple domination or coercion. Defined as the "conduct of conduct", it is the attempt to shape human conduct through calculated means. It is distinct from discipline, which seeks to reform groups through detailed supervision in confined spaces, such as prisons or schools. (Foucault, 1991 in Li, 2007) Foucault explored the manifestations of governmentality during different times. The earlier conceptions of the art of government focused on territory, and its inhabitants as subjects of the sovereign. The eighteenth century saw the discovery of population as an entity in its own right, with its own regularities, rates of death and disease, as well as scarcity and abundance. The purpose of government is to secure the welfare of the population, the improvement of its conditions, and increase its wealth, health and longevity, as stated by Foucault in *Security, Territory and Population*[20] (Patton, 2009:585)

Governmentality, both as an analytical perspective and a theory of the dominant mode of governing in neoliberal societies, is based on the notion that government involves calculated attempts to shape the conduct and beliefs of individuals towards particular goals. Governmentality focuses on the micro dynamics of power as they are played out, through specific techniques of governing. It has a special interest on the relations between power and knowledge and the production of people who are the intended subjects of governing. The approach emphasizes the ubiquity of government in social relations, the dispersed nature of power and the significance of the individual to neoliberal governments. (Cashmore et al., 2014:156)

Foucault observed that the principal form of knowledge of governmentality is political economy, by which he meant the liberal art of governing the polity in an economic manner. This meant an interference in the delicate balance of social and economic processes of no more and no less than is absolutely necessary to adjust, optimize and sustain the processes. Interventions must respect the autonomous dynamics of the social body, and any attempts to regulate or engineer social processes in a totalizing manner would produce counterproductive results. (Li, 2007)

There are two crucially different ways that governmentality as a concept has been used in research, which stem from Foucault's own ambiguous and multifarious definitions for the concept. Firstly, the concept has been used to describe a historically specific rationality of rule, which Foucault argued emerged in the eighteenth century and was then expressed in the neo-liberalism of the Chicago School and Ordo-Liberals in the second half of the twentieth century[21]. In contrast, the second use for the concept regards it as a more general approach framework, or method for analyzing the mentalities or rationalities of government. The latter is the approach used in this study. The "analytics of government", proposed by Mitchell Dean, is exemplary of this approach, as it examines regimes of government through their field

[20] *Security, Territory, Population* is a part of a lecture series given by Foucault at the Collège de France between 1977 and 1978, and published posthumously based on audio recordings. It covers Foucault examination of the notion of biopolitics as a new technology of power over populations – a power distinct from punitive disciplinary systems. He also traced the history of governmentality, from the first centuries of the Christian era to the emergence of the modern nation state. Foucault's lectures on these topics illustrate a turning point in his work, where a shift to the problematic of the government of self and others occurred.

[21] Ordo-liberalism inspired the post-war reconstruction of the market economy in the German Federal Republic. Ordo-liberals saw the need for legal and institutional support to sustain competitive market operations, while American neoliberals sought to extend market rationality to previously non-economic areas of social life, such as crime prevention and family. (Patton, 2009:587)

of visibility, regimes of knowledge, techniques and forms of subjectification. This approach includes studying the ways in which power relations are designed and implemented in order to conduct people's conduct in certain ways.(Death, 2013:770-771) In the analytics of governmentality approach, attention is directed to the objectives and means of authorities, but without building analysis solely on the sovereign will of the ruler(s) (McKee 2009:3).

Dean defines governmentality as:

> How we think about governing others and ourselves in a wide variety of contexts. In a more limited sense, the different ways governing is thought about in the contemporary world and which can be in large part traced to Western Europe from the sixteenth century. Such forms of thought have been exported to large parts of the globe owing to colonial expansion and the post-colonial set of international arrangements of a system of sovereign states. (Dean, 2010:267)

And the techniques and technologies of government as:

> The diverse and heterogeneous means, mechanisms and instruments through which governing is accomplished. These concepts emphasize the practical features of government, which might include forms of notation, ways of collecting, representing, storing and transporting information, forms of architecture and the division of space, kinds of quantitative and qualitative calculation, types of training and so on. Technologies of government are typically assembled from diverse elements, take part in techno-economic systems, constitute logistical and infrastructural power, and subsume the more and political shaping of conduct by performance criteria. (Dean, 2010:266)

Dean talks about the analytics of government as a framework which takes as its central concern they ways in which we govern and are governed within different regimes, and the conditions under which such regimes emerge, continue to operate and are transformed. An analytics of government thus emphasizes "how" questions. Dean distinguishes at least four dimensions of this: (i) the characteristic forms of visibility, ways of seeing and perceiving, (ii) the distinctive ways of thinking and questioning, relying on definite vocabularies and procedures for the production of truth[22], (iii) the specific ways of acting, intervening, and directing, made up of particular types of practical rationality ("expertise" and "know-how") and relying upon definite mechanisms, techniques and technologies, and finally (iv) the characteristic ways of forming subjects, selves, persons, actors or agents. An analytics of government seeks to formulate and consistently employ a specific set of questions that follow from the concern of how the governmental regimes of practices operate. The focus is on questions regarding power and authority. (Dean, 2010:33)

A governmentality perspective offers numerous critical insights for policy research. The approach can be used to highlight how emergent mentalities of rule are made both practical and technical within specific organized practices for directing human conduct, and how a governable subject is discursively constituted and produced through specific strategies, techniques and programs. McKee describes governmentality as a political project – a way of both problematizing life and seeking to act upon it, by identifying both a territory and a means of intervention. Governmentality does not restrict its analysis to institutions or the political power of the state. The art of governing is defined as “conduct of conduct”, including calculated attempts to direct human behavior towards particular ends. Studies of

[22] E.g. those derived from social, human and behavioral sciences.

governmentality can therefore include a broad range of things, self-government, relations with social institutions and communities, and the exercise of political sovereignty. (McKee, 2009:5-6)

3.4.2 THEORIES ABOUT POWER

Modern thinking about power began with the writings of Machiavelli (1469–1527) in the early 16th century and with Hobbes (1588–1679) during the mid-17th century. Machiavelli's *The Prince*[23] and Hobbes' *Leviathan*[24] are considered classics of political writing and of the unpredictable character of the power game, as well as its profound dependence on context, as outlined by Clegg (1989). After World War II, social sciences started to take an added interest in power, as was understandable during the time. The work of Max Weber served as a good point of departure for thought about power, mainly because it continued the rational Hobbesian line and further developed organizational thinking. Weber's approach was connected to his interest in bureaucracy, and linked power to such concepts as rule and authority. He defined power as the probability that an actor within a social relationship would be in a position to carry out his will despite external resistance. The activation of power is dependent on the person's will. Weber was interested in power as a factor of domination, based on either economic or authoritarian interests. Weber saw the organizational power of bureaucracy as the source of the mechanization and routinization of human life, and as a threat to the freedom of the human spirit. Robert Dahl continued Weber's approach. Whereas Weber discussed power in the context of the organization and its structures, Dahl located the discussion within the boundaries of an actual community. In Dahl's theory of community power, a particular individual exercises power in a community, while other individuals are prevented from acting according to their preference. Power is exercised to follow the private preferences of those who possess the power. Later on, various theorists have formulated theories regarding power, including Bachrach and Baratz's model of the two faces of power (1962), Lukes three-dimensional model of power (1974) and the numerous writings by Foucault (since the 1970s), which extended the discussion of power from sociology to all fields of social sciences and humanities. Additionally, Giddens (1982, 1984) presented power as an important, if not exclusive, component of social structure. He saw power not as a quality, resource or social position, but rather as a social factor that influences and is created by the components of human society. (Sadan, 1997:33-38)

In this study, three different yet complementing approaches have been selected as analytical tools. The adopted approach is inspired by Foucault, who insisted on a descriptive analysis oriented towards the question of how power is exercised, what mechanisms or techniques are individuals and groups subjugated to, and how is domination achieved (Patton, 2009:582). The applied theories include Lukes' view of three-dimensional power and the two types of power, French & Raven's forms of power and Clegg's circuits of power theory. Aspects from all approaches are combined

[23] First published in 1531, Machiavelli's application of the empirical method to human affairs marks an important stage in the evolution of political science. In *the Prince*, Machiavelli advises rulers on how to "seize absolute authority" and hold their fellow countrymen in thrall. The world of politics is described as a jungle in which there is no other reality but power, and power is the reward of ruthlessness and ferocity. (Femia, 2009:162,166–167,182).

[24] Published in 1651, *Leviathan* was the third version of a political theory composed over the course of the English Civil War. It has been described as one of the greatest masterpieces of political theory in the English language, and the first of the great social-contract treatises. (Baumgold, 2009:189–190)

here to analyze the extent of the power available for the stakeholders to influence cooperation.

Steven Lukes' Approach to Power

The history of research on international cooperation and aid is filled with analyses on the meaning and role of power in the interaction between developed and developing countries. Steven Lukes published a book entitled *Power: A Radical View* in 1974, which delved into how to study power empirically and think about power theoretically. Lukes' argument is that power is at its most effective when it is the least observable. (Lukes 1974, 2005)

Lukes' argument was that power is exercised in three ways: in decision-making power, in non-decision-making power, and in ideological power. In the one-dimensional view of power, the focus is on behavior, decision-making, key issues, observable (overt) conflict and (subjective) interests, seen as policy preferences revealed by political participation. In the two-dimensional view, the approach is more complex. The focus is on decision-making and non-decision-making, issues and potential issues, observable (overt or covert) conflict and (subjective) interests, seen as policy preferences or grievances. In the three-dimensional view of power, the approach is once again more complex than the previous. The focus is on decision-making and control over the political agenda (not necessarily through decision), issues and potential issues, observable (overt or covert) and latent conflict, subjective and real interests. Lukes argues that the one-dimensional view is blind to the ways in which the political agenda is controlled, and the two-dimensional view lacks a sociological perspective within which to examine not only decision-making but also non-decision-making power, and the various ways of suppressing latent conflicts within society. (Lukes, 2005:29, 58-59)

Later on, Lukes returned to his work and published a new edition of the book in 2005. In this version, he reviews different versions of power present in contemporary social sciences, and revises his theory to include only two types of power: the capacity to influence the surrounding world, and the capacity to dominate other beings. (Lukes, 2005) Lukes' argument is that the three dimensions of power discussed above only dealt with power as domination. Since domination is important in the context of development cooperation, both aspects of Lukes' theory are included in this analysis.

French & Raven's Forms of Power

Another notable study of power was conducted by social psychologists John R. P. French and Bertram Raven in the late 1950s. French and Raven's Bases of Power theory divides power into five forms: (i) coercive, (ii) reward, (iii) legitimate, (iv) referent, and (v) expert power. Later, the model has been modified to include a sixth form, (vi) informational power[25]. (French and Raven, 1959)

Coercive power is used to do something against one's will. Reward power refers to the ability to give people what they desire, and ask them to do things for you in return. Legitimate power comes with a role, for example, police officers and politicians have legitimate power. Referent power is power from another person, who wants to be like you. This is essentially the power of charisma, which social leaders usually have. Expert power comes from knowledge and skill that is required by someone, and is a very common form of power. Informational power refers to the power that comes from having relevant knowledge of some important issue. (French and Raven, 1959)

[25] Informational power was added to the model in 1965.

Clegg's Circuits of Power

Circuits of power theory provides a highly complex and thorough approach to power in various contexts. It is based on Foucault's theories of power, knowledge and resistance (late 1970s and 1980s) and finds inspiration from the works of Machiavelli, Hobbes and Habermas (Karppinen et al., 2010).

Clegg argues that power is not a thing, instead it is relational. There are two types of relationships in which power is constituted, the crudest form being violence or coercion. Permanent relations of domination require a more sophisticated form of power, a systemic set of relations that can become routinized. These are relevant for development cooperation set-ups. Clegg argues that there needs to be a set of rules of the game, which are familiar to all. Actors embody certain predispositions, presupposing a shared system of social knowledge. Clegg argues that the essence of modern power-knowledge relations resides in their condensation and differentiation through many organs and capillaries, which constitute and channel the rules of the game, defining the constitution of social and knowing subjects. (Clegg, 1989:383)

To be able to understand Clegg's model, a more specific inquiry into Foucault's power differentiates is needed. Power means that A's action affects B's field of possible actions, and vice versa. In practice, this happens for example in giving advice, moral support or knowledge training. The power of one over another occurs when A modifies the field of B, and this may or may not be in B's interests. Domination does not allow A or B to alter their power strategy – A and B are complicit in a mechanism of domination. This may happen in for instance traditional family structures or corporate structures where no reversal of the situation of power relations is possible. (Boje and Rosile, 2001) In the context of development cooperation and aid, similar relationships are at play. The donor always has more power because it has various types of resources to give and expertise to share, more so than the recipient of aid. Hierarchy plays a role in these relationships and it seems there is no way around it.

Clegg's circuits of power theory includes the notion that all social relationships include power, so power may be defined as an expression of action. Power can be seen in interaction and in the production and reproduction of rules, meanings and resources. This happens on three levels (referred to as circuits in the theory) – the macro (system), meso (organization) and micro (individual) levels. All three levels are connected to each other and together they form a circular structure. (Karppinen et al., 2010) Clegg understands power as a circular process that flows in these three channels. These can also be described as (i) the overt circuit of power, (ii) the social circuit of power, known as the circuit of social integration, and the (iii) systemic-economic circuit of power, known as the circuit of system integration. Each circuit has its own dynamic form. The first circuit can be observed concretely, while the second and third are abstract. The circuits of power emphasize the importance of context in the theory of power. (Sadan, 1997:49-50)

In the first circuit, human agents exercise power according to the traditional explanation: A activates resources and means, and influences B to act in a way in which B would not have acted if not for his relations with A. The second social circuit of power is an abstract circuit. It is where the rules that order relations of meaning, membership and belonging are created. In the third circuit, both material and non-material resources are created. (Sadan, 1997:49-50) The model of circuits of power defines the normal workings of power in relatively stable systems. However, it is possible that when shocks to the system occur for the circuits to "short-circuit". This means that there may be a reversion to a more primitive form of power, such as violence or coercion. In addition, shocks to the system may bring into question the rules of the game, and the identities of the players. (Clegg, 1989:383-384) Clegg uses the crash of the USSR as an example of a crisis on the circuit of social integration, and

the financial crisis of 2008 as an example of a crisis on the circuit of system integration. In the case of the Soviet Union, there was a reversion to a primitive form of power. In the case of the global financial crisis, the result was a knowledge crisis. (Clegg, 2014)

Cashmore et al. (2014), have combined the circuits of power approach with governmentality in a study on environmental policy integration and the World Bank. They state that the circuits of power locates the construction of meaning as a particular site of empowerment/disempowerment, wherein actors seek to reify a particular social meaning and rules concerning, in their case, environment, development and their interrelations. The first circuit of episodic power involves momentary events where power is exercised by one group over another. This circuit reflects a deeper manifestation of power, the systems of meaning and being that establish the rules of the game. This constitutes the second circuit, in which dispositional power flows. The third circuit involves facilitative power. This involves macro-level production and disciplinary phenomena, through which particular forms of agency are empowered or disempowered. This circuit is the source of dynamism in power relations. Put together, the three circuits of power provide a way of seeing how every day practices take place within the context of particular systems of meaning. (Cashmore et al., 2014:156)

The circuits of power model distinguishes between two main kinds of resistance, effective and episodic. Effective resistance is organized resistance, and as such very rare. It becomes possible in conditions of victory over organizational outflanking, in which such resistance becomes institutionalized as a new power and creates an entirely new field of relations. Foucault argues that the student demonstrations of 1968 was an example of effective resistance. Episodic resistance is the most common form of resistance; it generally only manifests against the exercise of power. Episodic resistance operates in the overt circuit and is conscious of only this circuit of power. Episodic resistance actually strengthens the stability of power and confirms its representational character. This is resistance on a manifest level, which is based on obedience in the covert circuits that in turn determine the division of resources and the rules of power relations. A hunger strike by prisoners is an example of episodic resistance. (Sadan, 1997:52-53)

The circuits of power theory also includes a particular system of obligatory passage points, which are junctures where the three circuits of power interact. The circuits are interdependent, and the obligatory passage points are channels for both empowerment and disempowerment. For example, changes in technology may disempower when a set of skills are no longer a requisite for system performance and survival. (Boje and Rosile, 2001) Obligatory passage points are nodes through which episodic expressions of power need to be channeled, if they are to have meaning according to the rules of the game. They are mechanisms of social integration; they secure indexical interpretations of meanings and rules. For Clegg, ruling is accomplished by some agency as constitutive sense-making process whereby meaning is fixed. (Clegg 1989 in Cashmore et al. 2014: 156)

Clegg uses a study by Crozier (1964) of a tobacco factory in France to demonstrate how his model works. In the factory, maintenance workers modified the plant equipment used in daily work. This case demonstrates how there were mechanisms of resistance available for the workers even though the system itself was bureaucratic and had rigid rules and disciplinary practices. The modification of the plant equipment empowered the workers with exclusive knowledge of the machinery, which was not available in the official manuals. This represented the act of taking control of an obligatory passage point, which altered then the three circuits of power and empowered the workers. The act directly transformed the facilitative circuit of technology. The effect at the dispositional circuit was that this act changed what it meant to be a maintenance worker. At the episodic circuit, it changed the workers'

power in terms of their control of resources and outcomes in daily interaction. The overall impact of taking control of an obligatory passage point was that it allowed the workers to use this new position to negotiate a wage increase and an increase in their overall freedoms. (Boje and Rosile, 2001) In the way development cooperation projects are set up, and how aid typically functions, there really are no similar opportunities for the local people to take over, because aid workers are typically present at all times, leading and being part of all parts of the process of cooperation.

Crozier's study demonstrates that bureaucratic institutions need to be understood in terms of their cultural context. The originality of the study lies in its linking of two different approaches: the theory of decision-making in large organizations and the cultural analysis of social patterns of action. His studies on the French public service show that professional training and distortions are not enough to explain the routine behavior and dysfunctional vicious cycles observable in these organizations. The role of bureaucratic systems appears to depend on a pattern of power relationships between individuals and groups. Crozier argued that bureaucratic structures provide necessary protection against the risks of collective action. Since systems of protection are built around basic cultural traits, according to Crozier, the same patterns can be found in French education, politics, business, colonial policy and industrial relations. Crozier argues that bureaucracy is not a modern disease resulting from organizational progress, but rather a bastion against development. (Crozier, 1964) In the context of this study, similar conclusions are drawn. The bureaucratic system discussed in this study is part of the Finnish system of public governance, but also part of the international aid system, or complex. Finnish practices are in many ways similar than the practices of all other western donors. Practices and traditions have spread everywhere effectively due to international multilateral actors, such as the UN, the World Bank, and so on.

Clegg's Circuits of Power theory is highly complex and is not often used as the basis of empirical research (Karppinen et al., 2010). In this study, the theory is used as a tool for analysis as outlined and modified by Karppinen et al. (2010), who analyze power on three levels: system (macro), organization (meso) and individuals (micro). In this study, the macro level refers to the power located and used on the level of the aid system (Ministry). The meso level refers to the organizations working in these projects (FMI and Vaisala, recipient organizations) and the micro level to individual experts. The power located on the macro level includes power that is rooted in the system, practices, ideologies and institutions. Power on the meso level is dispositional and is based on position and qualities. On the micro level, the power is episodic and situational. (Karppinen et al., 2010:8) The types of resistance occurring within the system are also discussed.

The three theories of power presented here are used to analyze the extent of power available to the different stakeholders. Through this analysis, it is possible to show the differences between the stakeholders and their influence on project outcomes. These are found to be highly relevant for the overall outcomes and success of aid projects.

3.4.3 PATTERNS OF AID BEHAVIOR

The third theoretical entity includes the patterns of aid behavior. This section includes discussion on relevant previous research done regarding practices in the micro level of cooperation.

Gibson et al. (2005) have studied aid incentives, more specifically the ways in which development assistance systems generate particular patterns of incentives that then affect the outcomes of aid in the context of the Swedish International Development Cooperation Agency SIDA. Their research focused on the practical level, and they identified six general areas for improvement, which should be of interest to all aid agencies, the recipients of international assistance, and those engaged in policy analysis. The fields are (1) the awareness of the importance of incentives; (2) paying attention to the nature of the good involved; (3) focusing on how ownership is related to sustainability; (4) examining how learning is encouraged at an individual and organizational level; (5) the role of consultants in development assistance; and (6) the importance of putting the beneficiaries first. (Gibson et al., 2005:223-224) In their research process, Gibson et al. identified the roles of the various actors involved and the "chain of aid delivery". They describe international development aid as a set of linked action situations, with multiple actors and arenas crossing national borders. They argue that the ways in which these action situations are linked greatly affects the outcomes of development aid, since the effectiveness of a given system depends on the way the action situations are linked together. The conventional "chain of aid delivery" stresses the primacy of the donor as a principal, who must work through a series of hierarchically organized agents to reach the final beneficiary. Gibson et al. view this top-down process as particularly inappropriate. The only two-way relationships in this model are those between an individual donor and other donors, and even the recipient government is seen as no more than an agent of the donor government. They argue for different kind of approach, where interaction is understood as nested situations, which can take on a variety of productive or unproductive relationships. In their effort to understand the complexities of aid, they have developed the "International Development Cooperation Octangle" (Gibson et al. 2005: 64), where eight important actors are identified and placed in their appropriate set of relationships. See Figure 7.

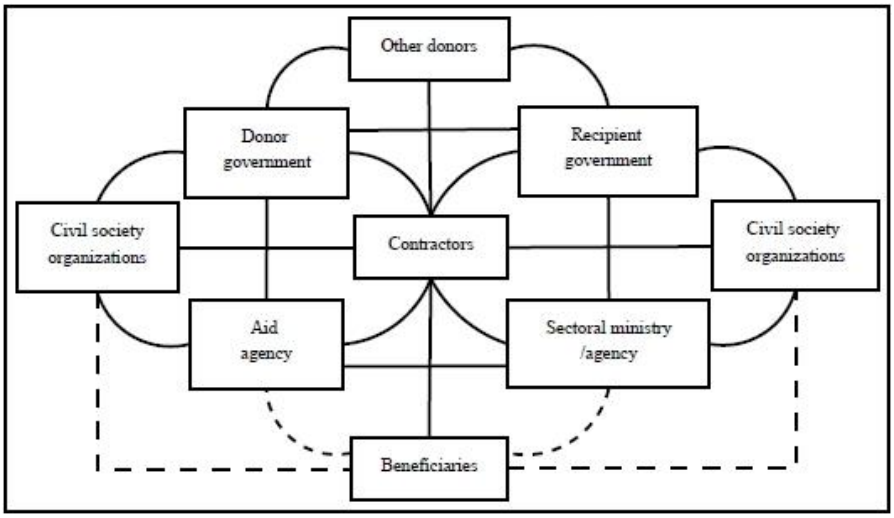
The eight major actors are: (1) the donor government; (2) the recipient government; (3) other donors; (4) the donor's international development agency; (5) sectoral ministries and agencies in the recipient government; (6) third-party implementing organizations; (7) organized interest groups and civil society actors in both donor and recipient governments; and (8) target beneficiaries. Their highly relevant argument for this study is that the sustainability of aid depends on how incentives structure the interactions between or among the key actors. The structures may result from a conscious effort to design and impose rules to govern donor-recipient relations, or from an evolutionary process. They may involve asymmetries in power or asymmetries in information, moral hazard problems or a Samaritan's Dilemma. (Gibson et al., 2005:61-63)

The Samaritan's Dilemma was first outlined by Buchanan in 1977. It is essentially a game theory approach to the situation of helping someone in need. The Samaritan chooses between helping and not helping, and the recipient decides how much effort they put into getting the help. If the Samaritan gives help and the recipient exerts high effort, both benefit, but the recipient receives higher benefits when making less of an effort. The fundamental problem is that the Samaritan is better off helping no matter what the recipient does, but once the recipient realizes this, his dominant strategy is to put in a low level of effort. Moral hazard, on the other hand, occurs when a person takes more risks because someone else bears the burden of those risks. It may occur when the actions of one party change to the detriment of another after a financial

transaction has already taken place. It can also happen when there is an information asymmetry between the stakeholders, and the risk-taking party knows more about its intentions than the stakeholder who is responsible for the consequences of the risk. When a party with more information has either a tendency or incentive to do harm and act in an irresponsible manner from the perspective of the party who has less information, moral hazard occurs. (Buchanan, 1977)

The Octangle presented by the authors includes linkages between the various stakeholders. The authors explain that the reason for exploring the relationships between the major actors is to examine whether the "system" in its entirety creates positive incentives that counteract some of the existing negative incentives. The Octagon is their response to the call of many scholars to examine the linkages between major actors, and not merely within one agency. In practice, all actions of donors influence each other over time. Each type of actor is able to play a major role in determining whether the results of aid are sustainable over time. (Gibson et al., 2005:64)

Figure 7. The international development cooperation octangle.



In addition to the Octangle, Gibson et al. discuss donor-recipient relations, where there is interaction between the donor government, the recipient government and other donors. They state that the nature of the relationship between the donor and the recipient government according to the power asymmetry between them and the availability of alternative donors. They distinguish three basic configurations of donor-recipient relationships: (i) "strong donor – strong recipient", (ii) "strong donor – weak recipient", and (iii) "enlightened donor – weak recipient". In the strong donor – strong recipient situation, a relationship may exist between them if the recipient and donor governments are not too significant. In the strong donor– weak recipient situation, the weak recipient may become entirely dependent on external assistance, especially if a large portion of the aid comes from a single donor. In cases like this, most of the practical planning must be taken on by the donor government, which can also impose conditions for the aid. This situation may lead to several undesired outcomes. Reforms attempted by the donor may not last once the projects end. A donor government may take advantage of a weak recipient, for example by pushing for unfair bargains, such as tied aid. In the enlightened donor – weak recipient situation, many donors have recognized that a recipient's reliance on prolonged aid processes induces perverse incentives. Because of this, enlightened donors have tried

to change the structure of the aid relationship; one example of this is that donors assign one main local recipient, usually a local ministry or government agency, to be in charge of the aid interventions. The purpose of this is to build local capacity and foster commitment, so that development projects would become sustainable. Gibson et al. state that while there is nothing wrong with the idea of ownership, it is often lost in practice. (Gibson et al., 2005:65-68)

According to Gibson et al., many donors avoid "playing" the strong donor – weak recipient game, by encouraging the ownership of local governments with the provision of for example technical assistance, to build up recipient competence over time. However, it is extremely difficult to engage in these dyadic negotiation processes where the donor has access to funds that the recipient really wants, while providing full ownership to the recipient. To avoid the Samaritarian's Dilemma, donors need to have more control over the process. Then, the question remains, how can local ownership be reconciled with donor control? (Gibson et al., 2005:68)

Gibson et al. state that there are three expectations relevant for bilateral donors. Firstly, adopting a policy for allocating aid to projects where the recipient government is committed, is generally more sustainable. Secondly, the best outcomes are achievable when a long-term commitment to a recipient country is made. Thirdly, in some cases, it may be best to simply pull out of projects. For example, if a recipient government's leaders do not benefit from the projects, donors are faced with either helping a few citizens in the short-term, or simply pulling out and waiting for more favorable times. Pulling out may be the only possible option for helping citizens in the long run, especially if donors can form alliances with other donors. (Gibson et al., 2005:85)

Additionally, research has also been done more specifically on the behavior of donor organizations. Hydén and Mease have identified four types of traps that donor organizations are vulnerable to: (i) accountability, (ii) solidarity, (iii) coordination, and (iv) insularity. Their finding is that if one or more of these actualize, the quality and effectiveness of aid will suffer. The traps are structurally determined, meaning that they follow from the "system of aid". Hydén and Mease analyzed the aid practices of Chinese, Swedish and American donors in Tanzania. The accountability trap refers to a situation where the fact that aid is based on public funds begins to gain too much significance. This aspect can overshadow other considerations of foreign aid in a way that hinders the agency from being effective. For example, a donor might prefer to allocate money to their own national organization, which is likely to use some of it in an unproductive manner, rather than give the money to an organization in a developing country. This applies even if that organization is in a better position to use the money efficiently, but the risks are higher for fraud and embezzlement (Bate and Schwab, 2005). The solidarity trap on the other hand refers to a situation where aid is given as an act of solidarity, without any attached conditions. It becomes a problem when ideological concerns override economic ones, and aid is given without any reciprocal requirements. Then, the recipient government's objectives tend to uncritically dictate the use of aid, and feedback does not serve as a corrective mechanism. Insularity refers to situations where organizations are so inward-looking that they allow autonomy to overshadow responsive considerations. This becomes a problem when the agency believes it knows what needs to be done better than all others, the political oversight of the projects is weak, the agency has great autonomy because it is politically trusted, and feedback is non-existent, poor or ignored. Finally, the fourth trap, coordination, refers to the coordination of the practices of the international donor community. The assumption is that reducing coordination automatically reduces duplicate practices. Coordination becomes a trap when it generates a degree of corporatist conformity, which limits the perspectives of aid and its implementation. More specifically, when donors unite to impose conditions that take away the responsibility and ownership of the recipient, when donors recognize a

need to be more effective in their own operations, when consensus breeds a particular way of how aid is conceived (being "trendy"), and when the capacity of the recipient institute is low. (Hydén and Mease, 1999:216-219)

One key interest is the general timeline of the projects, and how the amount of bureaucracy changes during the projects from the beginning to the end. As is the case with many other development cooperation projects, the bureaucracy and the heaviest amount of work is concentrated on the beginning and planning part of the project, when donors and recipients seek common ground. Burnell (1997) describes these "aid negotiations" as complex, invariably preceded by or embellished with formal conditions, and sometimes tacit understandings that apply to the commitment and disbursement of aid. The conditions usually originate from donor suggestions, and take their final shape based on discussions with recipients. Traditionally, conditions have been related to the financial terms and administrative arrangements of aid, and to the specifics of projects or programs for which the resources are earmarked. There have also been exchange conditions, or reverse transfers, referred to as "strings", such as the donor's use of a military base on recipient territory, commercial opportunities and political allegiance. Since the 1980s, there have also been conditionalities at the systemic level of economy and polity, including changes in institutions and policies as demanded by donors and conceived to be of benefit to the recipient. In the 1980s, these typically included fiscal stabilization and macro-economic liberalization[26], and in the 1990s, "good governance" and other reforms involving democratization and human rights[27]. (Burnell, 1997)

Mosse (2011) has proposed a number of approaches to the study of the role of experts, expert knowledge and the processes of policy-making in international development. Firstly, one focus area is the political economy of knowledge (whose knowledge matters) and its relation to institutional power and the maintenance of organizational legitimacy. The second approach is focused on the transmission mechanisms of expert knowledge. The third approach shifts the focus to the policy ideas themselves in mediating social and professional relationships. The fourth and final approach to expert and institutional knowledge begins with the analytical forms of expert ideas. (Mosse, 2011:8-13) These issues are of central importance when analyzing donor behavior. Whose knowledge matters is key, because without local input the proposed solutions might be ill-fitting for the local situation and practices. Additionally, if the views of donor experts are skewed towards a specific approach, it might also lead to poor outcomes. In development cooperation set-ups, the role of aid recipients should always be emphasized, since they are the real experts of the local context.

3.5 CHAPTER SUMMARY – THEORETICAL APPROACH

Overall, various theoretical concepts and approaches have been presented in this chapter. Their value for the analysis comes together better when observed through the three mentioned levels of analysis: macro – referring to the political, meso – referring to the organizational, and micro – referring to the individual levels of analysis.

Complexity theory, actor-oriented approach, different development conceptualizations and capacity development issues were presented in the beginning of this chapter. These theoretical discussions presented are meant to provide explanation regarding the discourses this thesis is interlinked with. These discussions

[26] Referred to as first generation conditionalities.
[27] Referred to as second generation conditionalities.

have additionally helped in formulating the overall approach of this study and are naturally connected to the methodological choices presented in Chapter four.

The concept of governmentality is used to analyze the political aspects of meteorological development cooperation. In practice, this means analyzing the content of policy documents. The organizational level of analysis involves the most important part of the analysis, which is the role of power in cooperation. In practice, this refers to the analysis regarding donor and recipient roles and behaviors in practice, based mainly on the interview data and some archive data. Analysis regarding the different types and forms of power available for each stakeholder gives insight into the factors contributing to the problem of sustainability. The third level, individual level, includes analysis regarding the behavior of individual people involved with these projects. In practice, this means analyzing interview and archive data. This is also important, because all levels, macro, meso and micro are connected to each other. Without analyzing all levels, the results could end up being insufficient in terms of results and the results of the analysis could pose more questions than provide answers. Table 4. presents a summary of the theoretical approach and connections to levels of analysis and data.

Table 4. Summary of theoretical approach and connections to the levels of analysis and data.

Level of analysis	Theoretical inspiration	Data
Macro level	Governmentality and analytics of government	Policy documents, archive material, Ministry practices.
Meso level	Power theories	Interview data regarding donor and recipient practices and experiences.
Micro level	Theoretical aspects into patterns of aid behavior	Interview data regarding donor and recipient practices and experiences.

The meso level analysis is the most essential part of this work. The macro and micro levels of analysis are intertwined with it and support it. However, due to limitations regarding the extent of one dissertation, the findings of macro and micro levels of analysis are more general, and the focus is on the meso level practices.

The benefits of bringing many theoretical approaches together in one analysis is that one is able to conduct more coherent analysis. The risks involved with this relate to handling vast amount of data and being able to connect and interlink all the different aspects together in the end.

Because this thesis includes exploration into archive as well as interview data, the first content chapters are more focused on explaining what has happened, and the theoretical analysis is presented towards the end of this thesis. This was a natural choice because of the fact that one must understand the history before understanding the complexities involved with it. Each content chapter is focused on one specific entity, Chapter five explain the history, Chapter six is focused on policy documents, Chapter seven on experts' concrete experiences, Chapter eight into the politics of meteorological development cooperation, and finally Chapter nine into the more detailed theoretical analysis.

4 RESEARCH METHODOLOGY AND METHODS

This study represents a critical realist inquiry with added elements from the social constructionist approach to development cooperation projects in the field of meteorology. Although social constructionism has often been seen as incompatible with realist approaches to the social world, it has been argued by Elder-Vass (2012 and 2013), that critical realism is thoroughly compatible with moderate versions of social constructionism and combining the two as "realist social constructionism" can offer some benefits. (Elder-Vass, 2012) Elder-Vass also states that social scientists should be both realists and social constructionists and that coherent versions of the ways of thinking are in fact compatible (Elder-Vass, 2013).

The chosen approach is an exploratory case study, where these projects are understood as a case within the history of Finnish development cooperation history. The research techniques included semi-structured thematic interviews and collection of archive materials. Interviews were done with 56 experts and over 5 000 pages of project documentation was collected from FMI and MFA archives. Development policy documents were also included in analysis. Conventional content analysis was used in the process of data analysis. To guide the analysis, propositional patterns regarding the linkages between theory and practice were outlined. These will presented in the upcoming chapters.

Research methodology consists of three levels, (i) the scientific model that constitutes the ontological and epistemological foundation of the research, (ii) the research method or chosen strategy, and (iii) the research techniques. All three levels are connected to each other, and there should be coherence between the chosen method, the scientific model influencing it, and the actual research techniques.

Guba (1990), states that paradigms can be characterized through their ontology (what is reality), epistemology (how do you know something), and methodology (how to go about finding out). Ontology is what exists and is a view on the nature of reality. Epistemology is our perceived relationship with the knowledge we are discovering. Methodology refers to how one goes about finding out knowledge and carrying out research. (Guba, 1990) According to Morgan (1983), the rationale for a particular research strategy is grounded in a network of implicit or explicit assumptions regarding ontology and human nature that define the researcher's view of the social world. These assumptions provide the foundations for the research practice. By identifying the researcher's assumptions about human beings and the world, it is possible to identify the basic paradigm that serves as the foundation for inquiry in each case. Scientific knowledge on the other hand is shaped by the way researchers attempt to concretize the ground assumptions of their work, such as perceptions of social phenomena, which are usually expressed as metaphors, providing a means of structuring an inquiry and guiding attention in distinctive ways. Different grounds for assumptions and perceptions, through which these are grasped and developed, give rise to different grounds for knowledge about the social world. Methodologies are the puzzle-solving devices that bridge the gap between the perception of a phenomenon and the phenomenon itself. Methodologies link the researcher to the situation being studied in terms of rules, procedures, and general protocol that operationalize the network of assumptions embodied in the researcher's paradigm and favored epistemological stance. (Morgan, 1983:21)

The Scientific Model

Epistemology raises questions such as how can reality be known, what is the relationship between the knower and what is known, and what are the characteristics, principles, and assumptions that guide the process of knowing. Epistemology also proposes questions related to the achievement of findings as well as the possibility of that process being shared and repeated by others to evaluate the quality and reliability of the study.

Realism refers to a position in the philosophy of science that has its roots as far back in history as Aristotle, but gained an increasingly important role in the social scientific research in the 1960s and 1970s. The most important contributors include Rom Harré (b. 1927) and Roy Bhaskar (1944-2014). Both have written extensively about the nature of social science and introducing realism into the discussion of alternative paradigms in social theory. (Outhwaithe, 1983:321) Bhaskar is known as the initiator of the philosophical movement of critical realism. Bhaskar's work focuses our attention on the interplay between structure and agency and on the search for the causative or generative mechanisms that explain the social world (Williams et al., 2016).

In the philosophy of science and the philosophy of social sciences, realism has been a dominant approach for over 30 years. (Baert, 1998) In social sciences, the most prominent manifestation of realism is critical realism, associated with the work of Bhaskar[28]. For realists, the social world, like the natural world, is driven by causal processes. Therefore, social science is at least partly concerned with seeking explanations for causal interactions in social processes. (Elder-Vass, 2012:10) Regarding the topic of this study, this approach resonated well with the overall aim of understanding how the structure of aid "produces" specific types of development cooperation projects, which then have various outcomes in practice. Although it is difficult if not impossible to establish specific causalities of aid, what one is able to do, is to study how the aid system functions and what types of outcomes are the result.

The central principle of realism is the conception of reality. Empiricists have shifted the attention from reality to our knowledge of reality and analyzed it in terms of sense impressions. Realists argue that what science is really interested in are the structures and mechanisms of reality. Combined, these mechanisms and structures can generate events that may be observed, but the events take place whether or not there is anyone around to observe them. Furthermore, the tendencies of the underlying structures of reality remain the same, even when they counteract each other in such a way as to produce no directly or indirectly observable change in reality. Bhaskar also draws a distinction between the three domains – the real, the actual and the empirical. The empirical consists of experiences, through direct or indirect observation. This must be separated from the domain of the actual, which includes events whether or not they are observed. What happens is not the same as what is observed. Nevertheless, there needs to be a further distinction between the domain of the actual, made-up events, and the domain of the real, which includes processes that generate events. The absence of an event does not mean that there are no underlying tendencies toward change; it may just mean that other forces counteract them. Realists see science as human activity that aims at discovery by using a mixture of experimentation and theoretical reasoning, including an analysis of the entities, structures and mechanisms that exist in and operate in the world. The realist approach differs for example from classical empiricism, which assumes that the real

[28] Although Bhaskar's recent development of critical realism as an emancipatory perspective (which he referred to as dialectical critical realism) has been criticized by "the critical realist tradition". (Maxwell, 2012:4)

world is unproblematically represented in the empirical world of our experiences. (Outhwaithe, 1983:321-323)

Critical realists see that science or the production of any kind of knowledge is a social practice, and the conditions and social relations of the production of knowledge influence its content. (Easton, 2010:120) What unifies the different forms of critical realism is the shared view that there is no "objective" or certain knowledge of the world – the possibility of alternative valid accounts of any phenomena is accepted. Theories about the world are seen as grounded in a particular perspective and worldview, and all knowledge is seen as partial, incomplete, and fallible. Critical realists think there is a real world that exists independently from our perceptions, theories and constructions, and our understanding of this world is inevitably a construction of our own perspective and standpoint. (Maxwell, 2012:4-5)

Causality and mechanisms are of central interest in critical realism. The realist analysis of causal relations is designed to cope with the prevalence of open systems in both the natural and the social world. Open systems need to be analyzed as battlefields of conflicting tendencies; even the best analysis of these tendencies and their interactions may not yield a successful prediction of the outcome. Unlike many positivists, realists do not identify explanation with a prediction of the outcome. (Outhwaithe, 1983:324) Bhaskar (1978) argues that mechanisms are nothing other than the ways of the acting of things, and a causal explanation identifies entities and the mechanisms that connect them and combine to cause events to occur. Other authors, for example Tsoukas (1989) and Keat and Urry (1975) have used concepts such as "deep processes", or "generative mechanisms". Mechanisms are at the heart of causal explanation, but they are also a constant source of debate. Easton argues that perhaps the simplest way to understand them is to think of them as ways in which structured entities by the means of their power and liabilities act and cause particular events. Depending on the conditions, the same mechanism may sometimes produce different events and the same type of event may have different causes. (Sayer in Easton, 2010)

Maxwell (2012) argues that realism can provide useful work for qualitative methodology and practice, if it is taken seriously and if its implications are systematically developed. A realist perspective can provide new and useful ways of approaching problems and generate important insight into social phenomena. His argument is not that realism is the correct philosophical stance for qualitative research, but that it can bring a valuable perspective to the discussion of what kind of understanding qualitative research can provide. (Maxwell, 2012:13)

Overall the view of critical realism that there is no “objective” or certain knowledge in the world is important to keep in mind. The persons interviewed, the data collected and the analysis presented in this thesis is only one perspective. Different informants, different researcher and different theoretical analyses would provide a different view, just as relevant and important.

4.1 RESEARCH DESIGN – CASE STUDY AS A METHOD

> A significant part of what we know about the social and political world comes from case studies.
>
> -Vennesson (2008)

The history of case study as a method spans from the pioneering work of Frédéric Le Play at the end of the nineteenth century to the Chicago School of Sociology in the

1920s and 1930s[29]. The importance, meaning and characteristics of case study as a method have since changed as well. Case studies are diverse in their objectives, characteristics and results. The role of case studies in theory building and their empirically added value is regularly debated. The preferences of researchers differ in terms of the key characteristics of case studies, such as the ideal number of cases, the nature and richness of collected data, the logic of generalization, the role of inductive and deductive approaches, units of analysis and connection with fieldwork. (Vennesson, 2008:225)

Ragin (2000), defines case study as a research strategy based on the in-depth empirical investigation of one, or a small number of, phenomena to explore the configuration of each case, and to elucidate features of a larger class of similar phenomena, by developing and evaluating theoretical explanations. (Ragin, 2000) A case-oriented understanding can be defined as "An understanding of social processes in a group, formal organization, community, or other collectivity that reflects accurately the standpoint of participants.". As is the case for other qualitative research method approaches, the case-oriented understanding analyzes a phenomenon from the standpoint of the person interviewed. This approach reflects an interpretive research philosophy, which is not geared towards identifying causes, but rather provides a different way to explain social phenomena. (Schutt, 2012:344-345)

Using case study is a preferred method when the main research questions are "how" or "why" questions, when the researcher has little or no control over behavioral events and when the focus of the study is on a contemporary phenomenon. (Yin, 2014) The different stages of case study as a method include the defining of the case, selecting a type of case study design (single or multiple cases, holistic or embedded subcases within a holistic case), and deciding on the use of theory. Common sources of data for case study research include direct observations, interviews, archival records, documents, participant-observation and physical artifacts. (Yin, 2012:6-10)

Vennesson (2008), argues that the social scientific contributions of the case study method remain underappreciated, not because of the approach as such, but because epistemological discussion is closely focused on data collection and testing. To get a fuller and deeper understanding of the scientific contributions of case studies, researchers could benefit from the epistemological conception of Gaston Bachelard, who treats the different elements of research as inseparable, from conceptualization to investigation. (Vennesson, 2008:224)

Gaston Bachelard (1884-1962), was a French philosopher who examined scientific thought by emphasizing the dynamic process of the experimental and theoretical practices of science. His main interest was the creation, revision and rejection of scientific theories. He linked the philosophy of science and the history of science with the aim of reconstructing the philosophy implicit in the practice of scientists of identifying their applied rationalism. Bachelard argued that a researcher's different epistemological acts cannot be separated from one another. For example, data collection is only as good as the theoretical construct it tests. Bachelard rejects the empiricist approach that focuses on the observational aspects of scientific activity – testing and data collection, as a basis for generalization. For Bachelard, a fact is conquered, constructed and observed. Based on this, Vennesson argues that case studies should contribute to each of the three epistemological acts, and not to one or the other in isolation. Casing corresponds to Bachelard's first epistemological act: the rupture with conventional wisdom. The process of casing takes place at various stages of research, but especially in the beginning and towards the end. A case study does

[29] The Chicago School of Sociology included the work of Robert Park, Ernest Burgess and Louis Wirth, who all worked at the University of Chicago in the early 20th century. They revolutionized the purpose of urban research in sociology but also human geography through the use of quantitative and ethnographic research methods. (Martin, 2009)

not presuppose a relatively bounded phenomenon; researcher defines the boundaries. Often the process leads the researcher to define units of analysis that can differ from convention. Vennesson argues that thinking in terms of cases means rendering problematic relations between ideas and evidence. Casing is a way to break with conventional images of the social and political world. The theoretical framework that underlies a case study corresponds to Bachelard's second epistemological act: theory construction. Process tracing is one possible way of translating the third epistemological act of empirical observation into practice. (Vennesson, 2008:229–230) Process tracing can be defined as a procedure of identifying steps in a causal process that leads to the outcome of a given independent variable of a particular case in a particular historical context. In process tracing, a researcher examines histories, archival documents, interview transcripts, and other materials to see whether the causal process a theory hypothesizes or implies in a case, is in fact evident in the sequence and then values of the intervening variables in that case. (George and Bennett, 2005:6)

Vennesson (2008) argues that most researchers using the case study method claim to seize the epistemological middle ground. The conceptions of case studies vary from the most positivist to the most interpretivist, with a set of intermediate positions as well. There are different conceptions regarding what case studies are or should be, and discrepancies between case study theorizing and case study practices. Vennesson summarizes the problematics relating to this by stating that when confronted with a case, the challenge is to uncover and acknowledge its specific meaning, while also extracting generalizable knowledge related to other cases. (Vennesson, 2008:225-226)

Yin (1994) has presented four applications for the case study model: (i) to explain causal links in real-life interventions, (ii) to describe the real-life context in which the intervention has occurred, (iii) to describe the intervention itself, and (iv) to explore the situations in which the intervention being evaluated has no clear set of outcomes. Yin has also suggested three principles for data collection, which are: multiple sources of data, case study database, and maintaining a chain of evidence. (Yin, 1994) Empirically, the use of process tracing is an important part of the case study method. Process tracing is designed to identify processes linking a set of initial conditions to a particular outcome. (George and Smoke, 1974)

Yin (1993) has also identified specific types of case study: exploratory, explanatory and descriptive (Yin, 1993). The research design of this study follows the path of exploratory case study method, where meteorological development cooperation projects are understood as one case within the history of Finnish development cooperation. The decision to use an exploratory case study method is based on the fact that no analysis of this kind has been done for these projects. Exploratory research aims to be a broad-ranging, systematic, purposive and pre-arranged process, designed to maximize the discovery of generalizations in a given area of social life (Vogt, 1999:105).

Exploratory research has often been advocated in the social sciences (Mason et al., 2010), although it has been also claimed to be underutilized (Stebbins, 2001:3). One problem has been that exploratory research has not clearly been defined. Vogt (1999), has made an attempt to define it by stating that social science exploration is "broad-ranging, purposive, systematic, pre-arranged undertaking, designed to maximize the discovery of generalizations leading to description and understanding of an area of social life" (Vogt, 1999:105). What has caused problems in terms of this definition is that not all will agree to this definition and such an approach may lead to generalizations (Mason et al., 2010:433). Sarantakos (2005) has argued that exploratory studies are frequently conducted when there is a lack of sufficient information about a topic. Exploratory research is therefore a useful approach when one needs to show that a study of a particular issue is worthwhile or feasible, or to

familiarize the researcher with the context. Additionally, exploratory research may generate new ideas concerning the focus of the research and can help operationalize important concepts. (Sarantakos, 2005)

Despite the fact that the case study method has apparent applicability for the study of numerous relevant real-life situations, it has not received widespread recognition. This may be because many perceive the case study method as the exploratory phase for other methods, for example, when collecting data to determine what kind of topic needs further investigation. For this reason, many do not perceive the method to include serious inquiry. However, this type of thinking is entirely outdated, since the case study method extends beyond exploratory functions. The case study method has also received criticism for a lack of trust in the credibility of the procedures of the case study researcher. The main issue of concern has been that the researcher could direct the research towards desired or expected outcome(s). Another problem has been the generalization of findings to any broader level. These issues of concern may be overcome through systematic procedures and analytical generalization. (Yin, 2012:5-6) Thomas and Myers (2015) have also identified these issues. They argue that a deficiency in the generalization power of the case study method may be addressed with the notion of induction in social sciences. As in most social scientific inquiry, case study is supposed to help develop theory, but what kind of theory, has not been defined. Additionally, they raise the question of the lack of structure and discuss how the case study method is caught up in a methodological limbo in a way. (Thomas and Myers, 2015:1-2) They cite de Vaus (2001), who states that most research method literature either ignores case studies altogether or confuse them with other types of social research. (de Vaus, 2001)

Flyvbjerg (2006) has examined five common misunderstandings concerning case study research. They are the following: (i) general theoretical (context-independent) knowledge is more valuable than concrete and practical (context-dependent) knowledge, (ii) one cannot generalize on the basis of an individual case; and therefore case study is unable to contribute to scientific development, (iii) case study is most useful for generating hypotheses (in the first stage of the research process), whereas other methods are more suitable for testing hypotheses, (iv) case study contains a bias toward verification, a tendency to confirm the researcher's preconceived notions, and finally that (v) it is often difficult to summarize and develop general propositions and theories on the basis of specific case studies. (Flyvbjerg 2006:221) One by one, Flyvjberg corrects these misunderstandings. He also states that when the objective is to achieve the greatest possible amount of information on a given problem or phenomenon, a representative case or random sample may not be the most appropriate strategy, mainly because typical or average cases are often not the richest in information. Instead, an atypical or extreme case often reveals more information, because they activate more actors and basic mechanisms in the situation under study. Additionally, from an understanding-oriented and action-oriented perspective, it is more important to clarify the deeper causes behind the problem and its consequences than describe the occurrence and symptoms of the problem. Random samples are seldom able to do this. Additionally, Flyvjberg argues that social sciences may be strengthened by the execution of a greater number of good case studies. (Flyvjberg 2006:219, 229)

Development cooperation projects in the field of meteorology can perhaps be described as atypical aid projects, but they are rich in information and involve complex interactions of multiple stakeholder groups with conflicting motives.

4.2 THE DATA COLLECTION PROCESS

Interviews for this research began in the fall of 2011. I started working on my PhD in August 2011 and it was a strategic choice to start my data collection quickly by doing interviews with key experts. This was important for me in terms of establishing a trustful relationship with the experts involved and gaining access to my data sources at an early stage of the research. Establishing these relationships early on was a good choice since it enabled me to have good access to the main sources of data, to coordinate a field visit simultaneously with FMI experts and gain access to experts of the aid recipient side through the FMI staff.

Before outlining the research themes and specific questions, I spent some time at FMI offices and archives, going over project materials to identify relevant points of entry to the research topic. At this stage, I did not do any official archive material collection yet, but I did revise the materials and take notes regarding their content. I outlined the focus for the interviews based on the combined process of examining the materials and the theoretical work of relevant scholars.

The interviews began in the end of September 2011, and by the end of December 2011, I had conducted 14 semi-structured thematic interviews with key experts from the FMI, Vaisala and the MFA. The interviewees included experts leading on-going projects at the FMI, key personnel of Vaisala involved with developing countries, and MFA staff responsible for the projects in the Ministry. After the first phase of data collection, I transcribed the interviews and conducted a tentative analysis, focusing on the most relevant issues rising from the data. I used this material effectively to plan the details of my research process, including further data collection and a field visit. By the end of 2012, I had a good blueprint of the entire research and an effective plan for data collection. I also completed three additional expert interviews at the FMI in preparation of going to the field, in November 2012.

In January 2013, I started a six-week long field trip in Barbados, visiting the Caribbean Institute of Meteorology and Hydrology (CIMH), the Caribbean Disaster Emergency Management Agency (CDEMA) and the Meteorological Office of Barbados. The CIMH is in charge of developing meteorological and hydrological services for the entire Caribbean region. The CDEMA is developing the region's disaster emergency management capacity.

The reason for selecting Barbados as my field trip destination was based on recent research done in this field and multiple issues brought to my attention by interviewees. Firstly, the Caribbean is a high-risk area for extreme weather phenomena such as hurricanes and flooding, which have the power to cause major damage in the form of for example landslides, which have been a problem also in Barbados. Secondly, it is a high-risk area for earthquakes, which are often a major cause of other natural disasters, such as tsunamis. Although earthquakes and tsunamis are not meteorological phenomena, they are directly connected with relevant disaster risk management processes. Thirdly, the Caribbean region is a site of current and past regional cooperation with Finland in the field of meteorology. Finland has been actively involved with the development of local meteorological capacity in the Caribbean region and many of the key experts had previously been or were currently involved with these projects. One expert recommended the area for a visit because at that point in time the other two areas of regional cooperation were much more problematic. Cooperation in the SADC region was not proceeding as smoothly as had been hoped for (the project was later cancelled) and the location of the third regional cooperation, the Pacific region, was located even further away than the Caribbean, and caused a consideration of practical issues, such as air travel costs. I was able to coordinate my visit to the Caribbean to coincide with a visit of an expert team from Finland, which helped me to get access to local stakeholders. During the field trip, I visited the offices of the CIMH, the CDEMA, the Barbados Meteorological

Office located at the airport, and the local Red Cross office. I managed to observe meetings at the CIMH, the CDEMA and the met-office, and interviewed staff members of all of the above-mentioned organizations, except for the CDEMA (where interviews were not conducted due to scheduling issues). I also had informal discussions with locals regarding their personal strategies for survival in cases of extreme weather phenomena.

After returning to Finland, I had a more detailed understanding regarding the research focus and the further data collection process. I continued doing interviews in Finland with both Finnish experts and visiting experts from developing countries. Instead of doing one-on-one interviews, interviews with experts were conducted mainly as focus group discussions, in which the experts were interviewed with their colleagues. The main reasons for selecting group interviews instead of one-on-one interviews were primarily practical. The experts had a very limited amount of time available in their schedules for these interviews during their visits to Finland, so it was the only way to get the views of several people. In addition, I found that the experts had perhaps more courage to bring up difficult issues when their group members were present and supported their opinions. Another practical issue was that some of them did not have proficient skills in English, so other members of the group helped with translations.

During 2012, 2013 and 2014, I interviewed an additional 41 experts, including experts in Barbados. The technique of snowball sampling was used for selecting the remaining experts. I managed to get interviews with experts from various parts of the world, working in cooperation with the FMI, the FMA and Vaisala. Aid recipient experts were interviewed from Sudan, South Sudan, Barbados, Malawi, Zambia, Ecuador, Colombia and Thailand.

Table 5. Number of interviewed experts by organizational background and type of interview.

Interview format	Donor	Recipient	Private sector	Other	Total (n)
Individual	19	4	6	2	31
Focus group		11			11
Pair	2	4	2		8
In-depth	5		1		6
Total (n)	26	19	9	2	**56**

The collection of archive material was conducted during the summer of 2013, and by the end of September 2013, I had collected most of my data. The analysis followed a circular process and formed during the interview, transcription and analysis processes. After the tentative analysis finished by the end of 2013, I carried out some final interviews in the beginning of 2014, to gain further insight from various specific and more detail-oriented issues, such as Finnish development cooperation policy practices, evaluation of development cooperation and international processes for disaster risk reduction and prevention. These interviews were done as semi-structured thematic interviews in Finland, with one additional interview in the United Kingdom. Another additional FMI expert interview was done in November 2015 for project update purposes.

Overall, the interviews included 43 separate sessions with a total of 56 experts involved in meteorological development cooperation, including three focus group interviews, six in-depth interviews, four pair interviews, and semi-structured thematic interviews with 30 experts. Out of the 56 experts interviewed, 38 percent

were women (n=21). Overall, these interviews amount to over 37 hours of transcribed material. See type of interview and main stakeholders and their roles in Table 5.[30] and Table 6. for detailed information regarding the interviewed experts' organizational background.

Table 6. The main stakeholders and their roles in the projects.

Stakeholder	Role	Context
Local met-office experts	Recipient of aid	Public sector
Donor-side meteorology experts (FMI)	Main project executor	Public sector
MFA	Financer	Public sector
Vaisala	Supplier of equipment	Private sector
Consultancy company	Evaluator	Private sector

The topics covered in the interviews were the same for all experts, although the set of questions was slightly modified for different types of interviews. Topics included the background of the person (working experience from the field, education and training), their experiences from the projects (project practices, planning, implementation and evaluating), how they viewed meteorological development cooperation projects and how they would change practices and policies. Interviews also included a discussion on the good and challenging aspects of their work as well questions about the importance of networks.

In-depth interviews were conducted with those experts, who had more than 30 years of work experience in the field. Most of them (5 out of 6) had officially retired from the work force some years prior to the interview, but were still active in taking part in these practices in some way or another[31]. The interviews were recorded and transcribed, and the transcripts were treated as documents reflecting each expert's ideology and agenda. Interview transcripts were content-analyzed by individual themes and actions, and analyzed by using a continuum for four distinct dimensions. These dimensions are (i) traditional – modern approach to development, (ii) straightforward – complex development thinking, (iii) donor – local ownership and (iv) proactive – reactive policy approach.

In addition to the expert interviews, archive material was collected from both the Finnish Meteorological Institute and the Finnish Ministry for Foreign Affairs. These included project documentation, budgets, evaluations as well as reports from the field by FMI experts. Additionally, Finnish policy documents outlining development policy during different periods were also collected for analysis purposes.

4.3 RESEARCH TECHNIQUES

Since the research topic has been understudied, the analysis must begin with formulating an overview of what has been done, when and why. Consequently, an

[30] The "other" listed in the table include one NGO representative and one member of a research organization (Overseas Development Institute, ODI).

[31] This varied from those still working as a part-time consultant in the projects at the time of the interview, to those reading about the projects and following their progress through former colleagues and the news. Overall, I was very impressed by how active the retired experts were and how interested they still were in advancing the meteorological capacity of developing nations.

exploratory case study approach was adopted. The case comprises of all Finnish meteorological development cooperation projects, starting from the earliest forms of cooperation in the late 1960s to the most recent projects finished in 2015. These projects share the common goal of developing meteorological capacity in developing countries. These include bilateral, regional and multilateral projects financed by the MFA, mainly executed by the FMI.

A research model outlined by Siitonen (1990) has inspired the research set-up. Siitonen states that without a general theory of its own, the study of international cooperation must combine different approaches, structural as well as actor-oriented ones. Various methodological instruments should be used: analytical, empirical as well as historical. Analysis should include the international actors involved and the structural environment or factors that influence the conditions of cooperation. The last part includes a discussion on the relevance of the results and the methods applied, in a wider context. (Siitonen, 1990:3)

This study adopts Siitonen's definition of development cooperation, as any form of social interaction between actors allowing them to achieve voluntarily set common goals by sharing certain resources. Cooperation here is a loaded concept, and it should not be seen as a harmonious relationship without conflict. On the contrary, cooperation may involve hidden or overt power struggles between partners. There might also be a mode of dominance of one partner over another. This is related to the social context of cooperation, and thus also to our ideas of social systems as contexts of cooperation and conflict. (Siitonen, 1990:7)

4.3.1 SEMI-STRUCTURED THEMATIC INTERVIEWS

Interview as a research method provides a unique setting for acquiring information. In an interview, the researcher is in direct interaction with experts. This is both a benefit and a challenge. The biggest benefit of conducting research interviews is flexibility. There are numerous reasons for selecting interviews as a method. For instance, a researcher might want to emphasize the interviewed person as an individual subject. They have the ability to bring forward things that matter, in an open and free manner. In this case, the interviewee is a subject who creates meaning and is an active participant. Interviews can be good when the researched topic is new in the sense that it has not been researched much in the past. In cases like this, it is difficult for the researcher to know what the answers will be like. Interviews are also useful in cases when the researcher knows that the given answers will most likely be complex. The disadvantage of conducting interviews is that they are very time-consuming. Interviews require careful preparation, planning and practice. The expert may feel like the interview setting is threatening or feel scared. This may lead to unreliable data. Another issue that may influence the quality of the data is that experts may be inclined to give answers that are socially acceptable. There are also cultural differences in terms of how for example difficult topics are discussed and brought to the attention of the researcher. (Hirsjärvi et al., 1997:199-201)

Broadly speaking, four types of interviews used in social sciences. An individual study may include a mixture of various types. These types are the structured, semi-structured, unstructured and group interview. (May, 2001:121) In this study, I have used mostly semi-structured interviews and focus group interviews, but also in-depth interviews and pair interviews. Various practical and factual issues affected the choice of interview styles.

Semi-structured interviews were used with most interviewees. Semi-structured interviews utilize the benefits of both structured and focused methods. Questions are normally specified, but the interviewer can ask additional questions whenever

necessary. The interviewer may seek for both clarification and elaboration of given answers. The benefit of the semi-structured interview is that the interviewee can answer the questions more on their own terms than in standardized interviews, but it still provides a greater structure for comparability than a focused interview. (May, 2001:123)

Group interview settings also constitute a valuable tool of investigation, as it allows a researcher to explore group dynamics and norms surrounding various issues. When conducting interviews with groups, there is a difference between group interviews and focus group interviews. In the latter, the researcher encourages the interviewees to engage in discussion with each other, while in the group interview format the interviewees answer questions in turns. (May, 2001:125)

4.3.2 INTERVIEWS WITH EXPERTS

Expert interviews refer to interviews, where the aim is to collect specific information from experts, regarding for example a process or specific phenomenon. The interest of the researcher is therefore not on the individual as such, but rather on the information they hold. The selection of experts is based on their institutional status or some other reason, which makes them a part of the researcher's focus. The collection of data aims at producing a description of a historically relevant process or phenomenon. Usually, the amount of people qualifying as interviewees is more narrow and limited and they may not be replaced, when compared to cultural research, where the focus is on the individual's unique perspectives. In practice, expert interviews also produce knowledge that can be analyzed through the cultural lens, and interview data may be used for both types of analysis. (Alastaro and Åkerman, 2010:373–375)

During the 1970s and 1980s, there was a linguistic and cultural turn, which highlighted how language not only portrays phenomena, but creates them as well. Because of this, the general approach towards interviews shifted as well. The emphasis was put on qualitative interviews (instead of forms), and the topic of analysis shifted from attitudes, opinions and facts, to culturally structured issues. What was considered interesting was the ways in which speech was produced, and the cultural significance it reflected. This, in part, led to "old-fashioned" expert interviews becoming less popular and they were sometimes even forgotten completely, even though expert interviews have a meaningful role in many research areas. Previous fact-oriented research has been criticized for being too narrow and not taking into consideration everything that could be read from the data. However, the shift to cultural and linguistic interpretation has also changed fact-oriented or "realistic" research. When conducting expert interviews, researchers should start from the fact that the information produced in the interview setting has also been produced in interaction. (Alastaro and Åkerman, 2010:372–373, 376–377)

When discussing expert interviews, the emphasis is on the use of data and the aim is to create a factual description of a specific phenomenon. This goal brings forward specific analytical challenges. The more sporadic and less reliable the available information is, for example in archives or past research reports, the more relevant expert interviews become. Often, expert interviews are used together with other kinds of data sources – in this case mainly archive material. (Alastaro and Åkerman, 2010:375)

There are some challenges in doing factual analysis with interview data. Firstly, data collection and analysis are partially intertwined, especially in research where the aim is to do some sort of process tracing. Analysis therefore, might not be a separate phase of research as such. A researcher might have to tailor questions for each expert

or expert group based on previously collected data. The reason for being well prepared for each interview is that often the memory of experts might be selective or weak. Carefully formulated questions may help them remember better. In addition, experts can be caught up in their "role" and talk about the issues on a level that is simply too general. Asking questions that are more specific might make them open up more, and get rid of the structure given to them by their "role". The second issue is to be able to get the kind of information one is looking for. One has to remember that the "facts" produced by the interviewee are always interpretations, created in a special interaction situation. The perspectives of each expert are based on their status, personal history, and how they are "placed" in the interview setting. The third issue is how to deal with indirect speech. The general rule is to not use this kind of information as part of a factual process description, but if the issue seems relevant, other information on the same issue may be sought elsewhere, in for instance archive materials or in other interviews. The fourth issue is how to combine the analysis of factual and cultural information. A detailed description of an event or phenomenon may be useful if it increases understanding of something that has societal significance. However, this is not usually the primary goal in social science research. Often, a process description based on factual information may be used to provide context for analyzing the interpretations of experts, and as a "tool" to understand their perspectives more profoundly. (Alastaro and Åkerman, 2010:379-388) In this study, the historical outline of meteorological development cooperation is portrayed exactly for this reason – to analyze the perspectives of the experts in the correct context.

4.3.3 ANALYSIS OF HISTORICAL DOCUMENTS

When using historical documents, it is important to acknowledge that they are products of the organizations that have produced them. It is also important to understand the great historical value documents have in the sense that they are products of their time, and cannot be changed or influenced afterwards. Memories can certainly be selective or wrong, but documents do not change.

Document analysis has been widely used in qualitative research, but only recently has an increasing number of authors mentioned document analysis as part of their methodology. Organizational and institutional documents have been a natural part of qualitative research, but there is some indication that document analysis has not been used effectively in the research process. Document analysis is rarely used as the only method of a study, and often (as is the case in this study), it is used in combination with other methods. It is common for a researcher to collect evidence from various sources to add to the credibility of their study. The same approach is used in this research as well. In document analysis, over-reliance on documents should be avoided. Documents may contain errors and often it is difficult, if not impossible, to check detailed facts from individual documents, since they have been collected in the past and for other purposes than what the researcher is using them for. Documents that can be used for systematic evaluation include documents such as agendas, minutes of meetings, background papers, diaries, journals, event programs, letters, maps, newspapers, etc. (Bowen, 2009:27–29). It is also important to note that what people decide to record, to leave in or take out is also relevant, and is informed by decisions related to the social, political, and economic environment that they are a part of. History, like all natural and social sciences, is amenable to selective influence and manipulation. (May, 2001:197)

Bowen cites Atkinson and Coffey (1997), who define documents as "social facts", which are produced, shared, and used in socially organized ways. (Bowen, 2009:27) Documents may provide data on the context of the research interviewees. Documents

can also be used to provide background information and historical insight. This kind of information, also used in this study, can help in understanding the historical roots of specific issues, and indicate conditions that have an effect on the phenomenon under study. The documents may for instance be used in contextualizing interview data. Documents may also reveal things that need to be discussed as part of the interviews and they may help focus the research in the right direction. Documents are excellent for tracking development and change. They are also great for verifying facts from other sources, such as interviews. If there is contradictory evidence, issues need to be examined in more detail. And finally, documents may provide data in cases where the most effective means to gather the data is no longer possible, for example if interviewees have forgotten important details of events that took place a long time ago. (Bowen, 2009:28-31) This facet is also relevant for this study in regards to the historical aspects of meteorological aid.

The ways in which documents are used in a study, is clearly a methodological and theoretical question, as well as a matter of the technicalities surrounding the method. Since documents are monuments of the past, it can be said that history in a way transforms into documents, and documents into monuments. To achieve this mode of analysis, matters of relevance, scope and relations between events need to be established. This requires us to see documents of certain events not as self-evident, but as a part of the way in which truth is produced. (May, 2001:177-178)

In this study, archive material has been collected from the archives of the FMI and the MFA. The material adds up to over 5 000 pages, including project documentation in its various forms (planning, reporting, budgets, pre-project preliminary reports, country documents), annual reports, letters, invoices and staff newspaper articles written by FMI experts working abroad in development cooperation projects. These provide interesting insight, especially into the early history of these projects.

In the process of revising the archive material, as Bowen suggests, I used skimming, reading and interpretation as methods of analysis (Bowen, 2009:32). I made an overview of the material and saw what kinds of documents were available. I read them and selected the most important documents for interpretation. I collected interesting and relevant facts from the documents, but also used them as background information for my interviews. I also cross-checked facts from the interviews with the project documentation. In terms of the actual analysis, I applied qualitative content analysis, which emphasizes the fluidity of texts and content in the interpretive understanding of culture. Qualitative content analysis starts with the idea of a process or social context, and views the author as a self-conscious actor addressing an audience under particular circumstances. The text is approached with an understanding of the context in which it was produced. (May, 2001:191,193) In this study, the documents were viewed in relation to what the experts stated regarding the projects. The experts interviewed for this study produced many of the documents used in the analysis.

4.3.4 CONTENT ANALYSIS

Content analysis is a widely used research method. It is a flexible method for analyzing data in the form of text. Content analysis dates back to the 18th century. The specific type of content analysis approach chosen by a researcher varies according to the theoretical and substantive interests of the researcher and the problem under study. Because of its flexibility as a method, the lack of a firm definition and procedures, content analysis has limited applications. Three approaches can be identified as qualitative content analysis: conventional, directed and summative. (Hsieh and Shannon, 2005)

The conventional approach to content analysis is generally used in studies, which aim to describe a phenomenon. This type of design is usually applied when existing theory or literature on a phenomenon is limited. In cases like this, researchers avoid using preconceived categories, categories and names for them arise from the data. Directed content analysis can be used when there is an existing theory or prior research on the phenomenon, but it is incomplete or would benefit from further description. The goal of the directed approach is to validate or conceptually extend a theoretical framework or theory. Existing theory can also be used to formulate the research question and to outline names for codes in the analysis phase. Summative content analysis involves counting and comparisons, usually of keywords and content, which is followed by an interpretation of the underlying content. Summative content analysis usually starts with identifying and quantifying certain words or content in a text with the purpose of understanding the contextual use of the words or the content. (Hsieh and Shannon, 2005)

This study applies the conventional approach to content analysis. All interviews were analyzed using Atlas.ti software. Codes were established based on the content and they were used to analyze the ways in which the experts' speech brought forward and reflected their motives, values and incentives for action. The codes were formulated freely during the process of reading and re-reading the interviews. Overall, there were over 40 codes that were used in the process after going over the data the first few times. The codes were then analyzed and used in analysis, some were used as such and some were combined with other codes. Codes were established for example for individual projects, for the stakeholder organizations, but also for more abstract themes, such as “politics”, “capacity development”, discussions reflecting power relations, roles, approach of the informant, and so on.

4.4 ANALYTICAL STRATEGY AND PROPOSITIONAL PATTERN

Yin (1994), has suggested that the general analytical strategy and techniques for case studies could include techniques such as pattern matching, time series analysis and explanation building. (Yin, 1994) Pattern matching in case studies has been defined in the Encyclopedia of Case Study Research as "an arrangement of occurrences, incidents, behavioral actions, or the outcomes of interventions that are apparent in the raw data". (Hak & Dul, 2010:249)

In a study by Almutairi et al. (2014), regarding the influence of cultural diversity on the quality and safety of patient care and work environment in a hospital in Saudi Arabia, an exploratory case study design was applied, using the analytical strategy of pattern matching. Exploratory case study was chosen in this case because the variables contributing to the problem were largely unknown, although the problem itself was clearly contextual, complicated and multifaceted. In many ways, the set-up in this study was very similar to development cooperation set-ups.

In the Almutairi et al. case, the hospital employed health care experts from various parts of the world, such as India, Philippines, Europe, South Africa, the United States, Australia and the United Kingdom. The staff was heterogeneous in terms of culture, language and educational background. Much like the meteorological experts working in the projects where experts and aid recipients come from different cultures, the nurses also differed from their patients and local colleagues, who were Saudi. This situation had raised the question of how to deliver safe, high quality care with many different perspectives and levels of nursing. The pattern matching process of their analysis included stating the study's proposition, testing the empirically found pattern from each distinct method against the predicted pattern, and providing

theoretical explanations and developing research outcomes. The propositional pattern of the study was that cultural diversity in a multicultural environment can influence the nurses' perception of the clinical safety climate, and the empirical pattern was that the cultural background of nurses influences their perception of clinical safety. In the study, the researchers conducted a survey, in-depth interviews and a document analysis. They analyzed the results of each method separately and an empirically found pattern was established from three separate sources: the survey, documents and interviews. Then, the found pattern was compared to the proposed pattern, and it was discovered that the empirically found patterns confirmed the predicted patterns. The result of the study was that the multicultural nature of the nursing workforce is associated with clinical, personal and professional difficulties that could result in profound consequences for the safety of the nurses, patients and their families, as well as for the general healthcare outcomes. These findings are based on the discovered conflicts between different cultural norms, beliefs, behaviors and languages, all operating in one space. The researchers concluded that case study design is powerful in that it allows the employment of multiple methods and data sources to bring different epistemological perspectives together, and provides new understanding of the case under investigation. The pattern matching technique is a significant step in the metasynthesis of the results of diverse data sets in case study research. (Almutairi et al., 2014:239-242)

Meteorological development cooperation projects, current and past, include cooperation between public and private sector donor stakeholders, as well as experts in aid recipient countries, mainly in meteorological organizations. The interviewees from the FMI were experts on meteorology, while experts from the MFA were experts on politics and development policy, and Vaisala's experts were experts on meteorological technology. Local experts had expertise regarding the local cultural context and practical situations (what works and what does not). All stakeholders had different motives for cooperation, different incentives for their actions and different values influencing their organizational practices. The propositional pattern set to be solved is:

The diversity of expertise influences the perception of experts regarding project priorities, which in turn influence the practical steps taken to achieve project goals, eventually also affecting the outcomes of projects.

4.5 ETHICAL CONSIDERATIONS

Research ethics is a highly important issue for this study and all aspects of it have been considered thoroughly when planning, executing and reporting the results.

There are several reasons for adhering to ethical research norms. Firstly, ethical norms promote the aims of the research, for example knowledge and avoidance of error. Research should aim to foster truth and minimize error, and all practices should be against falsifying and misrepresenting research data. Secondly, ethical standards promote trust, accountability, mutual respect and fairness in research, which is essentially collaborative work. Thirdly, ethical norms help to ensure that researchers are accountable to the public. Fourthly, they contribute to public support for research. Finally, many of the norms promoted in research ethics are important moral and social values. It should be taken into consideration that all ethical lapses in research can harm research subjects, students and even the public. (Resnick, 2015)

I have striven for openness and honesty in all my research practices. I have designed each part of the research process to support my research topic. I have included the perspectives of experts, but also archive materials to ensure that these projects are portrayed in their true nature. I have reported the process here in a

transparent way that allows repeatability. Since individual opinions presented in this study might compromise the role of the interviewees in these projects and in their work environments, I have ensured all experts of their anonymity before each interview and made sure that the identity of the experts interviewed cannot be revealed based on anything mentioned in this thesis.

Throughout this study, there have been numerous situations where the interviewed experts have suddenly become silent as they were explaining something difficult, showing a lack of words and action. These situations have occurred most often in cases where the expert knows that something happening is not right, but acknowledges that there is simply nothing they can do to solve the problem. This feeling of powerlessness was clear, especially among the experts from recipient countries, but also on the donor side. The reasons behind their silence were often traceable to the structure of aid, how things work and have traditionally been done.

As a researcher, I was in a position where the experts felt they could hide behind anonymity and talk about things that bothered them; problems that they did not want to bring up with their colleagues. On many occasions, I was asked not to write about parts of what was discussed. I have respected these wishes fully. It was clear that anonymity brought an added level of openness to the interviews, which allowed many to have their say, without any direct consequences. Many used this opportunity with some level of relief. Silence as a concept relates strongly to fear; the fear of losing one's position, job and responsibilities, the fear of being labeled "difficult", or the fear of causing problems where everyone knows no more additional problems are needed.

4.6 CHAPTER SUMMARY – CONNECTING METHODS TO THEORY AND DATA

The research methodology and presented research methods have been chosen based on the data and research design. Research design has been theoretically inspired by the theories and theorists' work presented in Chapter three.

Since the beginning of conducting this research, it was evident that both archive material and interviews were needed in order to understand all aspects involved in the most coherent manner possible. Content analysis was a natural choice after doing the interviews, since it was possible to do that with both interview and archive materials. Because a vast amount of data was collected, it became clear that not all of the analysis can fit in the context of this one study. The decisions regarding which issues were to be included were guided by relevant theoretical discourses and what appeared to be the most interesting issues after tentative data analysis.

5 METEOROLOGICAL DEVELOPMENT COOPERATION IN THE HISTORY OF FINNISH AID

> The Finns have always been interested in the state of the weather, and for a good reason: the need to survive in harsh environment, which is due to the country's geographical position. In the ancient Finnish mythology, Ukko was the God of sky, weather, crops, and other natural things. The modern Finnish word for thunder, Ukkonen, is derived from his name, since Ukko's weapons were said to strike lightning when he was angered.
>
> -WMO Secretary-General M. Jarraud (2005)[32]

Throughout the history of Finnish meteorological development cooperation projects, cooperation has been carried out in various formats in all parts of the world. By the year 2004, project budgets totaled about 45 million USD (Taalas, 2004). Since then, during the past decade, some of the previous cooperation has continued, but a significant number of new countries have been added as well. Finland has been highly active in carrying out cooperation in various regions, and over a hundred countries have received assistance from Finland to support their meteorological practices. Since Finland is a small donor country that conducts development cooperation in a high number of countries, it is suffice to argue that the Finnish policy strategy has been to familiarize a large number of countries with Finnish expertise. Meteorological projects have included meteorological and technical training, the installment of meteorological observation equipment and training regarding their use, the installment of computer systems and software, as well as the development of weather services and climate observation systems. Vaisala has manufactures a significant part of the equipment used in these projects has been manufactured. This has supported Vaisala's significant position in the global market. (Taalas, 2004)

The question set to be solved in this chapter is: What have been the main phases, practices, challenges and opportunities of Finnish meteorological development cooperation projects? These issues will be explored utilizing both archive and interview data. Table 7. lists the target countries of Finnish aid in the field of meteorology. As can be seen, numerous countries in most regions of the world have been received aid in this field.[33] The projects listed and details regarding them (e.g. budgets) have been based on the information found in the archive materials. These include most projects which have been executed, but it is possible that there are some smaller projects that haven't been included. The use of archive material from past decades always includes the risk of some information gone missing or misplaced. Additional problems have come from changing project plans (e.g. duration, budget) during cooperation, which has happened in many of these projects. From archive researcher perspective, one key challenge has been to trace the phases of each projects as plans have changed, budgets have been increased (or decreased) and changes have not always been explained in written form. Therefore, the focus of this chapter is on

[32] Statement on the occasion of the inauguration of Dynamicum, the FMI's new headquarters, November 8, 2005.

the most relevant cooperation projects, mainly large regional projects as well as longest cooperation relationships.

I will first provide an overview of the practices in this field by presenting a list of the recipients of Finnish aid. The amounts allocated by Finland as ODA and the percentage of the GNI are also presented. I will then provide some relevant background information, including the early history of international aid practices and Finnish aid. After this, sections discussing aid practices in the field of meteorology are presented in five parts proceeding in chronological order. And in the end of the chapter, a summary of the practices is given, including major events and milestones of both Finnish aid in general and in the field of meteorology.

Table 7. Finland's cooperation partners in the field of meteorology by WMO Regions.

WMO Region	Countries	n
I Africa	Algeria, Angola, Botswana, Cape Verde, Congo, Ethiopia, Guinea, Ivory Coast, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Sudan, Swaziland, Tanzania, Tunisia, Zambia, Zimbabwe.	22
II Asia	Bangladesh, Bhutan, China, Kazakhstan, Kyrgyz Republic, Myanmar, Nepal, North Korea, Pakistan, Saudi Arabia, Tajikistan, Turkmenistan, Thailand, Vietnam, Uzbekistan, Yemen.	16
III South America	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Panama, Paraguay, Peru, Uruguay, Venezuela.	11
IV North America, Central America, Caribbean	Antigua & Barbuda, Bahamas, Barbados, Belize, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Grenada, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenadines, Suriname, Trinidad & Tobago.	23
V South-West Pacific	Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Philippines, Salomon Islands, Tuvalu, Vanuatu.	13
VI Europe	Albania, Bosnia and Herzegovina, Croatia, Estonia, Georgia, Jordan, Kosovo, Latvia, Lithuania, Lebanon, Macedonia, Montenegro, Poland, Russia, Serbia, Syria, Turkey.	17
Total		102

(Source: Taalas, 2004 and Finnish Meteorological Institute, 2014e)

Figure 8. shows the sums allocated by Finland as ODA from the time of the first allocations in 1961 to the year 2015. It also includes the share of ODA of GNI for the same time. As can be seen from the figure, Finnish aid allocations remained rather small up until the 1980s and started growing significantly in the late 1980s. The recession of the early 1990s hit Finnish aid hard, and allocations were dramatically cut. The level of the aid did not return to the level of the late 1980s until the mid-2000s. However, since Finnish GNI had increased, the share of ODA naturally was not as high. The year 1991 was the only year that the international target level of 0.7 percent has been reached.

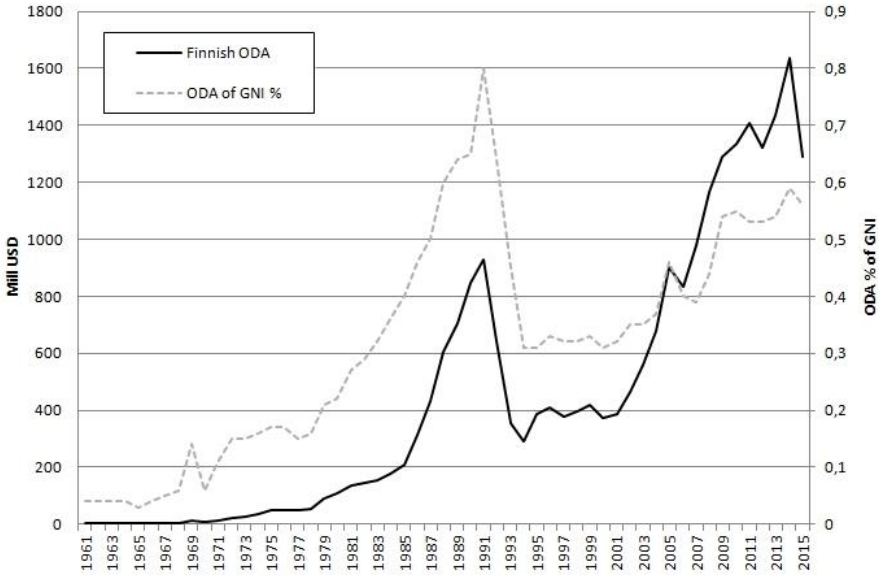


Figure 8. Finnish ODA sums and share of ODA of GNI, 1961–2015.

(Source: OECD DAC Statistics)

The early history of international and Finnish aid

The period from 1946 to the end of the 1960s was a time when aid was seen as a technical rather than social intervention. This was also the period of decolonization and the rise of the nation state. World War II and the success of the post-war reconstruction of Europe influenced patterns of aid-giving. Modernization theory was highly influential during this time. Communism and capitalism were two essential divides present in the discussion. Major power shifts were experienced in many countries because of decolonization, among other reasons. The conditionalities of aid were minimal due to post-colonial guilt, aid agency goodwill and the power of the leaders in the newly independent countries. Although aid was provided with minimal conditions, the underlying ideology was dominated by the superiority of Western donors. During this time, donors also made strategic choices regarding the recipient nations. Towards the end of this period, two significant shifts occurred. Donors started lending to poor countries and aid in general became more concessional. The institutional foundations and relations were laid out for a system that was more concerned with the foreign policies of Northern governments than the actual reduction of poverty. Since Southern governments had limited power to control aid allocations, this led to the aid dependency of many recipient countries. (Robb, 2004:22-23)

During the 1970s, aid was heavily influenced by the oil crises of 1973 and 1978. When the Organization of the Petroleum Exporting Countries (OPEC) raised the price of crude oil, there was a rapid accumulation of monetary reserves in OPEC countries. Consequently, industrial countries experienced strong inflationary pressures, which were handled by raising interest rates and reducing imports. For many developing countries, this resulted in a balance of payments deficit. Since they were paying more for oil, they had higher interest rates for their loans and trouble finding markets for their exports. Many developing countries turned to the International Monetary Fund

(IMF), the World Bank and commercial banks for loans. In response to the oil crises, many oil producing countries became donors of aid. Overall, during the 1970s, there was a gradual realization that growth alone was not enough to reduce poverty. It was argued that poverty reduction should be promoted by ensuring that some of the benefits of economic growth were redistributed to the poor through taxation and public expenditure. However, the capacity for this was and remains low in developing countries. During the mid-1970s, the basic needs approach was advocated by the United Nations Children's Fund (UNICEF), and its impact on the aid system was significant. There was a shift from economic growth to the provision of the minimum requirements for an adequate standard of life. In 1973, Robert McNamara, the president of the World Bank, declared poverty reduction as the overarching goal of the organization. This was a significant step towards poverty reduction. An increase in World Bank lending to rural areas led to the rapid spread of Integrated Rural Development Projects (IRDPs). However, many of these projects failed because they were supply driven and difficult to manage and implement because of weak governmental capacity. Projects were still the main instrument of aid agency influence and aid recipient governments continued to have limited control within the aid system. Projects were top-down, with only limited governmental dialogue. They were often designed without sufficient attention to the underlying risks and had unclear objectives. Overall, the problems in the 1970s included the dominance of the project cycle as a technical intervention, the failure to listen to rural farmers and to understand rural life in general. Additionally, the primacy of supply-driven interventions and the lack of Southern government ownership in development cooperation projects were also challenges. (Robb, 2004:24-26)

As a side note, monitoring and evaluating of development assistance started in the 1970s and came increasingly to the fore during the 1980s. Evaluation as a tool of public administration was first introduced in the field of development assistance. It gradually became generally recognized and institutionalized in the late 1970s and early 1980s, when most European aid agencies established aid evaluation units within their organizations. (Stokke, 1991:1)

Finland's relationship with developing countries has often been described as insignificant. Finland is located in the far northern corner of Europe, it does not have a colonial history and the relationships that would come such historical ties. This kind of thinking may easily underestimate Finland's relationship with developing countries. Finland did in fact establish relations with countries outside Europe long before it even became independent in 1917. These ties were established through missionary work, migration, trade and culture. Finnish missionary work began in Northern Namibia (Ovamboland) as early as 1860. After gaining independence, Finland remained separated from colonialism and had closer ties with European countries and the United States. This can be also seen in the development of the locations selected for the first Finnish embassies. In 1939, just before the Winter War began in Finland, only three developing countries had Finnish representation: Argentina, Brazil and Iran. The network of Finnish representation began to spread in the 1960s. Important countries such as China, Egypt and India were among those targeted. Otherwise Finnish ties with developing nations can be characterized as modest up until the 1970s, when diplomatic ties and other activities started, in part because of development cooperation. By the end of the 1980s, Finland had representation in 106 developing countries, but only 26 countries had a Finnish embassy. Finland's ties with developing countries were traditionally rather limited and typically dominated by trade. In 1953, Finnish trade with developing countries was worth about eight percent of total exports and by 1984, the share was ten percent. Trade with developing countries remained stable, yet at a low level. (Siitonen and Sitari, 1990:47-48)

When looking into Finnish development cooperation history, it is important to emphasize the importance of Finnish foreign policy. Finland's role as a relatively small and politically neutral country set some limitations to the adopted practices. Firstly, Finland did not have strategic or power politics benefits to guard outside Northern Europe. The focus of foreign policy has always been on the northern hemisphere. In its relations with the developing countries, Finland has aimed to gain influence through international organizations, mainly the UN. (Siitonen and Sitari, 1990:49) The first practices in the field of meteorology were no exception to this. The earliest formal practices were conducted in cooperation with the WMO.

After Finland joined the UN in 1955, Finns had the opportunity to participate in the discussions and voting concerning developing countries. During the years 1957–1959, Finland represented the Nordic countries in the UN's Economic and Social Council (ECOSOC). Nevertheless, it was not until the year 1961 that Finland reserved three million Finnish marks for development cooperation. During the same year, a committee was named to examine Finnish development cooperation. The committee's report outlined three general principles: (i) practices should follow the principles of the UN system (aid level of one percent of GDP), (ii) cooperation with other Nordic countries, and (iii) starting Finnish bilateral practices and bringing those to the same level than other Nordic countries. Despite the rapid growth of the funds allocated for development cooperation, Finnish aid remained at a quite low level during the 1960s[34]. (Siitonen and Sitari, 1990:49-50)

Finland's interest in developing nations was furthered by the process of many countries gaining independence from the colonial powers. However, this did not happen until Finland started to actively participate in UN politics, which put pressure on Finland to participate in development cooperation. During the same time, in the 1960s, there was a general movement away from the Cold War era bilateralism, towards more multilateral practices, and this created the prerequisites for Finland to become more active in the field of development. (Siitonen and Sitari, 1990:50-51)

The structural goal for Finnish development cooperation was set in the late 1960s. In memos published in 1968 and 1969, it was stated that the share of multilateral aid should be 40 percent and the share of bilateral aid 60 percent[35]. The growth rates of aid were fast in the beginning. During the years 1968–1972, the allocations to aid were increased five times. As the practices became more relevant, it was necessary to outline how the countries receiving aid were to be selected. This happened in 1973, when it was stated that Finland supports countries, whose goals are in line with the UN's development strategy principles. In addition to this, practices were to be aimed at few countries, to ensure the best possible results. During this time, 3/4 of all aid was allocated to just five countries: Chile, Nigeria, Zambia, Tanzania and Vietnam. Any new recipient country would have had to come from the UN's list of the least developed countries.[36]

In the beginning, aid given in cooperation with other Nordic countries formed the majority of Finnish bilateral aid. Recipient countries included for example Tanzania since 1962 and Kenya since 1967. Tanzania had already become familiar to many Finnish people through missionary work. Finland also tied several technological-economic agreements with developing countries. These agreements were general in

[34] There were many reasons for this. Finland was actually a net receiver of aid up until 1968, which was also the year when Finland joined the OECD. Finland had joined the World Bank already in 1948, but since it had declined Marshall Aid, Finland had remained an outsider of the Western European reconstruction projects. Before joining the OECD, Finland had focused on establishing its own position, instead of spreading its practices. (Siitonen and Sitari, 1990:50)

[35] This goal was reached in 1975 (Siitonen and Sitari, 1990:51)

[36] This decision was confirmed in 1974 as the principle which guided the selection process of recipient countries (Siitonen and Sitari, 1990:51).

their nature, and separate from scientific-technological agreements, which had been planned with some more advanced countries. Often, these agreements did not lead to much of anything, unless proper and suitable projects were found. The forest sector was among those that did in fact lead to some projects. The countries that had recently gained independence, were active in forming diplomatic ties with other countries. Tanzania's president Nyerere and the president of Tunisia Bourguiba visited Finland in 1963, as did Zambia's president Kaunda in 1966. These visits all led to cooperation agreements. Peru and Ethiopia requested assistance, and both have been recipients of Finnish aid since 1967. Finland's interest to help certain countries was also influenced by wars and humanitarian crises. For example, the war in Biafra and the famine that followed were much discussed at the time, and Finland gave humanitarian assistance to Nigeria during 1968–1970. This is how cooperation with Nigeria began. Cooperation with Vietnam was initiated under similar circumstances. Humanitarian aid was allocated to the region, but in this case, the activity of NGOs and Nordic cooperation also influenced the support given. (Siitonen and Sitari, 1990:57) All above-mentioned countries have also received aid in the field of meteorology.

Koponen has outlined the various stages of Finnish development cooperation. Since the 1960s and up until the 1970s, Finnish aid was at its "stage of formation". During 1972–1991, it was at its Nordic/national phase, and since 1991, the era of the EU/globalization began. The formation stage can be described as a phase of "diplomatic developmentalism" and "political instrumentalism". There were only a few actors and decision-makers involved in the practices. During this time, there was a movement from multilateral aid towards bilateral projects, and there were few countries selected and some companies interested in these practices. Tanzania, Zambia and Vietnam were the main recipient countries. During the period 1972–1991, national interests were emphasized. Other Nordic countries formed the reference group, and funds allocated for development cooperation grew slowly at first, but faster during the 1980s. This was a period when "economic instrumentalism" was at the forefront of practices. Politicians and the public became more interested in the practices as well. In 1979, Egypt, Kenya and Sri Lanka were chosen as Finland's main recipients of aid, and by 1982 fifteen countries were given assistance. During the EU/globalization phase, since 1991, the reference group has consisted of other European actors. The amount of finances allocated to aid dropped during the recession of the early 1990s, but started to recuperate towards the new millennium. National interests were important during the era of globalization. There was no need for the old-fashioned political or economic instrumentalism of the past. This change was influenced by a disappointment with the general results of aid. Financial cuts strengthened developmentalism, and there were new developments in the area of private sector cooperation. Throughout the history of aid, the role of companies and the private sector in Finnish development policy has been considered important. Doing business and investing in developing countries brings forward economic growth and development. Businesses must have competitive products and resources in order to be able to participate in poverty reduction and social responsibility programs. These partnerships should be developed in the context of current forms of cooperation. Overall, companies have been encouraged to engage in cooperation with poor countries, and to seek partnerships between the public and private sectors. (Koponen, 2004)

The motivations for allocating aid have been ethical, political and economic. International solidarity and ethical motivations for aid allocations have been influenced by Christian missionary work. For a long time, missionary work was the only way in which Finns were in concrete contact with developing countries. In part, missionary work has also been influenced by the image that developing countries have of Finland. The idea of social justice has its roots in Nordic development

cooperation thinking, the labor movement and in the movement for peace. The economic motivations for aid have been explained by the idea that supporting the economic development of developing countries has a positive impact on the stable development of global economy. In addition, the experiences gained by the export industry from development cooperation have been emphasized. However, it has been also acknowledged that economic benefits and development cooperation do not necessarily go hand in hand, and might cause conflicts and challenges. The main political motivation for aid has been to have a credible foreign policy. Taking part in decision-making in international development policy (for example in the UN) has also been important. Finland's "Nordic" image as a donor also sets some expectations for practices. Finland has been seen to strengthen its neutral role in global politics through development cooperation. (Siitonen and Sitari, 1990:54)

5.1 EARLIEST STAGES AND OFFICIAL START: 1930S TO THE 1970S

> The fact that we have had Vaisala here in Finland, has put Finland on the map in the international community of meteorologists already in the 1960s, and even earlier.
>
> -Ministry expert

To open up the history of Finnish meteorological development cooperation projects in the various regions and countries of the world, one must travel even further back in time than the late 1960s when the projects began, all the way to the 1930s, when Professor and inventor Vilho Väisälä (1889-1969) started his pioneering work in the field of meteorology.

Vilho Väisälä had an important role in developing both the theoretical and technological aspects of meteorology. He is the person who has had the most active role in establishing Finland's international prestige in the field of meteorology. He started international cooperation in the late 1930s, when he travelled to South America with his colleagues to do field research and establish networks with local meteorologists. His inventions and active product development, including the famous radiosonde used in weather measurements, have been highly significant to the development of meteorology. Väisälä's radiosonde was invented in 1934 (see Figure 9.). What made it unique was its application of radio technology, previously unused in this type of technology. The radiosonde was produced and put to regular use

Figure 9. The first commercial model of the Vaisala RS11 radiosonde which entered the market in 1936.

(Photo credit: Michelsen, 2006:42)

in Finland from 1936 onwards (Lindqvist, 1978:12). Radiosondes, which are sent up in the athmosphere attached to weather balloons, were developed to increase knowledge and understanding of what is going on in the upper atmosphere. It measures temperature, moisture and pressure. (Michelsen, 2006:13, 23) The radiosonde attracted a lot of international interest from the beginning, and Väisälä started to prepare for mass production. The first official exports, 20 radiosondes, were sent to MIT, to C. G. Rossby, who was preparing for field research in Cuba. The following year, he ordered 30 more, and during the same time radiosondes were also exported to Sweden, Norway, Denmark, Poland and the United Kingdom. Since it was difficult for Väisälä to manufacture radiosondes in the small laboratory he was working in, he established a separate company for manufacturing. Most of the radiosondes went to the Finnish military. Despite strong international interest in radiosondes, especially in European countries, the Second World War interrupted manufacturing. By then, radiosonde samples had already been sent to countries such as India, New Zealand and the United States. During the war, radiosondes were supplied to other Nordic countries, but nowhere else. After the war ended, the company's name was changed from V. Väisälä to Mittari Inc. (1946). Orders started coming in from outside Europe. (Lindqvist, 1978:12-13) By the mid-1940s, Väisälä had managed to obtain numerous radiosonde orders from countries such as South Africa, China, Argentina, Hungary, Romania and East Germany. While the orders were highly appreciated, he struggled to supply the products. Problems with production were solved by establishing subsidiaries in different parts of the world, to manufacture radiosondes in closer proximity to the customers. Väisälä opened the first Finnish factory on the African continent in Johannesburg on May 10, 1962 (Michelsen, 2006:114). Business relations with the South African meteorological institute were established already in 1956. At that time, the political position of Finland was difficult due to the proximity of the Soviet Union, and accessing the US markets was difficult. The Soviet Union, the United States and Western European countries focused on developing their own systems because of the strategic importance of weather. For these reasons, Väisälä actively sought business opportunities in the Third World: in Africa, South America and Asia. It was difficult to ensure customers that a company in a remote European

Figure 10. Vilho Väisälä (front of picture) at work creating the first radiosonde in Tampere, Finland (1934).

(Photo credit: Vaisala, 2015)

country could produce superior weather products. Things changed when the WMO organized two-week-long tests for radiosonde products, see Figure 11. An international board inspected all available radiosondes and compared their sounding results. Although no clear winner was found, Väisälä's product was by far the lightest in weight. It weighed less than 400 grams while others were closer to 1 000 grams, with the heaviest weighing almost 2 000 grams. The word spread quickly and orders for Väisälä products started to pour in from all over the world. By the mid-1950s, Väisälä's radiosondes were already in use in countries such as Ethiopia, Iran, Iraq, Syria, India, South Africa, Argentina, Brazil and China. (Michelsen, 2006:78, 114) Currently, Vaisala does business with most countries of the world and exports 98 percent of its products (Finnish Broadcasting Company, 2012b).

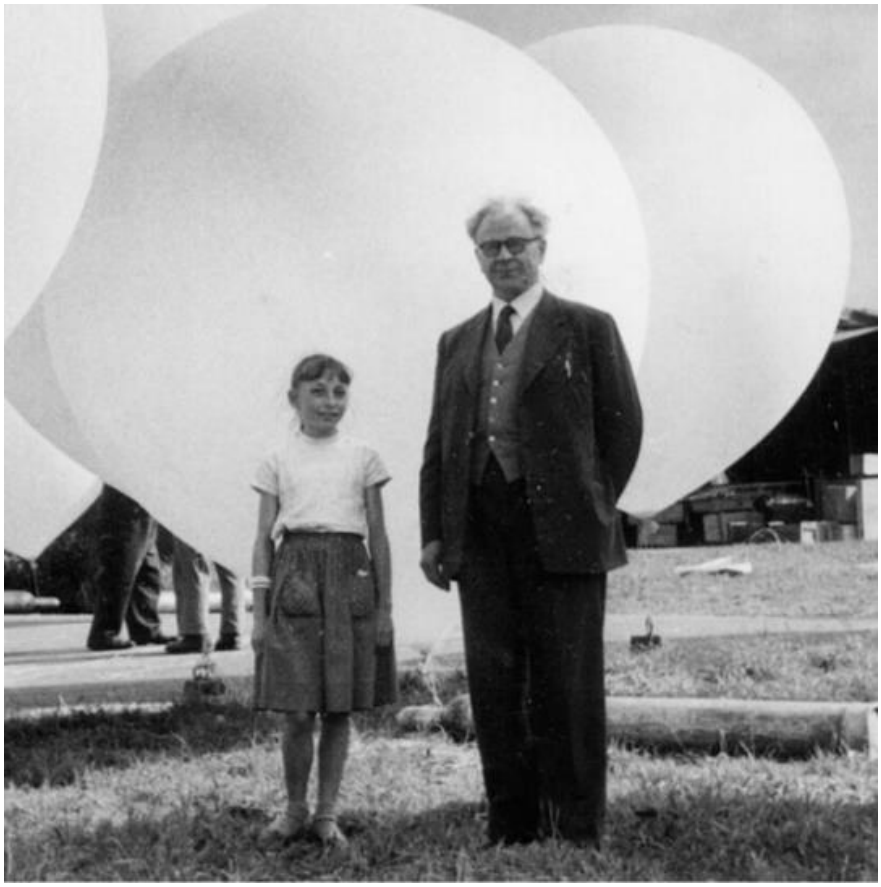


Figure 11. Vilho Väisälä in Payerne, Switzerland in the first radiosonde comparison event organized by the WMO (1950).

(Photo credit: Michelsen, 2006:79)

Through these practices, Väisälä began international cooperation long before meteorology was added to the national agenda of Finnish aid and included in official development cooperation. Although Vilho Väisälä passed away in 1969 just as development cooperation in this field started, much of what happened in Finland in this area should be credited to his vision and thrive for international cooperation. Through his business, Vilho Väisälä made Finland known in this field many years

before official development cooperation projects were started. Vaisala's leadership position in the market and high quality products have had a significant impact on the national role of Finland in the political arena of meteorology.

As a person, Väisälä was not only enthusiastic about his career and developing his business, but he was also highly active in training future meteorologists. During his active career, he worked as the Director of the Ilmala observatory and aerological department (1916–1948), and as Professor of Meteorology at the University of Helsinki (1948–1958) (Lindqvist, 1978:11). Sixteen years after his death, the WMO's Executive Council, at its 37th session in 1985, established the Vilho Väisälä Award for Outstanding Research Paper on Instruments and Methods of Observation. In 2004, at its 56th session, the WMO established a second award, the Professor Dr. Vilho Väisälä Award for the Development and Implementation of Instruments and Methods of Observation. This award is focused on encouraging instrument work in developing countries and countries with economies in transition. Both awards are granted on a biennial basis. The awards consist of a diploma, a medal and a prize of 10 000 USD. (World Meteorological Organization, 2014c)

Vilho Väisälä's heritage has carried far and without his active role in the field of meteorology, Finland's role in the field could have ended up being something completely different and probably less significant. However, Vilho Väisälä's role and the company he created is only one part of the equation in trying to understand the role of Finland in the field of meteorology and meteorological development cooperation. Another important entity is the history of Finnish development cooperation.

The Office for Development Cooperation started operating in Finland on the first of March in 1965. Before that, Finland had participated in international cooperation mainly through the UN. Many Finnish people worked for the UN in different parts of the world, even though development cooperation did not have a relevant role in public discussion or political debate at the time. In 1960, Prime Minister Sukselainen stated that if Finns want to gain recognition and participate in the global markets in the developing world, we must take part in the work aimed at improving the circumstances in these countries. Through this work, it was believed, Finland would also help itself.

Since the beginning, Finnish development cooperation crossed the lines of regular foreign policy. The history of Finnish development policy can be described as a history of change, but also continuation. Development practices have been internally conflicted and fickle, but there has also been a consistency, which has endured over time. At times, and especially in the beginning, Finnish development policy has supported Finland's own political and economic interests, and aid has been used as an instrument to satisfy these interests. Koponen has examined Finnish development policy through the concepts instrumentalism and developmentalism and shows how both of these ideologies have been popular during different times for interesting reasons. During the formation of the Finnish aid system, development policy was guided by a small group of civil servants who mainly operated based on "trial and error" principle. The instrumental point of view saw development aid during this period as a way to lift the Finnish profile abroad and to separate it from the Soviet Union. It was also a way to induce the internationalization of Finnish companies and to help them gain international experience. Developmentalism as way of thinking first came to Finland through the UN and later through other channels, and it was mixed with other ideologies. During this time, the interest of Finnish companies to do business in the developing world was limited, although not nonexistent. (Koponen, 2005) At this point, Vilho Väisälä had already been actively involved in international business for several years, and he was truly an exception to the norm of the time.

Finnish companies had a limited collection of practices and policies for utilizing aid and appropriate procedures were gained through experimentation. Individual

experts were placed in different countries, but this was neither efficient nor did it advance project goals, since there was only so much one or two people were able to do. The choice of projects for implementation was based on the available resources in Finland and the needs of the recipient countries. Finland was able to provide special expertise in fields such as forestry. (Koponen, 2005) Meteorology was another central field of Finnish expertise. Koponen states that the process of selecting recipient countries was problematic. History did not provide much assistance, as was the case for countries with a colonial past. It was thought that since Finland had not had colonies in the past, Finnish companies were at a disadvantage, and thus, it was appropriate to support them with public subsidies. When the amounts of aid increased, companies became more interested in participating in these activities and since practices had not been properly established, companies could apply for financial support from the Office for Development Cooperation. At times, such support was even granted. It took some time before it was internalized what kinds of activities development cooperation funds should actually be allocated to. (Koponen, 2005)

The national realistic phase of development cooperation began in 1972 and lasted until 1991. By the early 1970s, development cooperation had become a political issue, which was publicly debated, and the amount of people involved with development policy increased significantly. Party politics also played a bigger role. Major decisions regarding aid allocations, sectors and recipient countries, were made within the Ministry. Commercialism and developmentalism as opposing ideologies clashed in these debates as ministers and leading officials usually tended to support commercialism, while their subordinates (mainly leftist, but others as well) had more support for developmentalist arguments. During the years 1970–1973, the amount of people employed in the development cooperation department[37] at the Ministry quadrupled and rose to 107 people. In 1974, the principles of development cooperation were put in written format, and topics such as social and economic development became the main goals of Finnish development policy. Issues such as education, health, nutrition, population politics, forestry and agricultural development were included. In the document, it was stated that development and economic policies should be in line with each other. The diminishing development cooperation funds were directed to commercially viable recipients, and the general profile of aid was changed. Consultant projects and supplying of technical equipment were preferred. This way, most of the money actually stayed in Finland or eventually returned there. (Koponen, 2005)

5.1.1 EARLY FORMS OF COOPERATION WITH THE WMO

Finland's official cooperation with the WMO relating to developing countries began in the late 1960s and started to increase in the early 1970s. During this time, the Finnish Ministry for Foreign Affairs was short on staff and started financing the WMO's VAP programme. Within the program, Finland donated equipment to small Pacific island states and Caribbean countries. Finland also donated Vaisala radiosondes and even entire weather observation systems. The FMI was heavily involved with these practices. The main aim was to support meteorology for agriculture. For the small island states in both regions, the donated equipment was highly important, as local systems needed to work so that approaching storms and hurricanes could be forecast and necessary preparations made before storms hit the islands. Vaisala's radiosondes, which were of good quality, played a role in these practices. One expert recalled a project from the 1970s in which 250 000 Finnish

[37] In Finnish, Kehitysyhteistyöosasto, KYO, was established in 1972.

marks worth of donations, in the form of radiosondes and radar equipment, was given to small island states. Local systems and capacities were developed and ties with local institutes were formed. Finland was part of these practices from very early on.

In 1961, the United Nations passed two resolutions, which called for the World Meteorological Organization and the International Council of Scientific Unions (ICSU) to develop a detailed plan for international cooperation in meteorology. The program evolved in two significant parts: the World Weather Watch (WWW) and the Global Atmospheric Research Program (GARP). The WWW includes the design, development and implementation of an international system, for making regular observations of the atmosphere over the globe as well as for the rapid and efficient communication, processing and analysis of worldwide weather data. The planning and coordination of the WWW was given to the WMO. GARP was a comprehensive program of research on the physics of the atmosphere, including major data collection efforts around the world. GARP was jointly coordinated by ICSU and the WMO. (Hallgren, 1970:22) Finland had an active role in both programs.

One of the first archival references to international cooperation done by Finland is from the year 1972, in the annual report of the FMI, where it is stated that the FMI participated in the World Weather Watch program by donating a complete aerological station to Nigeria, which was funded by the Finnish Ministry for Foreign Affairs. Additionally, during the same year, the FMI participated in the Voluntary Assistance Program (VAP) by donating two radiosondes and stations to Columbia and Mali. In cooperation with Vaisala Corporation, the FMI had also trained the staff in these countries. (Finnish Meteorological Institute, 1972:41) The following year, radiosonde stations were established in Algeria, Burma, Sudan and Venezuela and training was once again carried out in cooperation with Vaisala. (Finnish Meteorological Institute, 1973:48) In 1974, the cooperation was continued, and in the annual report it is concluded that in 1974 Finland had put to use the station, which had been donated to Nigeria in 1972 and had given expert advice regarding its use. Aerological station equipment and meteorological measuring devices were donated to several developing countries and training was offered as well. (Finnish Meteorological Institute, 1974:45-46)

The FMI also participated in two global weather experiments, which began in the 1970s. The WMO's GATE (Garp Atlantic Tropic Experiment) in 1974 lasted for 100 days (June 1974 to September 1974), and FGGE (First GARP Global Experiment), lasted for a full year, from December 1, 1978 to the end of November 1979. Finland was given a key role in both experiments. GATE was, at the time, the biggest global international project in the field of meteorology.[38] Finland was the only Nordic country to participate. Finland's role in GATE was significant. Through the WMO VAP programme, Finland donated eight complete radiosonde stations to the developing nations located in the GATE area. In addition to these, one station with Finnish staff was donated to Nigeria during the experiment. Finland's representatives were S. Huovila from the FMI and Vaisala CEO Y. Toivola. (Huovila, 1972:14-16)

[38] GATE was conducted over the tropical Atlantic and adjacent land areas. The organizing parties were the WMO and ICSU. The experiment's headquarters was located in Dakar, Senegal. (Suomi et al., 2014) For the experiment, two bodies were established: the Tropical Experiment Board (TEB), in charge of the execution and financing, and the Tropical Experiment Council (TEC), in charge of getting the program finished without international conflicts or misunderstandings. In the FMI staff magazine article, the author states that: "It is only natural that the members of TEB are developed countries and the members of TEC are countries in which the experiment takes place". The general aim of the experiment was to improve meteorological observation in the tropical region, where economic and climatic factors had hindered practices in the past. The main financiers of GATE were the Soviet Union, the United States, the United Kingdom and West Germany.

The first GARP Global Experiment (FGGE), which followed GATE, was the first global weather experiment (University of Wisconsin-Madison, 2014). Finland was responsible for the TWOS/Navaid calculation center, which processed raw weather data coming from ships sailing tropical seas. This center's practices were considered vital for the success of the Global Atmospheric Research Programme (GARP)[39] (Lange, 1977).

During the 1970s, Finland also participated in several UN conferences. The first UN Conference on the Human Environment was held June 1972, in Stockholm, and the Conference on Desertification was held in Nairobi in 1977. The conference in Stockholm acknowledged that environmental issues do not adhere to national boundaries. The purpose of the meeting was to seek ways to protect the environment.[40] (Kivistö, 2002)

The conference in Nairobi included topics such as the causes of desertification, how it is proceeding and how to slow it down. The meeting brought together over 700 participants from 95 countries. The conference report stated that the fight against desertification has proven to be very laborious and the cost-benefit ratio of these practices is questionable. This was partially explained by the fact that desertification occurs mainly in developing countries, where "the purpose of these practices is not always understood". The report continues by stating that Finnish experts are taking action against desertification in Africa and Arabia, for example by planting forests in the regions where desertification is proceeding. These can be unwise investments if locals cut down the trees to get firewood. The report states that similar problems have emerged in building wells and irrigation systems in developing countries: "The success in combating desertification is usually in correlation with the general level of development in the local community". The report notes that "Nearly in all UN meetings political points of contention are discussed, which have more or less to do with the topic of the meeting." In this case, the tensions between Israel and Arabic countries were revealed when Israel's report on preventing desertification in the Negev desert was removed from the conference publications. This was however only symbolic, since the report had already been distributed to all participants. Other political statements in the meeting included topics such as banning the use of weapons of mass destruction, the impact of colonialism on desertification and assistance to developing countries. The report concludes by stating that one might wonder why Finland and Scandinavian countries are interested in desertification, since the issue is not directly relevant for Finland. In 1974, three years before the UN meeting, one billion FIM had been given in humanitarian aid to the Sahel region alone.

> If international technology and instruction can reduce the harm caused by desertification, this kind of help is more useful than giving food aid. Regarding Finland, this help might include teaching of water management and reforestation techniques through development cooperation or exports. (Huovila, 1977:9-10)

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[39] GARP was organized by the WMO and ICSU to study the dynamics of atmospheric behavior. The goal was to improve the accuracy of weather forecasting. The experiment included 140 countries and was the largest international atmospheric experiment of the time. (NASA, 2014) The fact that Finland was given responsibility for the TWOS/Navaid was considered a significant expression of international confidence in Finnish know-how. This was especially true due to the fact that the sister centers, TWOS/RADAR were assigned to the United States and Aircraft Dropwindsonde center to the Soviet Union. (Lange, 1977:7-8)

[40] The preparation phase of the meeting had included 115 nations, and as a result 350 basic documents were produced, totaling over 12 000 pages. The conference was the starting point for the UN's Environmental Program UNEP. (Kivistö, 2002)

The report from the conference indicates some important issues, such as attitudes regarding political aspects and a focus on the strong differences in expertise between Finland and developing countries. The official recommendations of the conference included the following:

> To improve networks of climatological, meteorological and hydrological stations in regions exposed to desertification so as to permit more detailed and sustained monitoring and assessment of climatic and hydrological conditions in relation to the desertification process. In most regions of the world undergoing desertification, these networks are inadequate. They could be considerably improved individually or collectively by national climatological, meteorological and hydrological services, with the support of the competent agencies of the United Nations and other international bodies. (UN, 1978)

Although nearly 40 years have passed since the conference, and the problems outlined in the above statement are still relevant today. The automatic observation network, although improved, is still not at the level it should be.

5.1.2 FIRST PROJECTS – SUMMARY

Finnish aid in the field of meteorology began in the form of donations to developing countries since 1968, through the WMO's VAP system. Countries receiving support between 1968 and 1979 included small Caribbean and Pacific Island states, Algeria, Burma, Colombia, Democratic Yemen, Guinea, Mali, Nigeria, Somalia, Sudan, Venezuela, Zaire and Zambia. Typical donations were 10 000–20 000 USD worth of meteorological equipment by Vaisala. (Finnish Meteorological Institute, 1987)

Finnish support to meteorological offices in the developing world began in the early 1970s. This was also the time when international cooperation began in the format of global weather experiments. Several countries received assistance, mainly in the form of instruments, weather stations and training. The countries receiving assistance during the 1970s were Algeria, Burma, Columbia, Yemen, Guinea, Mali, Nigeria, Somalia, Sudan and Venezuela. Finland also supported the World Weather Watch (WWW) during the 1970s in Guinea, Mali, Sudan, Zaire, Zambia and Singapore (Finnish Meteorological Institute, 1999b:44) Individual Finnish experts often travelled to developing countries as WMO employees (Junior Professional Officers, for example). Finns worked in countries such as Yemen and Nigeria, which were completely new experiences for the individual experts involved in the projects, who often got involved because of personal curiosity. The experience of working abroad as a meteorologist was eye-opening for many and reports included fun anecdotes about the life and culture in these strange environments, and the success and failures of the development cooperation efforts.

Analyzing the period from the 1930s to the 1970s, it can be stated that during the 1930s and 1940s, Finnish activities in the international field of meteorology were very much directed by Vilho Väisälä's activity and the operations of Vaisala. During this period, the war limited practices and it was not until the late 1960s that official development cooperation in the field was started. Finnish development cooperation in the late 1960s was still in its inception phase, and recipient countries were rather randomly selected with economic motives being the driving force behind most aid practices. Finnish projects in the field of meteorology were focused on donating equipment and expertise, which were mostly aimed at either returning or keeping the allocated funds in Finland and thus creating business opportunities for Finnish companies. During the 1970s, Finland's practices in the field became more active, as

did other development cooperation projects. Towards the end of the 1970s, Finland had several meteorological projects in different parts of the world and great plans for future projects. During the following decade, Finland started to pursue global recognition through active practices and ambitious regional programs in Southern Africa and Central America.

5.2 THE ENTHUSIASTIC 1980s

During the 1980s, bilateral meteorological projects finally began and the first big regional programs were started. During this time, Finland started acting more independently in the field, instead of working primarily through and with the WMO, as it had done in the late 1960s and 1970s. VAP/VCP donations continued. The 1980s marked a period of active growth in Finnish practices in this field and made Finland more well-known in the global field of meteorology. Vaisala's presence in these projects continued and became even more meaningful as substantial regional programs were started and Vaisala's equipment was distributed to countries in Southern Africa and Central America.

During the 1980s, Finnish aid was still at its national-realistic stage. Development cooperation efforts were focused on a few commercially interesting projects and project implementation was largely left to consultancy companies. New recipient countries were chosen based on their commercial potential. During the mid-1980s, Finnish aid began to spread to new sectors, such as energy and water. The plan was to equally support the economic and social development of recipient nations. The guiding principle was that aid should be directed towards areas where Finland had needs and where Finland had competitive resources to offer. Utilizing Finnish know-how and expertise was considered highly important. In practice, Finnish resources were first mapped out and then needs to match these resources were looked for in developing countries. This task was not difficult since the needs of these countries were infinite. (Koponen, 2005) Considering these issues as the basis for selecting projects, it is no surprise that meteorological projects were selected for funding.

The 1980s became later known as the lost decade of development. During the 1980s, a shift from projects to policy lending occurred. The commercial and political interests of donors still played a major role in defining aid agency policies. The practices of many large aid agencies were dominated by the need to be in total control of the entire development process. The failure of many projects to reach their poverty reduction goals led to more strict and structured project planning. As one response, the logical framework (log-frame) was introduced to projects, and it was also used as an instrument of control[41]. During the 1980s, the focus on commercial and political interests caused the aid system to become even more politicized. Many considered aid to be poorly monitored and a cause of corruption in which the funds did not reach those in need. Because of these issues, aid flows were seen to actually make countries more vulnerable by contributing towards an emerging debt crisis. By the late 1980s, there was a growing understanding that the aid system did not work. The quality of aid was especially criticized. The New International Economic Order (NIEO) had failed to bring forward an equal global system. Poverty increased in Africa, oil prices rose, commodity prices fell and the unintended poverty-increasing impacts of structural adjustment started to emerge. Aid performance was also affected by poor administrative systems, corruption and weak local capacity. (Robb, 2004:26-30)

[41] The Logical Framework Approach (LFA) was developed in 1969 for USAID. It was based on a worldwide study by L. Rosenberg. LFA is a methodology used to design, monitor and evaluate international development projects.

5.2.1 GAINING RECOGNITION IN THE GLOBAL FIELD OF METEOROLOGY

In the beginning of the 1980s, the WMO's Voluntary Assistance Program (VAP) was renamed as the Voluntary Cooperation Program (VCP). In the FMI's 1980 annual report, it was concluded that Finland's participation in the VCP included training meteorologists from developing countries in Finland, as well as donating Finnish manufactured equipment to developing countries. (Finnish Meteorological Institute, 1980:35)

During the first half of the 1980s, international cooperation continued in its "traditional form", as equipment donations and expert training. Finland gained more international recognition in the field: the Director General of the FMI, Mr. Erkki Jatila was appointed as a member of the WMO's Executive Council and Research Professor Seppo Huovila served eight years (since 1981) as the President of CIMO, WMO's Commission for Instruments and Methods of Observation.

During the mid-1980s, Finland began cooperation in SADC countries and Sudan. Finland also started a program with the aim of renewing radiosonde stations in developing countries. The WMO Secretary-General G. O. P. Obasi visited the FMI in 1984 and 1987, in reference to the celebration of FMI's 150-year anniversary. The WMO's President Zou Jingmeng also visited Finland the following year, when China and Finland signed an agreement of cooperation. The end of the 1980s was a highly active period in terms of development cooperation projects. Large regional programs started in Southern Africa and Central America. A regional project started in Central America in December 1989, and project preparations for Namibia started during the same year. Finnish experts moved to these areas to observe the projects locally.

VCP requests submitted for consideration by FINNIDA in 1986/87

1. AFRICA

A. SUDAN - The Meteorological Service of the Sudan is in desperate condition. The country is large and has been severely affected by the drought. The request submitted for consideration by FINNIDA is for two Vaisala radiosonde systems to be provided in 1986. The estimated cost is FIM 2,800,000. This support will be co-ordinated with a UNDP project under consideration by the government of Sudan which will include three additional radiosonde systems and with VCP support from other donors which include communications equipment and a computer system.

B. SOMALIA - The Meteorological Service in Somalia is one of the poorest in Africa. They need assistance in almost every area. The proposed support from FINNIDA would be FIM 500,000 in 1986 to purchase basic meteorological equipment and instruments and FIM 1,400,000 in 1987 to purchase one Vaisala radiosonde system. WMO has also prepared a UNDP project for Somalia that would complement the support requested above by funding experts and training.

C. NIGERIA - At one time, Nigeria had an adequate budget to support their Meteorological Service and they purchased with their own funds, six upper-air systems. Because of changes in radiosonde design these systems will soon be obsolete, however, because of the present economic situation, Nigeria does not have the foreign currency to buy new equipment and therefore needs assistance. It is proposed that FINNIDA support one new Vaisala radiosonde system in 1986 at FIM 1,400,000 and one new system in 1987 at FIM 1,400,000.

D. BURUNDI OR NIGER - Both Burundi and Niger are least developed countries (LDCs) with very limited resources. Both have well run meteorological services but need assistance for equipment. Both are in regions of Africa where there is inadequate upper-air data and both have requested VCP support for radiosonde stations. It is proposed that FINNIDA support one of these two requests in 1987 at FIM 1,400,000.

Figure 12. VCP requests from Africa in 1986–1987.

(Source: World Meteorological Organization, 1986)

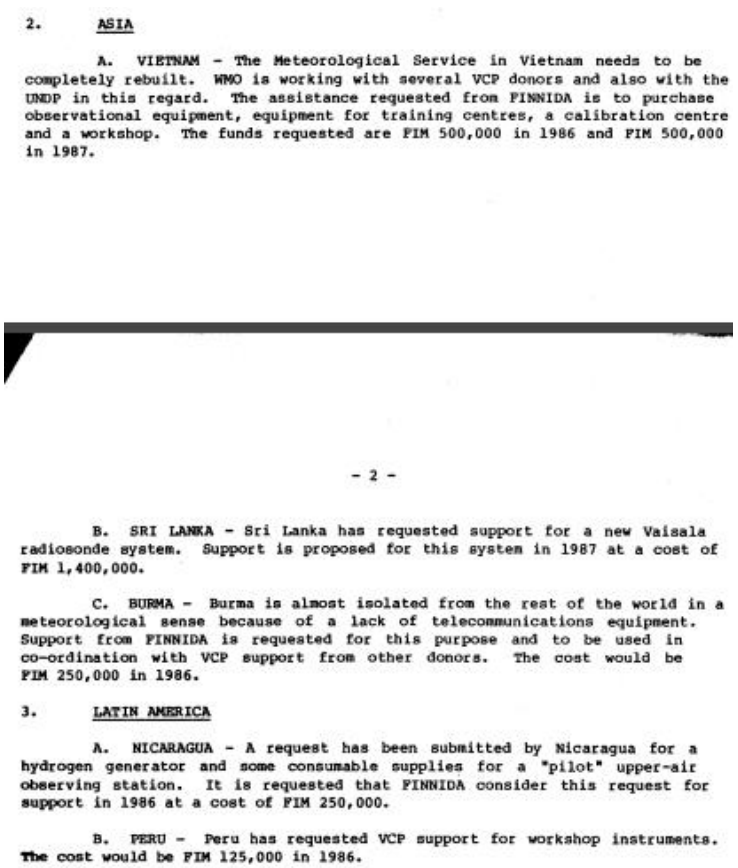
The countries that received VCP support from Finland during the 1980s were China, Columbia, Democratic Yemen, Ethiopia, Kenya, Nigeria, Philippines, Sudan, Thailand, Tunisia and Zambia. Donations were mainly given in the form of equipment and training in cooperation with Vaisala. Figure 12. and Figure 13. show requests for VCP support received by Finland in 1986–1987.

The VCP requests show how difficult the situation was for the countries in need of assistance and what types of challenges they faced. Table 8 presents WMO data from a travel report[42] by FMI Director General Erkki Jatila, from the "Informal Planning Meeting of Major Donor Members to the Voluntary Co-Operation Programme (VCP)". The meeting included representatives from France, West Germany, Italy, Switzerland, the United Kingdom, the United States, the Soviet Union and Finland. In his travel report, Jatila states that for the first time in history, the discussions in the meeting aimed at prioritizing aid recipients, but because of insufficient data, this was not entirely successful and the follow-up was left to the WMO secretary. Jatila also notes that from the Finnish point of view, it should be noted that many countries that have Finnish observation systems, have old equipment and are in need of basic maintenance and even replacement. He continues by stating that this work should be done with Finnish funds. Otherwise, he states, there is the danger that other donors

[42] The report was dated April 13, 1982.

will take over the role of Finland in atmospheric observations. The report ends with the statement "Hopefully a much bigger share of development aid can be allocated to meteorology in the future". (Jatila, 1982)

In the report, Jatila presents the most relevant issues to be solved. The biggest problem was that there was only a limited amount of data available for international use, especially from Africa and South America. This was partially because countries in both regions did not have the necessary funds to maintain their observation equipment. Referring to this, Jatila states that the price of one weather sounding was 60–100 USD. The lack of funds was only one problem; the incompleteness of the weather observation network was another reason why data was not sent forward.



2. ASIA

A. VIETNAM - The Meteorological Service in Vietnam needs to be completely rebuilt. WMO is working with several VCP donors and also with the UNDP in this regard. The assistance requested from FINNIDA is to purchase observational equipment, equipment for training centres, a calibration centre and a workshop. The funds requested are FIM 500,000 in 1986 and FIM 500,000 in 1987.

- 2 -

B. SRI LANKA - Sri Lanka has requested support for a new Vaisala radiosonde system. Support is proposed for this system in 1987 at a cost of FIM 1,400,000.

C. BURMA - Burma is almost isolated from the rest of the world in a meteorological sense because of a lack of telecommunications equipment. Support from FINNIDA is requested for this purpose and to be used in co-ordination with VCP support from other donors. The cost would be FIM 250,000 in 1986.

3. LATIN AMERICA

A. NICARAGUA - A request has been submitted by Nicaragua for a hydrogen generator and some consumable supplies for a "pilot" upper-air observing station. It is requested that FINNIDA consider this request for support in 1986 at a cost of FIM 250,000.

B. PERU - Peru has requested VCP support for workshop instruments. The cost would be FIM 125,000 in 1986.

Figure 13. VCP requests from Asia and Latin America in 1986–1987.
(Source: World Meteorological Organization 1986)

Jatila continues by explaining that the situation in Africa and South America has gotten worse over the years (excluding 1979 when an international research project aimed to improve the situation). This was considered embarrassing for Finland since countries in both continents used Finnish equipment (refer to Table 8). In the meeting, it was agreed that the focus of the practices should be on allocating support

to the World Weather Watch[43]. The plan was that in addition to supporting the WWW, other finances could be allocated to training, and programs for agrometeorology and hydrology. It was agreed that the WMO secretary would urgently make a list of "coordinated projects". After the completion of these projects, the density of the observation network would be more than 2 000 kilometers, and observations would be internationally available. To achieve this goal, several stations in Africa, South America and Asia required re-launching and reinforcements for their telecommunication systems. (Jatila, 1982)

Table 8. The number of upper-air stations and Finnish stations in WMO member countries in 1982.

Country	Total number of upper air stations / Number of Finnish stations	Country	Total number of upper air stations / Number of Finnish stations
Algeria	4/3	Mauritius	1/1
Argentina	6/6	Morocco	2/1
Australia	32/1	Mozambique	2/2
Belgium	2/1	Nepal	1/1
Brazil	10/10	Netherlands	1/1
Burma	2/2	Norway	7/2
Colombia	4/2	Philippines	4/3
Denmark	8/8	Portugal	3/1
Ethiopia	2/2	Saudi Arabia	10/10
Finland	3/3	Seychelles	1/1
Greece	3/2	Spain	4/2
Hong Kong	1/1	Sweden	5/5
Iran	7/7	Syrian Arab. Republic	2/2
Iraq	1/1	Thailand	4/1
Ireland	1/1	Tunisia	2/3 (?)
Italy	6/6	Turkey	6/6
Kenya	2/2	United Kingdom	18/1
Kuwait	1/1	Tanzania	1/1
Libya	5/5	Zambia	1/1
Malawi	1/1	Zimbabwe	2/2
Malaysia	8/4		
		Total	186/116 (62%)

(Source: Jatila, 1982)

In his report, Jatila also explains that he had a meeting with Ambassador P. Rantanen during his trip, and they had discussed the goals of Finnish meteorological aid. Finland agreed to finance upper-atmosphere equipment to the Philippines (for the year 1982, with a budget of 618 000 FIM) as well as renew existing equipment in Kenya, Tanzania, Burma, Malawi, Somalia and Nepal (with a budget of 600 000 FIM during 1983–1984). In the discussion with Ambassador Rantanen, it was brought up that meteorology as a narrow field of expertise fits well within the profile of Finnish

[43] The World Weather Watch is the core of WMO programs, established in 1963. It combines observing systems, telecommunication facilities, forecasting centers operated by members and data-processing to make meteorological and related environmental information needed to provide efficient services in all countries. The WWW's current core components are the Global Observing System (GOS), the Global Telecommunication System (GTS) and the Global Data-Processing and Forecasting System (GDPFS). (World Meteorological Organization, 2016b)

aid. With relatively small funds, one is able to improve weather services in developing countries. Additionally, aid in the field of meteorology is relatively well recognized because there is widespread interest in weather. Jatila also concludes that Finland is well known for high quality weather equipment, and is thus considered a desirable donor in this field. (Jatila, 1982)

Jatila approached the Ministry for Foreign Affairs in 1984 with a letter providing information about the current state of meteorology around the world, and possible inputs and commercial opportunities for Finland. In the letter, he states that the need for observation stations is growing around the world, but especially so in developing nations. This was because the long-term planning for economic development depends on basic information regarding the climate, and climate was expected to change, as well as patterns of rain, and the importance of weather forecasts (1–5 days) had increased in many fields, especially in planning operative practices. For these reasons, Jatila states that it is important to ensure regular observation practices on both national and international levels. Jatila also states that as a result of economic challenges, getting observation data from developing countries had become more difficult during the past decade. This had decreased the quality of weather services and influenced the services provided by the met-offices in developed countries, since data is required from all regions, especially for long-term forecasts. Jatila describes Finland's cooperation with the WMO as close, and explains that Finland has supported the VCP, which aimed at maintaining and improving the World Weather Watch. Jatila describes the special role of Finland in the field of meteorology, which comes with being a leading manufacturer of meteorological equipment. (Jatila, 1984)

> Most developing countries use Finnish instruments. Operating systems have however become overaged. There are problems with spare parts and maintenance. --- The manufacturing of radiosondes used in these stations are to be terminated in 1984 due to of low volumes, and their production being unprofitable. Deliveries will continue until 1985. Old systems in use are not at the required level in terms of accuracy. Since developing countries form a relevant part of the users of Finnish manufactured items, their special needs have been taken into consideration in planning new equipment. Problems relating to training and dependability have been minimized and these solutions have been found to be working based on the experiences gained so far. This allows Finland to be able to provide better quality assistance compared to other donor countries. (Jatila, 1984)

Regarding the commercial aspects of these practices, Jatila states that the radiosonde business has significant commercial importance, and that Finnish equipment located in these countries ensures that the business of consumables will be done with Finland in the future as well. Jatila lists the current situation in developing countries and evaluates their ability to maintain observations. Developing countries hold a key role in this market because the radiosonde business is directly dependent on the size of a country. This was an issue of concern due to increasing protectionism, which at the time made it difficult to grow the market for these products. (Jatila, 1984)

> Since observations from developing countries have relevance for developed countries as well, it is probable that if observations with Finnish equipment end, they will be replaced with equipment from other countries. Subsequently the significant radiosonde trade will be lost. (Jatila, 1984)

Additionally, Jatila states that Finland has been fairly well displayed as a donor in this field, but that some of the aid has come from the private industry sector[44]. He continues by stating that prior development aid has usually succeeded well, and the experiences can be utilized, so there are no risks involved in terms of the practicalities regarding new projects. The WMO does not collect a fee for the administrative costs of donations, so all donated funds can be used for purchases from Finland. Jatila also provides a proposal of countries where aid should be targeted: in 1985, two stations to Sudan, and one station each to Zambia, Tanzania and Kenya. In 1986, one station was given to Sudan, Philippines, Mozambique, Ecuador and Peru each, and in 1987, one station was given to the Philippines, Tanzania, Kenya, Nicaragua and Ethiopia each. All these countries used Finnish equipment, but they were in need of replacement. The budget for each year was five million FIM (each station cost about one million FIM) and traditionally the costs of the consumables and spare parts fall on these countries. The letter ends with a request to the MFA to consider these donations. (Jatila, 1984)

5.2.2 THE FINNIDA/WMO PROJECT FOR SADC COUNTRIES

In the beginning of the 1980s, severe drought occurred in most of the Southern African development co-ordination SADC countries. Their governments had requested external assistance for their National Meteorological Services in order to improve their capacity and to service their societies. The Finnish International Development Agency FINNIDA was up for the challenge. After a long planning process, in the late 1980s, the FMI started implementing meteorological development cooperation projects in co-operation with the WMO. The first regional project was carried out in 1987–1993 with Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe. The total budget for the SADC project was 70 million FIM for nine countries during seven years. (Kuisma, 1995:17-18)

The FINNIDA/WMO project in the SADC region began in 1987 and came to a dramatic end in the early 1990s. The SADC project was an ambitious and bold move by Finland as a small donor country. For the experts involved, it was truly a learning experience into the practice of development cooperation. Devastating droughts and floods had affected the SADC region, which emphasized the need for meteorological services from the perspective of food security and social well-being. There was also a clear need for stronger regional collaboration in the area. (Finnish Meteorological Institute, 1999b:32) One expert stated the following regarding the beginning of the project:

> Well, at the time, Kalevi Sorsa was Prime Minister, and he was very positive towards development cooperation and he understood the importance of global observations. --- He was very positive about helping developing countries in the meteorology sector, and for some reason he had selected the SADC countries as a target group. Finland was doing a lot of cooperation in many of these countries, building harbors and such, schools, hospitals and others, and then meteorology came along. His cabinet made the decision to invest ten million marks in these projects, which was a lot of money at the time.

The adoption of meteorology by South African Development Cooperation Conference

[44] Referring to Vaisala.

(SADCC) as a new area of cooperation ushered a new area in the development of meteorology in the region (FINNIDA, 1988, Annex I:1). It was also seen as a viable option to attract capital investment in the development of this field with external partners (Finnish Meteorological Institute, 1999b:32). The SADCC Committee of ministers recommended, after a meeting in May 1985, that a study on the present activities of meteorological services in the SADC countries should be conducted, and a detailed proposal for a program to develop these services should be drafted. The study was conducted by a WMO/FINNIDA mission in July and August 1985 and the project was adopted in a meeting of the Directors of Meteorological Services of SADCC countries in November 1985.

The approved project document was later submitted to the SADCC in January 1986. During the meeting, the government of Finland indicated its willingness to contribute 20 million FIM towards the implementation of the project during 1987–1988. The project definition and formulation was made possible through a second FINNIDA financed and WMO organized mission to the SADC countries from the end of April to the beginning of July 1986. The project components were: (i) equipment, (ii) expert and consultancy services, and (iii) fellowships. (Finnish Meteorological Institute, 1999b:32). One interviewee who took part in the mission described the process in the following way:

> We spent one summer on the mission, reviewing all the countries. There were three of us. One guy was this Indian, who had WMO experience, he was more valuable than gold to us, because he knew the local circumstances, and could teach us as well, how to get along with these people, how to talk to them, how to behave and so on. He was very important for us, because we could have made cardinal mistakes. --- We went through all the nine countries and then spent a week in Nairobi writing the report and propositions for each country – how to organize the chain, meaning the observation network, data collection, setting up of the system, unless there was one in place, and data processing as far it was possible to organize.

The project was eventually implemented in two phases. The goal of the first phase was to create conditions for basic weather services in the region, and in the second phase to guarantee the continuity of these services and establish the provision of meteorological applications to the official responsible for food production. (Finnish Meteorological Institute, 1999b:32)

For the implementation, FINNIDA made two separate agreements: the WMO was responsible for expert services and fellowships and the FMI for the equipment. In the interviews, one expert stated that it was impossible for the FMI to recruit experts to these projects independently, and that this was the reason why expert employee contracts were made directly with the WMO.

> In the 1980s, we [MFA] started big cooperation projects with the FMI in the SADC region, and then we had this problem that the FMI could not recruit the experts there, even though we used the FMI as a project executor. These contracts with the experts and others were done with the WMO.

The overall development objectives were to raise the level of the national meteorological services of the countries, so that weather and climate services on every level would function independent of external factors and would be capable of servicing all sectors of society. The project would additionally increase the capability of the national meteorological services to provide meteorological and hydrometeorological data and products for international networks. (FINNIDA, 1988:Annex I:1).

The budget of the SADC Meteorology project was 66.556 million FIM, which in the end totaled to 15 million US dollars. Of this, 53 percent was used for equipment (the observing network, telecommunications, data collection and data processing), 12.5 percent for training and 34.5 percent for project management, which included coordination, consultation, evaluation and other related activities. Overall, eleven experts and eleven consultants were fielded by the project, and three expert posts were not fulfilled. (Niemelä et al., 1999:38-39) Regarding the political background for this project, one expert stated the following:

> This SADC development project was in general a shared process of the central donors [there were several projects done in the region, mainly focused on infrastructural development], which was aimed at furthering the development of countries, the so-called frontline states, their economic, social and societal development, and building infrastructure, so that their dependency on South Africa could be reduced.

What did the project consist of in practice? The Finnish budget was 20 million FIM, which included allocations for experts for 6.168 million FIM, 13.027 million FIM for equipment and 805 000 FIM as a reserve. (Ministry for Foreign Affairs, 1986b) At the time, the Finnish government requested a statement from the Board on Foreign Acquisitions. The FMI had given a report for the board, in which the duration of the project was stated to be two years, and the supply of the equipment would be spread throughout this period. For this reason, it was possible that changes could be made to the plan. It was also stated that it is vital for the project's success that recipients are closely involved in the cooperation. This would decrease the opportunities for exporting Finnish technology, because at the time, Finnish equipment was not well-known in the region and maintenance was not available. However, despite this issue, it was noted that some of the equipment would still be supplied by Finland. This equipment included radiosonde systems, observation stations (both automatic and manual) and part of the furnishing for repair and maintenance shops. Cars, radios and data processing equipment were ordered from outside of Finland. This was only natural because Finland did not have these types of products available domestically. The overall value of the equipment ordered outside of Finland was estimated to be 4.4 million FIM. (Finnish Meteorological Institute, 1986)

The goals of the project were to develop the local meteorological services in the recipient countries in a way that after the projects ended, the met-offices would be able to maintain the achieved level of capacity. This included the following: good quality weather and climate observations, maintenance of national and international communications, that the climatological situation in the SADC region reaches minimal level, a higher number and quality of staff in met-offices than before the project, and provision of services for various user groups in the region (especially agriculture). The focus areas of the project included the development of observations; ensuring and developing data communications; commencement of data communications especially to cater the needs of agriculture; creating services and developing them with experts; support for training abroad and the development of international communication practices. (Ministry for Foreign Affairs, 1986a)

Phase I of the projects was evaluated in 1989 and the report was published in 1990. The report described the central aspects of the projects, and outlined numerous challenges regarding the implementation and success of the projects. The report evaluated each of the individual countries involved, and the results showed that there were vast differences in the general success of these projects, as a result of reasons discussed next.

The report noted that strengthening the national meteorological services in the SADC region is a long-term objective, which requires the development of a good

meteorological infrastructure and skilled work force. According to the evaluation findings, the projects were in general successful in achieving a national level improvement in the capabilities of the met-services, and had stimulated a greater public recognition for them. Awareness in communities was also raised, and the moral as well as the confidence of staff members had improved. (FINNIDA, 1988:5)

According to the report, the problems and challenges of the projects mainly traced back to the project planning phase. It was stated in the report that knowledge regarding the individual needs of each recipient country was not adequate, which had led to practical problems. Project documentation also lacked internal consistency, there was a low coordination mechanism in use for the projects, and project management as well as the monitoring system were found to be ineffective. In general, there was lack of sufficient consultation between the executive agencies and recipient countries. Changes in project inputs and activities were made on an ad hoc basis. It should be noted here that project bureaucracy was not so strict during this time, which allowed for more flexibility. Since most of the experts lacked long-term experience in development cooperation projects, changes and adjustments to practices were made as the project proceeded. Local level challenges were mainly concerned with the technological equipment and the lack of experts. Practical challenges were also a significant hindrance. For example, it was mentioned that the manuals for the equipment were in some cases written in the wrong languages, or the manual had simply been lost. Regarding the recruitment processes, it was truly a challenge for many countries to acquire new staff members. Often these recruitment processes had to be extended due to various reasons, and many good candidates were lost to other positions because of long delays in the decision-making. (FINNIDA, 1988:5-7, 49) In a meeting report from May 1989, it was stated that the role of the coordination board should be clarified, based on experiences from Phase I. Members of the board included a WMO representative, a project coordinator from Maputo, and a project manager from the FMI. FINNIDA did not have representation. (Päivöke, 1989) One meteorology expert explained the situation:

> When it comes to the entire SADC project, there were parts of it that were difficult because they were so large. Large meaning money-wise, and then there were the interests of the donors, you had to manage your way through them.

The problems in the project were similar to those of other development cooperation projects of the time. During the 1980s, project guidelines were just becoming familiar to the donor stakeholders. Previously, project documentation had not even been required by the Ministry. In the beginning of the 1980s, a small department responsible for evaluations was established in the Ministry, and some development cooperation projects were then evaluated. The results showed that projects were biased towards technology and short-term results. Many projects also suffered from top-level planning, parallel structures dominated by foreigners and technology that was unsuitable for local use. Because of this criticism, the consultancy companies involved in these projects slowly began to absorb developmentalist thinking. (Koponen, 2005)

Countries with the best success in Phase I were Lesotho and Zambia, while the worst cases were Angola, Zimbabwe and Swaziland. One interviewee explained that Swaziland had had only two meteorologists at the time of the project, and one of them had died in a car accident. Angola's situation was perhaps the worst of all the countries involved, since Angola was experiencing civil war during the implementation of the project. The report concluded that with the current security situation in the country, and the financial and labor resources available to the institute, an achievement of a level where meteorological data, information and services can be provided to the public, was simply not possible at the present time.

(FINNIDA, 1988:9) Additionally, it was brought up in one interview that when Angola had gained independence from Portugal (in 1975), most of the meteorological experts had left the country and returned to Portugal. Following these events, a person with no professional experience from meteorology was appointed to direct the institute. The remaining meteorologists and the new director had had conflicts over how to organize the institute's work, and eventually the new director had re-organized the whole institute. The project evaluation report concludes that none of the project objectives had been reached, and that the institute itself had severe problems regarding an inadequate supply of building materials, water access and equipment installations. There had been no government inputs to the projects. The evaluation team recommended that the project experts pay regular visits to the Angola met-service, and take urgent action to overcome the difficulties and that FINNIDA, the FMI and the WMO should greatly intensify their guidance and assistance efforts in the country. (FINNIDA, 1988:9-16) Regarding the situation of Angola, one can question the decision to go ahead with the project in the midst of a civil war. Perhaps the project plan was too ambitious in including countries like this and that aspect set the projects up for failure.

Significant problems were experienced in Zimbabwe as well. Substantial changes to project activities were made during the implementation phase, which slowed down progress. The Meteorological Department had made only minor efforts to install the received equipment. Apparently, there was a miscommunication regarding what the local institute needed, as the existing systems already provided the required data. The department had concluded that too few options and flexibility were given to the recipient country regarding the equipment. There were similar experiences in Botswana, where the staff felt that the local needs were not fully considered when equipment orders were made. The Zimbabwean department had also reported that items were imposed on them by the donor, which caused dissatisfaction with the project in general. The report urged the donors to quickly clear up the situation regarding the equipment in order to achieve mutual understanding and a cooperative spirit, so that Phase II of the project could be implemented. (FINNIDA, 1988:20, 63-66) Donor experts interviewed for this study made several comments about the met-office in Zimbabwe. Claiming that they had a storage space full of donated equipment, which had not been installed, and that the management of the local institute was not taking care of their responsibilities, and that not much was going on in the institute in terms of expert practices and services. The same conclusion was made in the report, which stated that the Meteorological Department had the capability to install and operate the equipment, and that it was disappointing for the evaluators to see the equipment lying in storage, with no effort to put them to use. (FINNIDA, 1988:67)

> The locals gave a critique that the technical component in to the projects always came from the FMI, because they could have made agreements with local suppliers and get more with the same money. I don't know if it was true or not.

In terms of the countries that made better progress during the project, one case was Zambia, where the project had significantly improved the availability of climatological data both in terms of quality and quantity. The report concluded that the real-time data collection showed even better improvements, which in turn was expected to have a positive impact on the quality of weather forecasting, as well as the timely dissemination of the synoptic observations for international users. Data management was also improved in Lesotho, where the availability of daily and ten-day observations increased from eight to 13 stations. In Zambia, the project achievements were found to be progressing towards the right direction, and to have had a positive impact on the socio-economic development of the country. Despite the overall good results, the project in Zambia had also experienced some difficulties,

such as the later than expected delivery of cars, and some lack of appropriate statistics, which hindered the evaluation of the reliability of observations. Lesotho was also experiencing trouble with cars. The cars which had been delivered were not accepted to be maintained by the government garage (there was a problem with the petrol type used by the cars), and there were difficulties with the engines during the winter months. In the evaluation report, it was noted that these problems were observed and confirmed by the evaluators during their visit to one of the observation stations 200 kilometers from Maseru. (FINNIDA, 1988:24-26, 58-60)

Several people involved with the projects were interviewed for this study. In general, the project was a time of professional growth for many of the experts involved. For most of them, these were the first development cooperation projects they had been involved with. One expert stated that there were mainly two extreme perspectives among those involved with the projects. Some saw development cooperation as a continuation of Finnish industrial policy, and considered its main function to be the support of Finnish industries. At the other end of the continuum was what he called, "development aid believers", who had only positive thoughts about developing countries and never criticized the locals or their practices. This comment is very much in line with Koponen's arguments about instrumental and developmentalist thinking. The interviewee discussing this placed himself somewhere in between the two extremes. According to him, the development of local institutes was the most important route to get things going forward. He concluded that at times the project had hopeless phases, but that the actual problem was never in meteorological issues, but rather in the local institutions. As an example of practical problems, he described a situation that occurred during a visit to an observation station, where it was revealed that one of the key instruments was not working because it had run out of paper. When they asked why there was no paper, they found out that the supplied paper had been left outdoors, and so rain had ruined it and eventually ants had eaten it! Situations like this caused major frustration for the Finnish experts, who had been used to a different level of efficiency and diligence in daily practices.

Regarding the evaluation and project outcomes, one FMI expert working in the project analyzed their own role and stated that they could have been better in marketing the results of the projects. The expert stated that they should have delved a little bit deeper in terms of the results, and brought up the national level issues that the projects were also involved with. She said that they, as meteorological experts, had a tendency to deeply immerse themselves into the processes of developing and building new, which took up all the resources. She said that in the end, many self-evident things were not shared with outsiders, and that maybe they should have been. She also concluded that the recipient side experts had perhaps wanted and expected more from the project, but that this was not possible due to a lack of local resources and ability to take care of various demanding issues. She recognized the main issue to be "trust" in these projects – once she gained the trust of the locals, it was easier to find the underlying cause of things and find out what actually needed to get done.

Overall, the SADC regional project was the first big Finnish effort in the field of meteorological development cooperation. It was a true learning experience for the experts involved and highlighted how important planning and knowledge of local situations is for project success. The project continued into the 1990s. In the upcoming section discussing events of the 1990s, the abrupt end of the project is explained in more detail.

5.2.3 BILATERAL COOPERATION PROJECTS IN THE 1980S

Towards the end of the 1980s, because of the experiences in the SADC region, a cooperation project was started also with Sudan. The project began in 1989 and ended in 1994. The project was executed in two phases. The total support for the country from Finland during this time was 2.3 million US dollars[45]. The project involved the FMI, the WMO as the executing agency and the Sudanese Meteorological Department (SMD) as the governmental implementing agency. (Finnish Meteorological Institute, 1999b:30)

The project in Sudan

> We had our weekly meeting on Thursdays in the lobby of the library. The weather maps for the week were put on the wall and revised meticulously. There were gaps in the weather observations and analyses were speculated carefully. In the meetings, the weather forecast for the weekend was also discussed. Usually it meant discussing whether it would be few grades warmer or colder. During my first year, I did not see rain at all. Cloudy days were scarce as well. When I told my new acquaintances I was a meteorologist, they usually responded with a laugh. They said I had the easiest profession.
>
> -Project staff member (1997)

The first project in Sudan was executed between the FMI and the WMO during 1989–1993, with a resident Technical Advisor from the FMI on location in Sudan during October 1989 – September 1991. The budget for the project was 10 million FIM for six years. The project was aimed at rehabilitating and improving the local observation stations, which was carried out mainly by providing new instruments and holding maintenance workshops. The agrometeorological stations were given special attention in the project, and the number of rainfall stations was upgraded from 350 to 700. Rainfall variations within the country are great among the different regions, so this issue required special attention. In the project presentation document, it is concluded that some interruptions in the observation stations were caused by internal unrest in the southern part of Sudan. (Finnish Meteorological Institute, 1999b:30) Sudan has been one of the countries with the longest cooperation with the FMI, starting already in the 1970s. The Sudanese Meteorological Office has a long history. Some of the meteorological stations were established as early as the 1890s:

> All the SADC countries and Sudan as well, have had observations from the end of the 1800s and because they are former colonies, they have massive amounts of data that is decaying in various warehouses. This was very interesting in itself, but I do not know what their situation is currently, regarding the databases. How much data they have, and for how consistent periods of time. They are doing a little bit of this and that.

The long data series available have given a solid base for climatological analysis and have for example facilitated studies of renewable energy, such as solar and wind energy. The role of Sudan's Meteorology Department (SMD) is especially relevant for the country's food production and energy sectors.

[45] Sudan's own contribution was LS 3.8 million.

> If we talk about Sudan, they have their own practices. They are mostly focused on running the meteorological stations, but their actions are not as regular as ours, there are problems, observations are inadequate, equipment may be defective. --- But for them, the main priority is not the weather forecast. At the time, all these projects focused on teaching them, and supplying them with equipment, and helping with the maintenance, teaching them how to maintain the equipment, and this kind of stuff. When computers came, how to get the old observations into digital format and to a database, and to get forecast information there as well.

The Finnish cooperation project in the country enabled the rehabilitation of SMD's agrometeorological observation station in Shambat and enhanced the basic network by acquiring new equipment for Khartoum, El Fasher and Wad Medan and by giving wind measuring equipment to the most important airports, enabling real-time observations. The education part of the project included basic training regarding agrometeorology, electronics and computer science as well as climate databases. (Sågbom 1995:22)

One expert taking part in the cooperation with Sudan, described the local situation as helpless, because of their inability to get support for their practices. Regarding the work in practice, the interviewee described the experiences in the following way:

> The main office was in Khartoum and they had the archives there. The observations were done in different places. Sometimes, when I did not have anything to do, did not have internet and so on, I hopped into a car and went to see how they were doing. And they were making observations also at the airport. I got full access to move around freely, but the actual forecasting was not part of the project, it was mainly about teaching the database and getting reports [regarding the database]. They had a unique style, it was mainly women doing the work, they were writing the data, because they had work force, one was reading, one was writing and a third was making sure it was correct. Nevertheless, I thought it was nice. The world keeps changing into a worse place, but they liked being around each other, they had a nice time and the work was done well. Their supervisor was of course a man, who was my counterpart. He was sitting there in the other end of a long office behind his desk, and did not take part in the work, although he had gotten training for it. It was so typical. I did not have anything to say about it, the women took care of it well. They took it and there still is one of the women working in the climate side, carrying the data even now.

Sudan gained independence in 1956, but was in civil war practically since then up until 2005. South Sudan gained independence in 2011 and now both countries are doing cooperation with Finland in the field of meteorology. The expert also described her experiences relating to the changes in Sudanese politics in the recent decades when she was involved in cooperation projects:

> After I had decided that I will go there, they had just had this revolution, and this current Bashir came to force, the army appointed him. [June 1989] At the time, I was able to move around pretty freely, I did not wear sleeveless shirts, I had my shoulders covered and my dresses were below the knee, but I did not pay much attention to how I was dressed and that did not annoy anyone there. I saw Europeans walking around, but now not so much. Now I am afraid to move around alone, it might be that a fundamentalist sees me, and gets mad. In general, the people of the country are the most polite and pleasant in the world, they are great. However, the government is a chapter on its own, and I do not know about that. We did talk some politics, my mornings usually started with, especially in the beginning when I did not have my own office, I went into the room of the director

> and the vice director was there as well, we had tea and some discussions. Especially the director, I did not know if he was a fundamentalist, maybe very close to one, but they were really polite, I did not have any problems. They invited me to their home, we discussed many things, but of course not any delicate political topics. From my perspective they did not matter, I did not want to get involved with their politics.

Regarding the success of the project, the expert stated that the projects fulfilled local needs, but did not end up fulfilling all their desires, which were sometimes over the top. The most relevant problems at the local level related to management. Practices were not systematic enough, laying out a plan and moving forward with it, "I know they are doing the same climate files monthly as they did back then 20 years ago".

Cooperation between Sudan and Finland has continued ever since the first project. The project planned for 2016–2019 includes the following statement about cooperation between Finland, Sudan and South Sudan:

> The current project document is on one hand a further addition to a long line of cooperation between the governments of Sudan and Finland in the field of hydrometeorology. On the other hand, it would confirm the unique role of Finland and the FMI as the first and only developing partner operating in South Sudan in the field of weather and climate, a role that has been recognized and greatly appreciated by the WMO and international donors, e.g. the World Bank, NOAA/USAID, the UK Met Office, etc. (Finnish Meteorological Institute et al. 2015:4)

Additionally, the regional project in the Central American Isthmus was officially started in 1989. However, since the project was carried out mainly during the 1990s, the project will be discussed in the next section.

5.2.4 SUMMARY OF PROJECTS, 1980–1989

During the 1980s, meteorology projects became more active in various parts of the world. The most significant effort was the regional project in Southern Africa, with a total budget of 15 million USD. African countries also received VCP aid during this time, typically about between 200 000 USD to few million dollars, given either as VCP support or as bilateral aid. In addition to the project in the SADC region, cooperation took place in several Asian countries, as well as in Colombia, mainly through the WMO's VCP. Using the VCP to support these countries provided them with technical assistance, but the Finnish assistance remained quite distant and did not actively get involved with what was going on in the local institutes. Aid given through the VCP was allocated during 1980–1986 to China, Democratic Yemen, Ethiopia, Mozambique, the Philippines, Thailand and Zambia (Finnish Meteorological Institute, 1987)[46].

In the SADC regional program, Finnish experts were much more involved, but mainly in those countries where experts were locally present and able to observe challenges and to seek ways to change the practices. Nevertheless, in these cases

[46] This source includes a proposition to continue support during the years 1987–1990 to replace obsolete upper-air stations in Colombia, Ecuador, Kenya, Nepal, Nigeria, the Philippines, Sudan and Tunisia, and to rehabilitate national meteorological services in Burma, Ethiopia, Nepal, Somalia, Sri Lanka and Sudan.

individual experts were quite powerless and were often caught up between a rock and a hard place. On the one hand, they had to follow project guidelines and Ministry instructions, but on the other hand, they could see what would be the most beneficial for the locals. In practice, their ability to change the practices was rather limited. For example, the fact that Vaisala equipment had to be used in these projects caused some problems since they were much more expensive than other available instruments. Getting instruments from other manufacturers would have been cheaper, but then again the price-quality ratio of Vaisala equipment is known to be good. Additional problems might have come from using other manufacturers' equipment since the Finnish experts had the best knowledge regarding Vaisala's products.

5.3 DISAPPOINTMENTS OF THE 1990s

The 1990s were marked by three significant events: the end of the Cold War, the emergence of debt relief and increasing political instability, which lead to a growing number of refugees. Because of the rise of the free market, many states lost some control over their economies, and countries became more vulnerable to exogenous shocks. The end of the Cold War brought about a dramatic redistribution of global power, significantly increasing the power of the West. In 1996, the World Bank and the IMF launched the Initiative for Highly Indebted Poor Countries (HIPC), to provide assistance to eligible countries willing to agree to certain policy terms. The HIPC was the first comprehensive mechanism aimed at debt reduction. During the 1990s, there were also numerous UN sponsored summits regarding development processes. These summits brought forward issues such as gender equality. In 1995, the groundwork and foundations for the MDGs were laid in the World Summit for Social Development. During the 1990s, there was also a rise in the engagement of NGOs in development, especially in terms of shaping national development policies. External criticism by NGOs in the North increased the attention on poverty and social issues. In the 1990s, there was also a trend emerging among aid agencies to accept participatory approaches in projects. However, it was not until the late 1990s that a significant shift occurred, and participatory approaches became more widely used. During the 1990s, the aid system was influenced by a growing dissatisfaction with both projects and policy lending to deliver poverty reduction. The influence of Southern countries remained limited and local ownership was low. (Robb, 2004:30-32)

Regarding meteorology projects, the 1990s got off to an active start with the SADC project continuing, and a new regional project starting in Central America. Development cooperation was continued in the SADC region, in Sudan and Namibia. (Finnish Meteorological Institute, 1990:26) Countries receiving aid through the VCP during the 1990s included Burma, Ecuador, Papua New Guinea and Sudan. In a project proposal from the FMI, the planned annual budgets for meteorology projects in the 1990s was in total 50 million FIM (Finnish Meteorological Institute, 1989a). This was a reflection of the positive atmosphere towards these practices during the late 1980s and a general aid optimism, which the increasing aid allocations spoke to. Out of the planned 50 million FIM, 30 million was to be allocated to Africa, 10 million to Central and South America and 10 million to countries in other regions (Finnish Meteorological Institute, 1989b). The allocated sums did not achieve these levels.

Additionally, the UN had named the 1990s as the International Decade of Natural Disaster Reduction (Finnish Meteorological Institute, 1999b:6). In the beginning of the 1990s, the General Director of the FMI Erkki Jatila left to direct the Technical Cooperation Department of the WMO for a two-year period.

Regarding development cooperation practices in general, the 1990s changed the national interests of Finland and aid could no longer be used as an instrument as it

had been before. Heavy industry and infrastructure projects were discontinued because of a lack of financial resources. This gave way for smaller projects, which were aimed at achieving sustainable change. This change gave more space for developmentalist thinking as well. The 1990s were also a period of aid fatigue. The solutions of the 1980s, mainly market liberalism and structural adjustment programs, had not provided patent solutions to the problems of developing countries. These issues also contributed to aid critique and the beginning of the post-developmentalist movement around the world. Many questioned the benefits of aid and development cooperation. There was a search for alternative approaches and focus was on the quality of aid, instead of quantity. Globalization also changed the set-up for companies. They were operating in a completely new environment and context, one in which the number of competitors was larger than before. (Koponen, 2005)

Three major documents were published by the Ministry regarding development policy. The first one in 1993 outlined the strategy for Finnish development cooperation in the 1990s. In 1996, this was complemented by a Decision-in-Principle on development cooperation and in 1998 by the document "Finland's Policy on Relations with Developing Countries". In these documents, it was emphasized that all aspects of policy should be coherent with each other. These documents are discussed in more detail in the next chapter.

In 1993, the once terminated evaluation department started operating once again at the Ministry. Project evaluations revealed that projects had poor connections with each other. Planned outcomes were usually reached, but the sustainability of the projects was either unknown or did not convince the evaluators. This especially applied to projects that were aimed at reducing poverty. The findings were alarmingly similar to those made of projects in the 1980s. Koponen proposes the question of why changes in policies were not visible in project outcomes. (Koponen, 2005)

In a synthesis study on evaluations and reviews commissioned by FINNIDA during the late 1980s to mid-1990s, it was found that some critical problems hindered projects from reaching their main goals and effectiveness. Major problems included ambiguity of objectives and poorly defined goals, overly optimistic schedules, top-down planning and reliance on inappropriate imported technologies, as well as gaps and failures in communication. Underlying these problems were issues such as a poor knowledge base, which included things like lacking data, and a lack of understanding regarding social, cultural, and policy-related concerns. (Koponen and Mattila-Wiro, 1996:vii)

5.3.1 THE REGIONAL PROJECT IN THE CENTRAL AMERICAN ISTHMUS (CAI)

> Finland was the only one to make this huge investment in meteorology in the SADC region and Central America. In the meteorological community, it was a big deal. However, regionally I think that for a moment there was some confusion: What are you doing here, a small country like Finland, in Central America?
>
> -Meteorology expert

The second Finnish regional project took place in the Central American Isthmus (CAI). The CAI project was officially started in 1989, but implemented during 1991–1997 with Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama. The total budget for the Central American project was 40 million FIM for five years, in seven countries. The initial plan was to implement the project during

1991–1995, but the project was later extended by two years. (Kuisma, 1995:17-18) FINNIDA inputs for the sub-projects included the items listed in Table 9.

Table 9. FINNIDA inputs for the project in the CAI region.

Input item	Note
Project personnel	Meteorologist (48 months), expert in climatology (24 months), consultants (48 months).
Training	Class IV and class III meteorological personnel training organized, 44 student attending 18-month class II meteorology course at the University of Costa Rica, a course for 40 local students of class II in Nicaragua, 30 students will follow the BSC Meteorology course at the University of Costa Rica, 2 graduate meteorologists will help to improve quality and quantity of teaching staff at the Department of Meteorology.
Equipment	Basic network of observing stations (surface, upper-air), hydrological stations (hydrological instruments and equipment, spare parts and supplies), agrometeorological and marine stations (instruments, spare parts and supplies), international communications (one main earth station and control centre, six micro-earth stations with computer equipment, share of operating costs), meteorological data management (computer equipment and peripherals, software, spare parts and supplies), workshops and laboratories (equipment to upgrade workshops for repair, maintenance and calibration of meteorological and hydrological equipment, equipment and material to improve the water quality laboratories so as to permit the assessments on water and soils and control of sediments, equipment for the efficient implementation of network inspection systems, including field vehicles), coordination for the use of local facilities to produce charts for recording instruments, training material (equipment and books for locally organized courses, meteorological books and material to improve technical libraries), strengthening of CRRH Secretariat (office equipment, communications equipment, telex, telefax, computer and text processing facilities).

(Source: Finnish Meteorological Institute, 1990b)

The regional project was started by the FMI, based on experiences from the regional project in Southern Africa, and because there was good cooperation going on between the national met-services in the region. Both regional cooperation projects aimed to promote regional cooperation in these countries. In addition, during the end of the 1980s, it had become clear that national services in the region were not able to meet the challenges posed by the difficult geophysical conditions. The budget for the years 1991–1995 was USD 10.5 million, of which the counterpart budgets were a total of USD 1.2 million. The rest was financed with Finnish development cooperation funds. The project was executed by local met-offices in collaboration with the FMI and the WMO. The Regional Committee of Hydrological Resources was also a project implementer. The committee was responsible for ensuring that the project proceded as planned, and the role of the FMI was to provide equipment for the national services, and to check that the technical specifications were fulfilled. The WMO was in charge of the training program and hiring of experts. The project also had a coordinating body, comprised of persons representing the organizations involved. (Finnish Meteorological Institute, 1999b:16) The project was designed to support the countries in the region to offer reliable and updated hydrological and climatological data to various user sectors, e.g. agriculture, communications, transportation, fishing and industry. The main objective was to strengthen the basic weather forecasting services and hydrological networks in each country. The most important goal at the

regional level was the implementation of a new telecommunications system. (Finnish Meteorological Institute, 1999b:16) An interim evaluation of the CAI project was done in March–April 1993. Its aim was to gain an external perspective of the project, so that necessary changes could be made for the second half of the project. In the evaluation, it was concluded that the project's goals were in general highly ambitious and wide in scope. Considering the available resources and the time frame of the project, the evaluation group recommended that the goals of the project be prioritized for the remainder of the project. The report proposed that the primary goal would be to finish the renewal of the data transfer system, despite delays caused by external issues. In addition, the strengthening of the weather service in Guatemala was targeted for completion, despite the fact that Guatemala's participation was delayed for 1.5 years due to problems in signing the project documentation.

The project was to focus primarily on replacing the current weather data transfer system with a satellite system. Additionally, during the years 1993–1995, the project was focused on rehabilitating the measuring network, conducting meteorological training, and setting up a climate database. The interim report emphasized the importance of including a budget for the upkeep and maintenance of the equipment to ensure sustainability. Additionally, the importance of developing commercial products was also included in the report. The interim report was later used as the foundation of the project plan for the years 1994–1995. The Regional Committee of Hydrological Resources later proposed that FINNIDA would finance a small program for the years 1996–1997, with a focus on the sustainability of the climate database system, establishing new routines for using the data transfer system, the maintenance of Guatemala's weather measuring devices and maintenance using local resources. Another project was also proposed to FINNIDA with a focus on the prevention of natural disasters. The financing of this project was argued for on the basis that it would build on the investments made during 1990–1995, and that it would develop systems that would contribute to the prevention of drought, flood, and storms, and make weather and climate services available to the public as well as to the authorities. (Sågbom, 1995:28, 32-33, 35, 37)

5.3.2 ADDITIONAL PROJECTS IN THE 1990S

Few additional, smaller but important donations were done in the early 1990s. These included donating 600 000 FIM in 1993 to the Estonian sounding station located in Tallinn. This money secured the operations of the station until mid-1994. In a letter from the FMI's Director General Erkki Jatila to the Ministry for Foreign Affairs, the strategic importance of this station was explained in March 1993. Because of the station's close location to St. Petersburg and the other Baltic countries, it was highly important to make sure that observations were continued because of risks relating to nuclear leaks and the proximity to several power plants. This station collected data twice a day, at the elevation of 20–25 kilometers, and included temperature, moisture, air pressure and wind data, which then was transferred in real time to the WMO's international network of observations. In the letter, it was stated that this data is used for regular weather service, as well as for national security purposes, referring especially to cases where possible nuclear substances would get in the atmosphere. In emergencies, upper atmosphere data like this would be highly important. (Jatila, 1992) Undoubtedly, the Chernobyl disaster of 1986 influenced the level of concern and processes involved with national security as they related to risk management.

5.3.3 THE IMPACT OF THE RECESSION

FMI phone conversation memo, April 27 1992:

> Because of the difficult economic situation, FINNIDA's budget for 1993 has been cut by 50 percent in the beginning of April 1992, and because of this, FINNIDA announced in a meeting on April 16, 1992 that the SADCC project will end on December 31 1992 and the planned phase III will not move forward.

During the early 1990s, the SADC project was in its second phase, moving towards the final, third phase, when the project came to an abrupt and unexpected end – a shock to all parties involved. A massive recession struck Finland and made huge a difference in development cooperation. During the years 1990–1993, the Finnish GDP decreased by 13 percent and unemployment rates went from 3.5 percent to 18.9 percent.

> In 1994 and 1995, development assistance experienced cuts of 60 percent, and some NGOs 100 percent. I remember that savings even for 1 000 marks were looked for. Back then, we did not have the pro-aid movement that would have been on the streets protesting and lobbying the cause, it was clear that this is where cuts will be made. I remember then, I was not involved with the SADC project anymore, but I recall that the main reason why it was cut was that it was high tech. --- Meteorology cannot be anything else than high tech. That was the reason behind the cuts, and I felt that at the level of decision-making, the significance of it was not understood.

During the 1990s, the recession in Finland cut the finances available for projects and only 1/4 of bilateral projects continued as planned, with others either terminated, downsized, postponed or renegotiated (Koponen, 2005) In the interviews, the experts involved with development cooperation practices at the time saw the governmental process of dealing with the recession as quite harsh. The development aid funded by the Finnish government was halved, and the procedures were rough. In the field of meteorological development cooperation, all projects which did not have contracts signed were discontinued. One expert explained that after the first and second phase, there was a command that if names are not in the papers, the projects are to be cut.

The fact that the project came to its abrupt end before the third phase was implemented, was a terrible disappointment for the experts involved, in both Finland and the recipient countries. This situation was especially hard on the personnel of Finnish institutes, but also those in the developing nations, who had put a lot of effort into these projects. As one interviewee put it, because of cuts following the recession, the actual "fruit" of the project never ripened. Another expert stated that big and relevant opportunities were missed because of the cuts, and that there was not much "modern thinking" involved in these decisions. Because of the recession, about ten years was lost in this field. According to one interviewed expert, the amount of money was not the most relevant issue in the meteorological projects, but that there should have been a way to "keep the fire burning", even if the practices would have been minimal. At least some relationships could have been sustained by altering the practices. Smaller efforts would have kept the projects going in a different format, for example with short advisory trips to the recipient countries bearing smaller financial costs, simply in the spirit of sharing know-how and giving assistance to those in need. Terminating the SADC project, along with other large infrastructural projects, completely unexpectedly, was not considered a smart move, and it had long-term consequences.

5.3.4 SUMMARY OF PROJECTS, 1990–1999

During the 1990s, all development cooperation projects were significantly downsized. This can be seen in the projects, most of which continued into the early 1990s. Only a few projects were executed in the late 1990s, all of which took place in South America, where the biggest effort, the regional project, lasted until 1997 with a total budget of 9.3 million USD. Other projects in the region included aid to Brazil, Chile, Colombia, Ecuador and Nicaragua. In the early 1990s, some African countries also received additional support in addition to the SADC project, with the biggest efforts in Cape Verde (260 000 USD) and Uganda (1992–1993, 300 000 USD). In the Asian region, Burma (1991–1992, 223 000 USD), Bangladesh (1993, 260 000 USD) and Papua New Guinea (1990–1993, 287 000 USD) received the most aid, while other countries (Jordan, Lebanon, Pakistan, the Philippines, Syria and Yemen) received smaller sums.

A new coming of these projects was experienced in the mid- and late-2000s, when an active approach was adopted once more. Projects were started in various parts of the world, and a new instrument was developed for their use. The following two sections of this chapter outline the projects implemented in the 2000s.

5.4 THE NEW PARTNERSHIPS AND INSTRUMENTS OF THE 2000s

The 2000s and especially the latter part of it, were something of a renaissance period for meteorological projects. During the 2000s, a new instrument was introduced and new partnerships were formed. Large and ambitious regional projects were started again, and Finland began to pursue a more active role in the field. The Institutional Cooperation Instrument (ICI) was introduced in 2008, and the first ICI-project was a development cooperation project in between the FMI and Peru's Meteorological Office SENAMHI during 2009–2012. This project aimed to enhance SENAMHI's ability to respond to the needs of the Peruvian society and to prepare for climate change. Since then, various ICI-projects have been started in different parts of the world (Finnish Embassy in Peru, 2013), alongside other continuing cooperation projects. Finnish aid in the field of meteorology has become even more widely known and acknowledged. As the projects have grown, new elements have been included, but the general approach towards capacity development and project structure have not changed.

From the 1990s onwards, we have lived in the age of globalization. The global markets have become more integrated. The end of the 1990s marked the beginning of mass demonstrations against globalization. The internet led to improved access of information, but it also increased the digital divide between developed and developing countries. After the terrorist attacks on September 11, 2001, it became clear that poverty and inequality are linked to stability and peace. It has also become evident that aid effectiveness needs to be linked to the quality of national policies. As a result, donors are putting a greater emphasis on governance and the tracking of poverty expenditures. Aid is also being untied, country offices are becoming decentralized and aid agencies are increasingly aware of the quality of their own programs. Locals are given more opportunities to manage resources, and corruption as well as rule of law are seen as important development issues. The causality of development processes was examined more closely, and the limited impact potential of aid was recognized.

Another important development was the launch of the Poverty Reduction Strategy Papers (PRSPs) in 1999. Although many changes have occurred, power still lies

mainly in the North and with developed countries. While many values and ideas are supported in theory, they are yet to be realized in practice. For example, the poor provide cheap labor for global trade. It is questionable whether large aid agencies can promote global free trade and poverty reduction simultaneously. Trade barriers limit the opportunities of developing countries to profit from the global free trade system. Despite decade long efforts to reduce poverty, many issues remain to be solved. It should be noted that different catch phrases and concepts of development have gained importance in different times. Overall, there are many elements that have contributed to or limited the success of the aid system; the world economic and political environment, domestic politics, dominant political ideologies, the personality of those involved in leading major organizations and the increasing influence of NGOs. The current system continues to utilize many uncoordinated and useless procedures and is still dominated by Northern governments, often disempowering the local governments. (Robb, 2004:33-37)

Finnish development cooperation projects went through a change in the 2000s. Koponen argues that in the 2000s, development cooperation is not aimed at filling financial, knowledge or skill gaps in the developing world, but rather at influencing the policies of the recipient countries, and through that process, reducing poverty. (Koponen, 2005)

5.4.1 THE RE-BIRTH OF REGIONAL PROGRAMS

The 2000s marked the revival of major regional programs. Perhaps enough time had passed since the disappointments of the 1990s recession and new, equally if not more ambitious, programs were started in the Caribbean and Pacific regions, both of which were not traditional recipients of Finnish aid. A regional program in Southern Africa was also considered, but after the inception phase it was discontinued. During this time, the instrumental value of these projects was still considered important. As in the past, projects were seen as a way to further Finnish expertise on a global scale and increase Finland's political importance on various global arenas.

Several issues influenced cooperation in the Caribbean. The project in the region started in 2001. Prior to its beginning, in 1997–1998, El Niño caused floods, forest fires and droughts in the region, which weakened the productive sectors of many countries in the area (World Meteorological Organization, 1999). Hurricanes Mitch and George also caused major destruction in the region in 1998.

> These hurricanes underscored the ecological and social vulnerability of the region. The international community reacted rapidly and a major relief program was planned, covering the nations of Central America. The Caribbean is in a vital position for the development of an early warning system of climatological changes affecting vast areas. The development of such a meteorological warning system in the Caribbean countries is in the interest of all of Latin America. It will help minimize the damage caused by hurricanes in the future.
> (Finnish Meteorological Institute, 1999c)

The UN Global Conference on the Sustainable Development of Small Island States (SIDS) was held in Bridgetown, Barbados during April 25 – May 6 1994. The Resolution 1 adopted by the Conference includes the Declaration of Barbados and the Programme of Action (BPOA) for the Sustainable Development of Small Island Developing States. A two-day special session on the Sustainable Development of Small Island States was held on September 27–28 1999, preceding the 54th session of the UN General Assembly, for an in-depth assessment and appraisal of the

implementation of the Programme for Action for the Sustainable Development of Small Island States. Many of the ten sectors of the Plan of Action were related to meteorology and hydrology. Finland confirmed at the SIDS-Donors conference in February 1999 its support the sustainable development of SIDS in the field of meteorology and hydrology. The implementing agency would be the WMO in close cooperation with the FMI, in a similar manner than in the programs financed by Finland in Central America in 1991–1999 and in the SADC region in 1987–1993. (Finnish Meteorological Institute, 1999a)

In project documentation, it was stated that due to the importance of the region from a meteorological point of view, Finland plans to contribute to the upgrading of meteorology and hydrology in the Caribbean region, in agreement with the Declaration of Barbados and the Programme of Action. (Finnish Meteorological Institute, 1999c) The project included plans to enhance the observation network, create practices for making observations and enhance the exchange of data between countries. The project was declared to contribute to the prevention of global environmental disasters, the development of human resources in developing countries and support the development of solutions for regional environmental issues and through this work, the betterment of global security. (Ministry for Foreign Affairs, 1999a)

The project plan was commented on by an MFA official, who stated that in the planning of the project, it should be taken into consideration that there are French (Martinique and Guadeloupe) as well as American (the Virgin Islands, Puerto Rico) weather services located in the region. It is presumed that these will help to achieve the project goals. It was also noted that there is a laboratory in Puerto Rico, which would be able to make calibrations for the equipment in the region, so that no other laboratory would have to be built (as was originally planned). It was stated that cooperation with the Americans and French might be politically challenging since the small islands in the region prefer not to be dependent on these countries. However, when it comes to the technology aspect, cooperation would anyway be recommendable and could be conducted in a neutral manner through the WMO. (Ministry for Foreign Affairs, 1999a)

In the Caribbean, the SHOCKS project (Strengthening Hydro-Meteorological Operations and Services in the Caribbean SIDS) was aimed at helping Caribbean societies to be better prepared for the adverse impacts of natural hazards and climate change. This was to be achieved through enhancing the role of the Association of Caribbean States in its strategic planning of Disaster Risk Reduction (DRR). The Association includes 25 members and four associate members in the Greater Caribbean Region. The beneficiary countries include Antigua & Barbuda, the Bahamas, Barbados, Belize, Costa Rica, Dominica, Dominican Republic, El Salvador, Grenada, Guyana, Haiti, Jamaica, Cuba, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenadines, Suriname and Trinidad & Tobago. (Finnish Meteorological Institute, 2014e)

In the Pacific, the FPPICS project - Finnish Pacific Project for Increased Capacity of SPREP and PIC NMS Staff to Meet the Growing Demand for Meteorological and Climatological Information in the Society was implemented in cooperation with the Secretariat of the Pacific Regional Environmental Programme (SPREP). The beneficiary countries included the Cook Islands, Fiji, Kiribati, the Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, the Salomon Islands, Samoa, Tonga, Tuvalu and Vanuatu. (Finnish Meteorological Institute, 2014e)

A separate, third regional project was also planned for the SADC region, but eventually it did not proceed past the planning phase. The planning phase took place between October 2009 and December 2010, and included the following countries: Angola, Botswana, Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia,

Zambia, Seychelles, South Africa, Swaziland, Tanzania and Zimbabwe. (Finnish Meteorological Institute, 2014e)

5.4.2 COOPERATION IN MOZAMBIQUE

Another interesting project in the 2000s was implemented in Mozambique. During the early 2000s, Mozambique suffered from heavy floods. The rainy seasons of 1998/1999 and 1999/2000 brought torrential rains that caused the most devastating floods in the history of the country, killing 700 people and causing damage worth 600 million USD. Finland participated in the post-emergency reconstruction program, executed in two phases. The first phase was implemented during 2000–2001 and the second phase during 2002–2004. (Ministry for Foreign Affairs, 2002:1, 12) The project in Mozambique differed from other projects because the implementing organization in Phase II was for the first time a private sector company, and not the FMI. This company had won the competitive bidding organized for cooperation in the region. The second phase of this project is examined here in more detail. The overall objective of the project was outlined in the following way:

> The overall objective of project FINAM is to decrease the vulnerability of the Mozambican society to adverse weather conditions. The purpose is to ensure that INAM is capable of producing weather services that meet the needs of public and private sectors in a sustainable manner. The project purpose is to be reached by implementing three intervention components. These components are rehabilitation and upgrading of the observation network, improvement of telecommunications and training and awareness building. (Ministry for Foreign Affairs, 2002:6, 16)

The second phase of the project was different in the sense that it aimed to target the end-users of data as well as to analyze the role of the local met-service in the local society. The second phase also included direct interaction with local political leaders. Regarding sustainability, in the final report it is stated that:

> Sustainability issues have been a major concern for the FINAM project since the beginning. It is a well-known fact that many technically challenging development projects have not been sustainable after the project has finished. As an example, the previous Russian weather radar in Beira was in operational use for just three years, and could not be maintained after that due to a lack of spare parts. For this reason, the maintenance and supply of spare parts has been an integral part of the radar contract. The contract will cover annual maintenance visits in 2007 and 2008, but after this, it will be a challenge for INAM to support the continuation with its limited financial resources.

The project Phase II also made an active contribution to promoting gender equality:

> Weather services are equally issued to all citizens, and their use does not take into account whether the user is a man or a woman. Actually, because of the large female partition in agricultural activities in Mozambique, women may be the largest target group of INAM's services. In cases of emergency, often women are in charge of evacuating the families from their homes. Thus, it is acknowledged that women must receive special attention when the warnings are issued. Due to its technical nature, meteorology is often male-dominated, but in INAM several forecasters are women. Most recent recruitments show that young women are

> interested in starting a career in INAM. In November 2005, the Technical Coordinator of FINAM gave a presentation in the seminar "Gender in Poverty & Wealth: Experiences of Finland and Mozambique. Gender equality as a positive resource." The message of the presentation was to encourage Mozambican women to start their own businesses. (Ministry for Foreign Affairs, 2002:36)

Challenges addressed in Phase II included the institutional structure of the Mozambique National Meteorological Institute (INAM), the relationship of INAM to other national actors in the fields of environmental issues and natural resources, the understanding in the society concerning the importance and role of meteorological services both by potential users of meteorological information as well as by the government bodies responsible for allocating funding to INAM. Challenges also included the lack of meteorological observation stations of different levels, the lack of IT and telecommunications tools and the low capacity of INAM to analyze meteorological and climatological information. (Ministry for Foreign Affairs, 2002:12) Regarding participation and ownership, project document states that:

> The natural disasters of recent years have revealed the importance of a well-functioning national meteorological service. The active participation of INAM in national planning for disaster management has given visibility to the service and a new understanding by political decision-makers of its importance is growing. Another more important point has been the fact, that the EU has selected INAM as one of the main institutions to be fortified for better preparedness for natural disasters, and for improved food security. The new development perspectives of INAM have influenced three Mozambican meteorologists with post-graduate degrees in meteorology to plan a return to Mozambique that will further improve the development possibilities of the service. The close cooperation of INAM with national and regional stakeholders is one of the two points stressed in the development plans set out by the EU. These activities will also support the goals of this project. (Ministry for Foreign Affairs, 2002:22)

In the project log-frame, a high-risk assessment was given to financial feasibility, that INAM does not receive appropriate financial means to successfully manage its meteorological and climatological obligations. As a means of mitigation, it is stated that in addition to scientific information, the project should produce information material that can be used for public awareness building and sensitizing public authorities. Another issue that gained a high risk estimation is the lack of coordination between different donors, which may lead to installing equipment that is not compatible in terms of maintenance. As a means of mitigation, active coordination is planned, taking into account the INAM's opinion and supporting it in negotiations with other donors. (Ministry for Foreign Affairs, 2002, Annex II)

5.4.3 ICI-PROJECTS IN THE FIELD OF METEOROLOGY

> Instruments for development cooperation between institutions, or Institutional Cooperation Instruments (ICI), are used for cooperation between state actors in the partner country and in Finland. These can be ministries, departments or research facilities, for example. The aim of these instruments is to build the capacity of the officials in the partner country.
>
> -Ministry for Foreign Affairs (2013)

> In some ways, these ICI-projects may be seen as relics of the expired form of technical cooperation, that would not be acceptable in any other sector.
>
> -Ministry official

ICI-projects are projects where there is transfer of public sector experience and expertise, with a focus on capacity building. The average project only lasts one to two years, and budgets have traditionally been between 500 000–700 000 USD. The mode of operation is expert-level cooperation and training. The focus is on technical competence and expertise, as well as capacity-building. The administration of the projects is lean, and experts work directly with each other. In ICI-projects, it is preferred that the proposal is submitted by a partner agency in collaboration with a Finnish agency. An expert involved characterized the projects in the following manner:

> In this ICI-project, it feels like to me, and I am sorry about this, but it is travelling, going there and talking with them, organizing maybe a seminar, and then coming back. And then going back again to plan something. I have been trying to say that we should be organizing the [training] courses.

In the planning phase, a basic project document with key information is drafted. In the implementation phase, the partner agency assigns personnel and gives practical support. The MFA analyses the project proposal, and the Finnish agency makes plans with the partner agency. The MFA analyses the plan and makes a financing decision, and the Finnish agency is responsible for project management and the results. ICI is based on people, and trust between partners is considered to be the key to success. The detailed content of the project is left for the Finnish agency and partner agencies to decide on. This is planned to allow for innovativeness in project execution. In the MFA's SWOT analysis, the strengths are identified to be the instrument's quick and simple execution. The opportunities are that the instrument is good for exploring new ideas and practices. The weaknesses are that there are technical limitations, such as the level of funding and the strict focus on capacity building. The main threat is essentially the lack of sustainability (Ministry for Foreign Affairs, 2009), which is a continuous and general problem with these types of projects and needs to be taken seriously.

ICI-instrument was evaluated in 2013, and the report was published in early 2014. The evaluation analyzed the ICI-instrument as a whole; many other institutes were also involved in addition to the FMI. The FMI completed 13 ICI-projects during the period of 2008–2012. The year 2012 was the final year included in the evaluation. Overall, during this period, 59 ICI-projects were funded. The budget for the FMI was in total 4 591 236 euros, which is 15.3 percent of total ICI-funds. (Ministry for Foreign Affairs, 201a:35)

As a result of their findings, the evaluators gave ten recommendations. The relationship between Finnish agencies and partner organizations should become more balanced. Costs incurred by partner organizations and benefits for Finnish agencies should be documented. The relationship should better reflect the organizational and political context in developing countries that is essential for successful capacity development. The ICI-instrument should allow for triangular cooperation, enabling the involvement of specialized institutions in developing countries. While the evaluators recognized the value of Finnish expertise, they pointed out that there are also specialized institutions in the partner countries, which are equally, if not better, qualified to provide similar services at a lower cost. The ICI intervention should be limited to present and past long-term partner countries and to the regional cooperation programs of Finnish development cooperation. The evaluators criticized the wide array of countries where the use of the ICI-instrument

has spread to, and stated that they should be reduced. Additionally, the projects should be systematically integrated to the country strategies for development cooperation (2013–2016) in long-term partner countries. This would allow for complementarity between the different instruments of Finnish aid. The ICI-manual should also be revised. The instrument should be made more relevant and effective, and increase both the sustainability of the results as well as the impact, and enhance both internal and external complementarity. It was also proposed that the project documentation should reflect the human rights based approach and all other cross-cutting objectives, such as climate sustainability and gender equality, for example, as outlined in the Development Policy Programme in 2012. Finnish agencies and their partners should continue to submit interim progress reports with financial and administrative details included. Mid-point and completion reports should be drafted and self-evaluated. Considerable improvements should be made to the information management related to the instrument, and data availability should be improved as well. Procedures regarding the review and oversight of the instrument should be decentralized and streamlined. Experts should be given a greater role in project design and monitoring, as well as in defining the self-evaluation standards. And finally, the MFA should implement the recommendation of the National Audit Office (report 180/2009) regarding the procurement of expert and research services in the Ministry for Foreign Affairs, and it should institute a mechanism that restricts exemption from competitive bidding only to public organizations that offer expertise and services not available in the private sector. (Ministry for Foreign Affairs, 2014a:93-98)

The issue regarding the launch and use of the ICI-projects was that the ICI-instrument provided a way to bypass difficult procurement processes set for development cooperation by EU legislation. Because of the instrument, governmental institutes could be allocated projects based on their expertise, and there was no need for the heavy procurement process. The Act on public contracts was renewed in 2007 (Finlex, 2016), one year prior to the launch of the ICI-instrument.

5.4.4 SUMMARY OF PROJECTS, 2000S

During the 2000s, a large number of both bilateral and ICI projects were going on around the world. The most influential projects have been the regional programs in the Caribbean and Pacific regions and in the Andean region. The project practices have essentially followed the same path as the projects in the 1980s and 1990s. Not much has changed in terms of content; projects still aim at enhancing local meteorological capacity through technology and training. Some societal and political aspects have been added to the project content due to Ministry requirements, but no large-scale transformations or reframing of the approach has occurred. Additionally, VCP support was continued. One expert stated the following regarding the political aspects of the VCP support:

> In the VCP, we had donated mainly equipment through the WMO. I remember that in the beginning of the 1990s, over 40 countries had received that assistance. When this campaign started in the 2000s, in order to get Finland on the UN's Security Council, then all the small island states received this type of aid.

The quote above shows that also political motives were behind some of these practices. In addition to the regional projects and VCP, separate country projects were implemented all over the world. The projects included capacity building in Ecuador

(2012–2014), Colombia (2012–2014), Sudan (2011–2014), Tajikistan (2014–2016), Kyrgyzstan (2014–2016), the Andean region (2013–2016) and Bolivia (2014–2016). (Finnish Meteorological Institute, 2014e) Typical budgets for ICI-projects were about 500 000 euros, and recipient countries included Sudan, Nepal, Vietnam, five central Asian countries (an ICI-project, part of the Wider Europe Initiative in Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan, 530 000 euros) and Peru. Colombia and Ecuador received 250 000 euros each and Uruguay 400 000 euros.

5.5 THE MULTIFORM OF COOPERATION IN THE 2010S

The beginning of the 2010s started triumphantly with a high number of projects in various parts of the world. This study focuses on projects until the year 2015, which has been in many ways a bittersweet year for meteorological development cooperation – it has included both a great accomplishment and a grave tragedy.

In the summer of 2015, Mr. Petteri Taalas, the head of the FMI at the time, was appointed as Secretary-General of the WMO for the term 2016–2019. Taalas himself commented his election in the following way:

> I feel this is a show of recognition for the active international cooperation in which we have extensively participated in the field of meteorology. (Finnish Meteorological Institute, 2015)

In the vote, Mr. Taalas received 117 out of a total of 154 votes (76 %). He states that his objective as Secretary-General is to develop the WMO's activities so that they will meet the needs of its members even better than previously, and to support the work of the local NMHSs. He also points out that the national institutes are working in an increasingly challenging environment, where serious global issues and the need for readiness to manage extreme weather phenomena and climate change, all pose great challenges. (Finnish Meteorological Institute, 2015)

In 2015, the Finnish government made a historical decision to apply drastic cuts to development aid funding and change the policies relating to finance allocations. These decisions have a strong impact on meteorological projects. In December 2015, the Finnish government's budget proposal was to cut 200 million euros from aid annually, starting from the year 2016, as a part of the general fiscal adjustment measures. Additionally, 130 million euros of grant aid will be converted into loans and capital investment, and channeled to developing countries through enterprises, which have committed to corporate social responsibility programs. (Ministry for Foreign Affairs, 2015a) The cuts will hit multilateral development cooperation the hardest, while humanitarian aid remains the least affected. Direct budget aid will be discontinued. (Ministry for Foreign Affairs, 2015b)

Regarding the impact on meteorological projects, an expert from the FMI stated that the atmosphere has become much more cautious. The expert specified that due to the upcoming ODA cuts, current project deadlines may change unexpectedly and funds might need to be used earlier than planned. Current projects in various parts of the world will end soon. The regional project in the Caribbean ended in December 2015 and in the Pacific region at the end of 2016. Projects ending in 2016 also include Bolivia, the regional project in the Andes, Kyrgyzstan, Tajikistan, Vietnam, Bhutan, Nepal and India. The cooperation in Sudan is most likely to continue in the coming years. Other upcoming changes include a more prominent role of the private sector in meteorological development cooperation.

The interviewee shared that the MFA is generally more careful when it comes to project funding allocations, especially with the ICI-projects. VCP financing has also been stopped. These changes have resulted in the FMI seeking new arenas and sources for financing and cooperation. The FMI is becoming more actively engaged with World Bank projects, which is a fairly new arena for Finnish actors. For example, the FMI is in an advisory role for the government of Nepal regarding the allocations of their 32 million USD World Bank project. The FMI is also engaged in another World Bank project in Mexico.

The FMI expert concluded that MFA funded projects have worked as an excellent way to gain international recognition in the field, which is a great benefit when applying for World Bank funded projects. In many ways, with the appointment of Mr. Taalas and the new focus on World Bank projects, the year 2015 marks the beginning of a new phase, once again, where Finland is aiming to stabilize its position as a leader on the highest level of cooperation. The coming years will show how that position will be used and how Finnish actors will be able to bring forward leadership and a high level of expertise.

A private sector interviewee from Vaisala also commented on the cuts and changes to current practices. For them, the outcome is more positive since it allows a more active involvement of companies. The concessional credits that were once renounced are making a comeback in a new form. In April 2015, the Minister for International Development Sirpa Paatero visited Vaisala and during that visit announced the development process for a new instrument that includes representatives from both the business and NGO sectors (if needed). Concessional credits were a way for Finnish companies to involve themselves in development projects because they require Finnish company to be the contractor and the Finnish content to be substantial. In many international development programs, the procurement process has been experienced as time-consuming, especially considering the small chances for winning. This has applied also to Vaisala, because their products are often priced above average and the procurement is typically done with open specifications and the cheapest bid wins. If some forms of concessional credits become available, Vaisala will be able to start new projects with local met-offices, in which they revise the needs with the local staff, formulate a package that includes all the necessary components and then apply for funding with this instrument. Vaisala's expert stated that their perspective is that the met-offices in the developing countries welcome this new instrument, because they have strong needs for infrastructure, not just for consultancy. The unfortunate side to the upcoming changes is the fact that ICI-funded projects will decrease. The Vaisala expert stated that while the ICI-instrument has not brought much direct support to their business, there have been some positive, more indirect impacts.

5.5.1 PROJECTS IN THE 2010S

Projects executed in the 2010s have included numerous beneficiaries in different regions. In this section, I will present some key projects and their approaches. The requirements set by the Ministry for recent projects have been more ambitious in terms of societal impact.

The FMI-INAMHI project in Ecuador, executed during March 1, 2012 – December 31, 2014, was an ICI-project aimed at the capacity development of INAMHI to reduce harmful impacts due to the changing climate and extreme weather in Ecuador. The main goals of the project included three areas: the handling of observation data, building the readiness to utilize weather information and enhancing

the capacity to provide weather services, alerts and warnings. The project had four managers during its execution and included FMI experts in the fields of project management, weather services, weather forecasting verification, database, observation network, weather observations, radars, and early-warning system software. Finnish experts completed 242 working days in total in the project. (FMI and INAMHI, 2015)

The FMI-IDEAM project in Colombia was executed during the same time as the project in Ecuador. It also included the same three main goals and four project managers. The key results included increased know-how and plans for the improvement of the observation network, a better understanding of the methodology and techniques for the calibration of meteorological instruments, increased know-how regarding data management and an implementation plan to establish an observation database to increase the use and sustainable management of observation data. Another result was the increased awareness of the importance of advanced methods in high impact weather monitoring; 120 users of weather radar information participated in a training workshop, and an increased expertise at the IDEAM regarding the processing of radar data and the use of radar products in forecasting severe weather. Additionally, an increase in the knowledge at IDEAM on the verification of weather forecasts, an establishment of a pilot system for an operative system of forecast verification to be completed by the IDEAM staff and increased expertise in R-programming for post processing of weather data. Increased awareness among the disaster management community and of the methodology available for enhancing the multi-hazard early warning system as well as learning standardized weather warning procedures and implementation of the Common Alerting Protocol (CAP)[47] methodology were also included. New warning products have appeared at the IDEAM webpages and SmartMet software has been implemented. Lessons learnt included the following statement:

> Overall, the project has been a good experience for IDEAM. The improvement in all areas related to the expected results of the project is tangible. IDEAM has now a better database that will help them to give better service and to better support the different needs of IDEAM specially now with the implementation of SmartMet. Now IDEAM has basic quality control data that is the first step to guarantee the reliability of the forecasts generated at IDEAM. The calibration laboratory is also better set up, not only because of the acquisition of two new instruments to support the pressure, humidity and temperature calibration of the AWS, but also because now IDEAM experts have a better understanding of the calibration process and the importance of regular instrument calibration. An important achievement is the agreement concluded between IDEAM and the Colombian metrological institute to improve current calibration practices. They are also taking care of the unification of the different instruments they buy, making the maintenance of the instruments more efficient. (FMI and IDEAM, 2015:5)

Cooperation in Central Asia – The ICI-project "Promoting Modernization of Meteorological and Hydrological Services in Central Asia (FINUZ)" took place in

[47] The Common Alerting Protocol (CAP) is an international standard format for emergency alerting and public warning. It is designed for "all-hazards" related to weather events, earthquakes, tsunami, volcanoes, public health, power outages and many other emergencies. CAP is also designed for "all-media", including communications media ranging from sirens to cell phones, faxes, radio, television, and various digital communication networks based on the Internet. (World Meteorological Organization, 2016a)

February 24, 2012 – June 30, 2014. The start of the project was delayed for six months due to the long approval process for the project in Uzbekistan. The kick-off event was held on February 24, 2012. Due to this delay, the project was extended twice, finally reaching June 2014. The overall objective of the project was increased adaptation to climate change by reducing risks of the loss of life and property in severe weather and extreme climate events in Central Asian societies. The main purpose was to increase the capacity of Uzhydromet and other National Meteorological and Hydrological Services in Central Asia to produce sustainable and end-user driven public and private services. (Finnish Meteorological Institute and Uzhydromet, 2014:2) Regarding the partner organization, it was stated that:

> The project partner was chosen to be Uzbekistan, although FINUZ is a regional project. This decision was made due to the location of the WMO Regional Training Centre, which will act as the hub of activity. The use of the WMO prestige will decrease the risks involved in a regional project and will help the countries to send their employees to the training workshops. The fixed assets remained in Uzbekistan, but benefit the regional training activities that take place in the centre. (Finnish Meteorological Institute and Uzhydromet, 2014:2)

The project included several trainings, altogether for 127 representatives from all five Central Asian countries:

> Kyrgyzstan, Tajikistan and Kazakhstan NMHSs took part each time they were invited. The last training (weather forecaster training) and final seminar had a participant also from Turkmenistan. This was the first time in over ten years that they have participated in regional activities. In addition, two workshops were arranged in Finland and Uzbekistan, two automated weather stations were installed in Uzbekistan and two students from Tajikistan were provided a scholarship to enter the regional training centre in Tashkent (Uzbekistan). (Finnish Meteorological Institute and Uzhydromet, 2014:2)

What was especially important was that for the first time in a decade, regional cooperation was accomplished in practice. The project staff included Finnish personnel with expertise in the fields of project management, observation, satellite training, instruments, HR & weather radar, meteorological and climatological training, forecasting & SmartMet, project support, observation technology as well as one strategy key expert. Purchased equipment included two automatic weather stations (through regular tendering), spare parts and a calibration set (through direct purchase). The total value of the equipment was circa 62 000 euros. The total budget was about 526 000 euros, of which 335 000 was used for the costs of Finnish experts, 76 000 euros for the local experts' costs, and 114 000 euros for other costs. In the beginning, only 173 000 euros were planned to be allocated to Finnish experts' assignment fees, but eventually 259 000 euros were used for this, mainly due to the delays in starting the project and delivering of the equipment, as well as an additional installation mission needed. The biggest reason behind the delay was stated to be the heavy bureaucracy in Uzbekistan. (Finnish Meteorological Institute and Uzhydromet, 2014:12-18)

5.6 CHAPTER SUMMARY – MAIN HISTORICAL EVENTS

This chapter has covered the vast history of Finnish meteorology projects. I have discussed topics such as the beginning of international cooperation, the role of Vaisala in the early stages and project data from their official start in the late 1960s up until the 2010s. I have discussed these projects in the context of the history of Finnish aid. In this section, I will provide a summary of the years 1968-2015 divided into six phases, based on the collected data, presented in this chapter.

During the 1960s and 1970s, and the beginning of the 1980s, meteorology projects were at an "experimental technical phase", when cooperation was small-scale, based on need and consisted of providing mainly technology. From the mid-1980s to the early 1990s, projects were at a phase I call "the big push", when ambitious regional programs were started. After the recession hit, projects were in a "big crash" phase, when ODA was cut and the SADC project came to its abrupt end. In the late 1990s, projects were in a "response to crises" phase, when cooperation was a response to both severe drought in many African countries and Hurricane Mitch in the Caribbean. After this, during the early 2000s, meteorology projects were in the phase of a "re-birth" when new regional projects were started in the Caribbean and the Pacific, and also in Southern Africa. In the late 2000s and early 2010s, projects came to the phase of "global partnerships" when cooperation partnerships were formed with big global actors, such as the World Bank. The major cuts to Finnish ODA in 2015 have forced stakeholders to look for funding outside Finland. See Table 10. for a summary of the main phases of meteorology projects. As is shown, the amount of recipient countries has increased from less than ten in the 1960s to over 60 in the 2000s. Meanwhile, while the amount of recipient countries has increased, the budgets have evolved in an interesting manner, showing a clear shift in policy. In the 1980s, there was more money poured into a few countries, while in the 2000s, less money was given to a much larger group of countries.[48]

Table 10. Phases of meteorology projects, 1968-2015.

Time period	Phase
1968-1984	Experimental, technical phase
1985-1991	Big Push
1992-1993	Big Crash
1994-2000	Response to Crises
2001-2007	Re-birth
2008-2015	New Solutions and Partnerships

Annex I includes two timelines (Table 18. and Table 19.) of the main events and major milestones for both development politics as well as meteorological development cooperation. The first table covers the period from the 1930s to the 1970s and the second from the 1980s to the 2010s. The pioneering projects and regional cooperation projects have also been included.

Overall, looking at the entire history of meteorological development cooperation, similar problems have occurred here as in other development cooperation projects. As Koponen (2005) argues, the history of Finnish aid started with low funds and finding ways to operate. This applied also to meteorology. When the available funds grew, the problem was not the availability of money but how to use the resources in a useful way. This also became an issue in the field of meteorology as the geographical scope of the projects spanned to all regions of the world. There has been an ambitious drive behind the practices and a strong desire to make Finland known in all parts of

[48] Estimated total budgets include both project funds and core support to the WMO.

the world in this field. This has been successful, which is a great accomplishment, but sustainability remains an undeniable challenge. Currently, Finland has clearly defined its development policy, but more resources are needed to put it in practice. Koponen points out that through all the stages of the history of aid, the stakeholders have believed that they are doing the "correct" things. When the practices have not worked as planned, they have been put to the sideline and new methods have emerged. Koponen also argues that development policy actors have been eager to seek the "lessons learnt" but that this work has been done very superficially and in an ahistorical manner. What has not been analyzed is what has not changed, which structural elements have not been replaced and how they seem to be new even though they are not. He points out that, at times, it seems that collective amnesia threatens development cooperation. As the ministers and officials change, institutional memory breaks. (Koponen, 2005)

These are sound arguments, supported by the historical aspects of meteorology projects. History shows that the project elements have not gone through profound changes, which leads to the question of how much actually has been learnt. In fact, some good project practices have even been entirely eliminated and replaced with less efficient practices. For example, in the SADC regional project, experts spent long time in the field, being present and active in project execution. Now, experts are more distant, located in Finland, and face-to-face interaction happens much less frequently than before. Of course, the internet has enabled new forms of communication, but it brings the risk of a false feeling of being present while one in fact is not. Seeing and experiencing problems firsthand is different than hearing about them from someone else. Finding solutions to problems is also different. An additional problem is the fact that project timelines have become shorter. Most experts hoped for longer project timelines, and real possibilities for enabling change. Short-term projects often end up being superficial, making the goal of sustainable impact even harder to reach.

The research question set out for this chapter was: What have been the main phases, practices, challenges and opportunities of Finnish meteorological development cooperation projects? The main practices have included various types of projects, starting from simple set-ups, such as donating equipment and short-term expertise regarding their usage, all the way to big regional cooperation projects, combining various stakeholders in Finland and abroad, and in all parts of the world. The key challenge has been sustainability: How to ensure that the benefits and gains achieved through cooperation are lasting? Projects have become more complex, but the main goal, capacity development in meteorology, has essentially remained the same. The opportunities brought forward by these projects have included different kinds of political and financial benefits. Activities in this field have been used to promote Finland's knowledge and expertise in this unique field, and successful cooperation with partners has been used in some cases to gain political power and influence. Financial benefits were openly pursued in the early days of cooperation, but since the 1990s and 2000s, the focus has been framed differently, and all projects have been aimed at poverty reduction. These projects have the possibility of improving local capacity, but there are many intervening issues that make things very complex. The various stakeholders involved, especially competing donors, ensure that nothing is straightforward anymore. These projects illustrate how the developmentalist complex works. There are both negative and positive outcomes, resources move from up to down through the various actors, having some impact and effects. Based on the information the system produces, decisions have to be made. As Koponen and Seppänen (2016) have presented, development policy and development cooperation execute the goals of the developmentalist complex, producing or aiming to produce development that the complex as a system promises. In the process, they also validate the existence of the entire system (Koponen and Seppänen, 2016:341)

Table 11. Recipients of Finnish aid in the field of meteorology.

	1960s	1970s	1980s	1990s	2000-2015
Recipient countries	Sudan Somalia Nigeria Mali Zambia Yemen	Algeria Guinea Mali Nigeria Somalia Sudan Tanzania Zaire Zambia Burma Singapore Thailand Yemen Colombia Venezuela Pacific & Caribbian Island states	Algeria Angola Ethiopia Kenya Mozambique Namibia Nigeria Seychelles Sudan Swaziland Tanzania Tunisia Zambia China Nepal Philippines Thailand Yemen Colombia	Cape Verde Eritrea Guinea Mozambique Nigeria Maldives Tunisia Uganda Zambia Ecuador Venezuela Bangladesh Burma Jordan Lebanon Pakistan Papua New Guinea Philippines Syria Yemen Belize Costa Rica El Salvador Guatemala Honduras Panama Brazil Chile Colombia Nicaragua	16 Caribbean states 14 Pacific Islands 14 Southern African countries Kazakhstan Kyrzyg Republic Tajikistan Turkmenistan Uzbekistan Sudan Mozambique Nepal Vietnam Colombia Ecuador Peru Uruguay Pakistan India
Project type	VAP	VAP	VCP, regional, bilateral	Regional, bilateral, VCP	Regional, bilateral, VCP, multilateral, ICI-projects
***Estimated* total budgets (USD)**	Less than 100 000	2 million	39 million	13 million	13 million

(Source: MFA and FMI archives)

6 BETWEEN THE RHETORIC AND PRACTICE OF DEVELOPMENT

> There remains a gap between the rhetoric and the practice of development. If we want to move from top-down, exogenous development to development that encompasses endogenous approaches, we must understand the barriers posed by practices in both donor and recipient country development organizations.
>
> -Holcombe (2014)

> There is this great gap between the poor people and project goals, and the realistic applicability of the projects and what is actually getting done.
>
> -Ministry expert

This chapter examines the role of policy and goals in development cooperation and how they are actually present in meteorology projects. Finnish development policy goals determine much of the structure of development cooperation. Sensible practices are based on thoroughly examined and carefully considered policy, combined with good knowledge regarding local contexts. Finnish development policy has changed throughout the period of development cooperation projects in this field, and naturally each governmental policy statement has influenced the practical aspects of the projects. To what extent does this apply to meteorology projects, is the issue to be solved in this chapter. Policy documents also reveal much about the ways in which global development problems have been conceptualized and what types of practices have been selected to solve these issues.

The exact question outlined for this chapter is: How effective have the projects been from the perspective of the Finnish development policy goals and development cooperation's overall goal of global poverty reduction? In practice, this means that the focus of analysis is on what has been outlined in policy documents since the beginning of the projects to the current era, and making a comparison with the content and approach of the projects during different times. Policy documents also analyzed from a more theoretical standpoint. Especially the parts of the policy documents discussing the goals and means of development cooperation and the role of the private sector in development are presented. The data used in this chapter includes archive data and policy documents.

Finnish development policy practices have been defined in various documents throughout the years. The first documents include two reports published in the late 1960s and two documents from the 1970s. The first Decision-in-Principle was outlined in 1974, and Jansson's Committee's report was published in 1978. It was not until 1993 that the strategy for Finnish development cooperation was defined, during Prime Minister Esko Aho's cabinet (1991–1995). After this, three more documents were outlined within a short period of time: Development cooperation's Decision-in-Principle in 1996, the Position Paper on Developing Countries in 1998 and a Decision-in-Principle outlining policies regarding developing countries in 2001. Additional policy documents from the 2000s include "Development Policy 2004 – Government Resolution", "Development Policy 2007 – Towards a Sustainable and Just World Community", "Finland's Development Policy Programme 2012" and the Government Report on Development Policy in 2014.

6.1 COMMITTEE EXPLORATIONS AND FIRST STATEMENTS, 1960s–1970s

Finnish development cooperation began in the early 1960s. In 1961, a committee was set to explore issues relating to Finnish development aid and to prepare questions and propositions regarding the administrative aspects of these activities[49]. The first agreement for technical aid had already been tied in 1957 with India. (Siitonen, 1981) The starting point for the committee was the global expansion of development aid activities since the mid-1950s and the goal set by the UN in December 1961 for each donor country to allocate one percent of their GNI as aid. The entitlement for development aid was based on ethical, economic and political issues, and especially as a possibility for tying relations with the developing countries. (Ministry for Foreign Affairs, 1963)

Finnish aid in the 1960s was based on a heavy identification with UN's development policy, an emphasis on Nordic connections and the aim of creating bilateral cooperation programs. During the 1960s, the number of development aid projects began to increase and the amount of aid grew fast.[50] In 1966, an advisory board was nominated to review Finnish development cooperation. Two reports were published, the first one in 1968 and the second in 1969. The first report included guidelines for activities during 1968–1972. The "development concept" of the authors was reflected the time; it was mainly typical Western analysis regarding the reasons behind the problems in developing countries, to be solved through modernization and strong population policies.[51] Bilateral aid was seen as a prerequisite for increasing aid and the focus areas of bilateral programs were education and technical aid. The second report included a wider introduction to UN's development program UNDP and a recommendation for emphasizing social development alongside economic development. In this report, the 0.5 percent aid goal was set to be reached by 1975. (Siitonen 1981:66) Neither of these goals were reached.

The Decision-in-Principle regarding development cooperation was outlined in 1974. It included the aid goal of 0.7 percent of GNI. This goal was in line with the UN's position declared in 1970 to be reached by mid-1970s. Finland joined the OECD's Development Assistance Committee (DAC) in 1975. Through DAC, Finland engaged more actively with other donors and took part in the work to unify donor practices. (Ministry for Foreign Affairs, 2016e)

The Decision-in-Principle of 1974 was drafted by the development cooperation department of the MFA. The practices of the UN and other Nordic countries were used as a reference for the document; these included for example the international development strategy published by the UN in 1970. The committee in charge of international aid, which had representation from the different political parties, also guided the process. (S. Savolainen, 2003) The Decision-in-Principle was approved by

[49] The year 1961 was also the first year when Finland had secured funds for development aid in its national budget. Prior to this, Finland has participated by paying participation fees, giving voluntary donations, sending technical experts and government officials and by offering scholarships and apprenticeships. (Siitonen 1981)

[50] Although most of it was still multilateral, the share of bilateral aid also grew fast. In 1961, 100% of the aid was multilateral, in 1962 it was 92%, in 1963 it was 88%, in 1964 and 1965 it was 84%, in 1966 it was 78% and in 1967 it was 77%. (Siitonen 1981:63)

[51] The committee recommended increasing aid, but it did not include a timetable for reaching the 1% goal. Instead, it suggested that by the year 1972, the percentage would be 0.25% or possibly 0.38%.

the cabinet in its unofficial gathering "Iltakoulu"[52] on October 9, 1974 (Ministry for Foreign Affairs, 1974a). The document included the goals, content and recipients of Finnish aid for the time, and the starting point for cooperation. It was also supposed to be presented to the parliament, but the plans changed and that never happened. (S. Savolainen, 2003)

Regarding multilateral aid and gaining influence through the UN, it is stated in the document that multilateral cooperation is part of Finnish foreign policy, and practices are based on the common principles of Finnish foreign policy. The government emphasized the importance of actions to remove the structural bias in the relations between industrial and developing countries and support for the aim of developing countries to shed their economic dependency. The economic and social factors and structural issues influencing development efforts were also considered important, and the position of the least developed countries was deemed central. (Ministry for Foreign Affairs, 1974a)

Regarding multi-bi-cooperation, which refers to cooperation projects done with international organizations, such as the WMO, is stated to be excellent in terms of providing support for Finland's UN politics, and because it provides an opportunity to use the services of these organizations also in planning and executing Finland's bilateral aid. Multi-bi-cooperation was seen as a way to grow bilateral practices without overstraining the administration. (Ministry for Foreign Affairs, 1974a)

Regarding the forms of bilateral aid, it is stated that Finland transfers services, knowledge, commodities or funds. Finland gives development aid in the form of experts, consultancy services, education and goods. The format of aid is either grants or loans. Expert, consultancy and education types of aid are always given as grants. Most of the commodities are given as loans, which can be used to purchase commodities or related services. The government's position is that the share of loans should be circa one-third of the total aid. (Ministry for Foreign Affairs, 1974a)

> The goals of development aid include projects which are bigger than currently and combining different types of aid into larger project entities. This way better results are achieved and administrative work is reduced. (Ministry for Foreign Affairs, 1974a)

It is also stated that the Finnish government abides by the principle of centralization: through the centralization of aid it is possible to ensure the effectiveness of the administration and enable long-term cooperation with the most important aid recipient countries. The main aid recipients at the time were Nigeria, Zambia, Tanzania and Vietnam. Additional cooperation was conducted with Ethiopia, Kenya, Cuba and Peru. (Ministry for Foreign Affairs, 1974a) The criteria for aid recipients were outlined for the first time in 1973. Officially, it was stated that aid recipients should adhere to the principles of the UN's development strategy. Other criteria included the level of poverty (the poorest one-third of countries in the world), the countries' own objectives for reaching economic independence as well as economic and social development. The real reasons behind country selections also included political issues and the “hot topics” of the time. The country selections were guided by political motivations. Countries that pleased both right- and left-wing parties, were included. Practical reasons also guided the selections, such as the widespread use of English. In the beginning of aid, countries that had taken clearly one side or the other during the Cold War were avoided, but this changed in the 1970s. Overall, in the early stages of aid, country selections were used as a way to position

[52] Iltakoulu, "night school" in English, is the unofficial gathering of Ministers organized once a week, where usually no official decisions are made.

Finland politically, but officially these issues were typically not acknowledged. (S. Savolainen, 2003)

Regarding the sectors of aid, the document states that the government focuses its practices on sectors where both economic and social development may occur. These include education, healthcare, nutrition and population politics, forestry and related industries, as well as agriculture and other industries. Special attention is given to rural areas. Regarding natural disasters, it is stated that government has a reserve where funds may be used humanitarian relief in case of natural disasters, which is usually allocated through international organizations. (Ministry for Foreign Affairs, 1974a)

A few years after the publication of the Decision-in-Principle in 1974, the Finnish government set a committee to review Finnish development cooperation and its future. The Jansson committee report was published in 1978. It partially redefines the baseline for Finnish aid and characterizes it more clearly as a part of Finnish foreign policy. In the report, Finland's trade interests and international development policy are now connected. Development is framed to include not only economic growth but also societal change, shifting the focus from just economics to general societal policy issues. The reasons behind poor levels of development were linked with the colonial past and the position of developing nations in the global economy, rather than to the "underdeveloped" nature of these countries (as in earlier reports). The difference between development cooperation and commercial cooperation was also determined in the report. It was stated that Finland might enhance its economic ties with developing countries in the context of development cooperation, while overseeing its own economic benefits. This however should not be in conflict with the development-oriented goals of the projects. The committee concludes in the report that international economic issues are becoming more important alongside development aid, and that Finland should support the principles of the New International Economic Order (NIEO). It was seen as beneficial for Finland to strengthen its bilateral trade relations with developing countries, whose economic importance was increasing. The committee also suggests a gradual renunciation of tying aid to Finnish products and setting a 0.32 percent goal for aid, to be reached by 1982. (Ministry for Foreign Affairs 1978a; Siitonen, 1981)

Increasing trade relations with developing countries took a step forward during the following year. In the budget of the Finnish government for 1979, a proposition regarding a law about the establishment of TEKERA is mentioned.[53] Additionally, the employment opportunities set forth by development cooperation are mentioned. Finnfund offered risk-funding and helped companies to get started in developing markets. (Pietilä, 2013) Similar companies were established in other countries as well, but Finnfund was unique because its funding came from the development cooperation budget. (Kiljunen, 1983) At the time, it was emphasized that aid should circle back to Finland whenever possible. During the beginning of the next decade, 1980–1982, the return percentage was as high as 64 percent. (Artto, 2005)

Regarding the motivation for aid at the time, the Jansson Committee report regarded aid to have ethical, political and economic motivations. The ethical considerations included solidarity towards other countries and nations in need and a reference to the UN's Declaration of Human Rights (1948). The political motivations included strengthening global peace, narrowing the gap between poor and rich countries and increasing social and economic well-being to reduce violence. The economic motivations included practices which emphasize growth and economic togetherness. If developing countries are not able to achieve economic progress and

[53] TEKERA, Finnish Fund for Industrial Development Cooperation Ltd., currently known as Finnfund, was established in 1980 to help Finnish companies invest in developing countries.

a diversification of their production, the entire global economy may be faced with crisis. Through added prosperity, developing countries will have the opportunity to become more equal partners with industrial nations. (Ministry for Foreign Affairs, 1978a:54-58)

> Development cooperation should not be seen as charity, where political and economic motivations influence behavior, but as a part of the re-organization of the international economy, where development cooperation is interlinked with questions on trade, currency, technology transfer, the position of multinational corporations, etc. (Ministry for Foreign Affairs, 1978a:58)

Before the regional project in Southern Africa started in the late 1980s, cooperation in the field of meteorology was based on donations in the form of equipment, technical support and guidance regarding their use. Most practices were operated in cooperation with the WMO's VAP/VCP. These practices fit well to the framework of the early history of Finnish development cooperation. During the late 1960s and 1970s, choosing the recipients of this type of aid was based on recipient needs. In the annual report of development cooperation for the years 1972–1973, exporting radiosondes and rawinsonde stations[54] from Finland to two WMO research programs through the WMO is mentioned. It is also noted that observation stations were established in several developing nations, such as Nigeria and Mali, with the help of Finnish funds. The aid sum allocated through the WMO was 1.2 million FIM. (Ministry for Foreign Affairs, 1974b:30)

During the 1970s, many developing countries experienced natural disasters. Aid relating to catastrophes is not directly included in meteorological cooperation, but it is mentioned here as an example of a needs-based development aid policy. These countries were assisted with experts sent to the region, supplies (clothing, food and shelter), and funds to international organizations coordinating assistance. (Ministry for Foreign Affairs, 1978b:9) In 1974, catastrophe aid was delivered from Finland to the Sahel region in Ethiopia[55] (550 000 FIM), Vietnam (300 000 FIM), India and Bangladesh (896 000 FIM), Chile (871 000 FIM), the Middle East (100 000 FIM) and Cyprus (450 000 FIM). (Ministry for Foreign Affairs, 1975:14) During 1975, funds were sent to Mozambique (35 000 FIM through UNDRO) and Romania (997 000 FIM) which was suffering of floods (Ministry for Foreign Affairs, 1976:12), and for the same reason in 1978 to Sudan and Vietnam (Ministry for Foreign Affairs, 1980:26).

During the 1970s, the growing amounts of aid garnered the interest of Finnish companies towards development cooperation. The annual report of development cooperation in 1978–1979 concludes that direct feedback from development cooperation has supported Finnish employment and increased the competitiveness of Finnish companies and that this has in part increased the positive attitude towards growing aid funds. (Ministry for Foreign Affairs, 1980)

> Since the early 1970s, the Ministry for Foreign Affairs of Finland has within its development cooperation program supported financially the strengthening of the WMO Global Observing System. The major Finnish development cooperation programs were implemented in cooperation with the WMO and with the assistance of FMI expert services. (Finnish Meteorological Institute, 2002)

[54] A rawinsonde is a radiosonde whose position is tracked as it ascends to give wind speed and direction information.

[55] As a result of extended periods of drought.

Based on policy documents outlined in the 1960s and 1970s and practices in the field of meteorology during the same period, it can be stated that the practices closely reflected the policies. This was the period of the beginning of aid and Finland wanted to start practices that were similar to those of the "desired reference group", the Nordic countries. Meteorology as a field provided a good opportunity to do so, mainly because of Vaisala's high quality equipment and the FMI's active role and good reputation. The WMO provided the desired UN connection, which made cooperation easy.[56] If the policy content of the period is examined through the lens of analytics of government, it can be stated that the development problematic became more complex over a fairly short time. In the 1960s, modernization theory influenced policy, which mainly represented a Western approach. The centralization of aid was a way to ensure effectiveness of administration, which was considered an important issue. This was surely related to the desire to be efficient because public funds were being used. Later, the policy became more detailed. One reflection of this was the notion that aid recipients should adhere to the principles of the UN's development strategy. The complexities of aid were also understood, such as the links between trade interests and development policy. Development was not solely focused on economic growth but included also other societal elements.

6.2 THE "NO POLICY" 1980S

During the 1980s, aid allocations increased and more attention was given to the quality and productivity of aid. (Ministry for Foreign Affairs, 2016d) Export-promotion through aid was at its peak and much of aid was tied to Finnish products. (Artto, 2005) No new policies were introduced during the 1980s. One influencing factor was that the Jansson committee report published had been a fairly extensive policy document. During this period, Finnish aid was at its Nordic/national phase (Koponen, 2004). New recipient countries were chosen based on their economic potential, and Finland began to act more independently in the field. Aid allocations increased. The ambition and enthusiasm of the time were well reflected in the SADC and CAI regional projects.

The first regional program in the SADC region was a big leap forward in the field of meteorological aid. The SADC meteorology project was a part of an agreement signed by the Nordic countries to do joint cooperation in the region, initially based on the Sorsa Initiative[57] of 1986. Finland participated through funds allocated for regional cooperation, and other projects included the NORSAD funded[58] Beira port in Mozambique and forestry projects. (Ministry for Foreign Affairs, 1991:74) The purpose of the SADC project was outlined in the following way:

> The project is expected to make a contribution to the meteorological status of SADCC-countries as follows: (i) To enable the national meteorological services to participate actively in the regional project 'Assistance to drought-stricken Eastern and Southern African countries' in the fields of agro-meteorology and hydrology by providing necessary meteorological and hydrological observations and by utilizing products from the Drought-Monitoring Centre. (ii) To increase the capability of the national meteorological services to provide meteorological and hydro-meteorological data and products to the national authorities responsible for the development and operation of the agriculture, water management,

[56] One Finnish expert was working in a secretary position in the WMO in 1977 (Ministry for Foreign Affairs, 1977:33).

[57] Named after Finland's Prime Minister Kalevi Sorsa.

[58] Nordic-SADC Fund.

solar/wind energy production and aviation sectors. (iii) To provide advice tailored for individual farmers to avoid weather-caused agricultural losses and/or increase agricultural production. (World Meteorological Organization, 1987)

During the same time, cooperation was also started in Sudan, where the project was aimed at rehabilitating and improving local observation stations. The project was carried out mainly by providing new instruments and organizing maintenance workshops.

The regional project in Southern Africa reflected the goals of Finnish aid set during the late 1970s when bigger and more influential projects were called for. Both of the projects, in SADC and Sudan, aimed at direct capacity development. They were a response to recent natural disasters, and as drought and floods had influenced many countries in Africa during the 1970s, and better quality meteorological services were truly needed, this served as a good ethical motivation. Political support and motivation was easy to gain since Finland's Prime Minister of the time had a positive attitude towards cooperation in the region, and it provided the opportunity to do cooperation within the Nordic reference group. Finland also had many projects going on there in other sectors. The economic motivation was high for doing cooperation in this field since tying aid to Vaisala's products was easily done in the context of the projects.

During the period leading up to the SADC project, Finland provided catastrophe aid for several regions suffering from climate-related disasters. In 1980, Finland assisted the Caribbean region and Nicaragua. (Ministry for Foreign Affairs, 1981:25) In the same year, Finland's contributions to multi-bi-cooperation to the WMO were reportedly 4.5 percent of the total multi-bi-cooperation funds. These practices included for example sending upper-atmosphere equipment to Thailand and China, for staff training purposes. (Ministry for Foreign Affairs, 1981:52) In 1983, droughts and floods impacted societies in Latin America (torrential rains and drought in Peru, Ecuador and Bolivia), and severe drought in Africa affected 24 countries. (Ministry for Foreign Affairs, 1984:13) In 1984, Finland conducted cooperation with the UN in the Sahel region and continued cooperation with the WMO. Both organizations proposed projects to Finland, which were selected on the basis of Finland's goals set for development cooperation. This included for example aid directed towards the least developed countries. (Ministry for Foreign Affairs, 1985:31) At the end of the decade, in 1989, Finland assisted flood victims in Bangladesh, Brazil, Malaysia, Sudan, and hurricane victims in the Caribbean (Nicaragua and Costa Rica) as well as typhoon victims in the Philippines (Ministry for Foreign Affairs, 1990b:28). Countries receiving aid in the field of meteorology, in addition to the SADC region and Sudan, included Burma, Ecuador, the Philippines, Colombia, Nepal, Nigeria, the Seychelles and Tunisia. (Ministry for Foreign Affairs, 1990b:37)

6.3 THE DECISION-IN-PRINCIPLE AND POSITION PAPER OF THE 1990S

The policy papers outlined in the 1990s included development cooperation's Decision-in-Principle in 1996 and the Position Paper on Developing Countries in 1998. It should be noted that during the recession in the early 1990s, no policy documents were set forth and development aid went through serious budget cuts.

The Decision-in-Principle from 1996 states the main goals of development cooperation to be the reduction of poverty, the prevention of global environmental threats by assisting developing countries to solve their environmental issues and the

promotion of societal equality, democracy and human rights in developing countries. (Ministry for Foreign Affairs, 1996:2)

Regarding the selection of recipient countries and the overall practices aimed at different types of countries, it is stated that countries undergoing deep crises may only be considered for humanitarian relief. Countries recovering from war need support for peace and reconstruction, as well as for establishing safety. Countries undergoing political transition need support for their transition to market economy, and in cases like this new types of financing instruments may also be used. In poorer but politically stable countries, support should be long-term, and aimed at strengthening human resources, institutions and creating the prerequisites for development. Cooperation should be viewed as a process that supports the dynamic development processes of developing countries, but also Finnish relations with developing countries and Finland's foreign policy goals. (Ministry for Foreign Affairs, 1996:5) Perhaps the guidelines for country selections were influenced by recent project experiences, as for example in the SADC project, there were negative experiences with conducting cooperation projects with countries undergoing deep crises, such as Angola, which was in civil war during project implementation.

In the document, the EU and the international community are named as major influences for Finnish decision-making and based on this, the government will focus its bilateral actions on long-term partnerships and allocate most of its aid to the poorest developing countries, especially in Sub-Saharan Africa. In order to be able to react to fast-paced political and economic changes in developing countries, it is stated that the government will carry out recipient country selections in a more flexible manner than previously. Part of the development cooperation projects may be done in the form of regional cooperation, and new types of projects will be developed alongside more traditional forms of aid[59]. (Ministry for Foreign Affairs, 1996:5)

The position paper on developing countries, published in 1998, emphasizes the changes in the global environment, the increased worldwide interconnectedness and cultural interaction. The main goal of development policy is to advance well-being and peace and to prevent threats to these. Development policy is recognized as an essential part of foreign policy. The development policy aims include the promotion of global security, the reduction of globally widespread poverty, the promotion of human rights and democracy, the prevention of global environmental problems and the promotion of economic dialogue. (Ministry for Foreign Affairs, 1998)

> Finland is increasing measures to encourage imports from developing countries. Finland encourages Finnish companies to invest in and export to developing countries by, for example, promoting the liberalization of trade and investment, by supporting ethical trade, by developing the role of Finnfund and by arranging high-level visits. (Ministry for Foreign Affairs, 1998)

The concrete means of development policy are noted to be political and economic dialogue, development cooperation, trade and economic related instruments, cultural cooperation and added expertise. Regarding trade and commercial activities, it is stated that Finland focuses its activities on those areas of expertise where Finland has good opportunities to strengthen its market share, and where there are opportunities to develop new market areas. Finland also seeks to use trade-related instruments to support the economic development of the poorest developing countries, of lesser interest to Finnish companies. (Ministry for Foreign Affairs, 1998)

The aid goal of 0.7 percent was reached in 1991 when Finland allocated 0.8 percent of its GDP as development aid. Reaching of the goal was not however due to an

[59] These include for example micro funds.

increase in aid but rather the massive recession that hit Finland in the early 1990s. Due to the strict economic situation, the government subsequently cut public costs, including development aid. In 1993, only 0.4 percent was allocated to aid. At the time, the government however emphasized that the goal set forth by the UN was to be reached once the recession was over. The goal has since been mentioned in several policy documents, but has never been reached again. In 2015, Finland allocated 0.56 percent of GNI as ODA. (Ministry for Foreign Affairs, 2016d)

In an FMI document outlining meteorology project goals in the 1990s, several items, which reflect the technical emphasis of aid in this field, are included. Continuing the support to enable the efficient use of the equipment donated by Finland in the late 1980s and early 1990s are mentioned, as well as the support to upgrade the national observing networks in countries already supported by Finland. Additionally, continuing support for the maintenance of old upper-air stations and the establishment of new stations in data sparse areas. Support to regional and continental centers like the Regional Drought Monitoring Centre (RDMC) and the African Centre of Meteorological Applications for Development (ACMAD) were also included, as well as continuing support to labor force development in countries where Finland has been active in the 1980s. (Finnish Meteorological Institute, 1989a)

The MFA's statement regarding meteorology projects for the 1990s (outlined in May 1989) states the following:

> The overall objectives of Finnish development cooperation in this field may be summarized as follows: Assisting the recipient countries in establishing maintenance and improving of the national as well as regional data observing networks, including the climate change and air pollution facilities, safeguarding the creation of prerequisites for the development of a systematic data collection, processing, analysis, storage, and exchange systems. In this context, the development of real-time telecommunications, as both ground-based and satellite-mediated data exchange networks, is of utmost importance. Work force development and recognizing the burning need for qualified staff in this very specialized field is also vital. Improving the maintenance facilities of the meteorological equipment and device in the individual countries or regions. Contributing towards the establishment of a universal observation network. The development strategy underlines the importance of supporting the national and regional facilities in recipient countries to such an extent that they are capable, both in human resources and in kind, to carry out the necessary activities — the recipient countries would become equitable members in the world meteorological family. (FINNIDA, 1989)

The most important project of the 1990s was the regional project in the Central American Isthmus. Its development objectives were outlined in the following manner:

> The project is intended to enhance the capability of the National Meteorological and Hydrological Services to provide information to various sectors of development of the countries to enable them to fulfill socio-economic needs.

And

> The immediate objectives of the project are the following: The rehabilitation and expansion of current meteorological, hydrological, agrometeorological and climatological networks. Improvement of WWW facilities in the region. Training

> of professionals and technical staff while strengthening the regional capabilities for the continuation of personnel development programs. Strengthening the intra-regional coordination mechanism and in particular the Regional Water Resources Committee (CRRH). Enhancing regional integration efforts and ensuring protection of the environment.

In the document, it is stated that the objectives will be achieved through a training program to be implemented by the WMO and an equipment supply component to be executed by the FMI, with the CRRH providing regional coordination. (Ministry for Foreign Affairs, 1990a:9)

The expected outputs of the project included meteorological and hydrometeorological observations; a rehabilitated basic network of stations including the application of modern technology in measurements, coupled with an efficient real-time system for collection and exchange of data at the national level. Also, rehabilitation of the upper-air network including the automation of observation, as appropriate, agrometeorological observations especially in areas of specific agricultural development potential. Outputs included improvements to the meteorological telecommunications network for real-time transmissions and reception of international data, and improvements in meteorological data management, including a climatological database making use of the CLICOM system and other modern data analysis and processing procedures and systems. The rescue of old data sets was also included. (Ministry for Foreign Affairs, 1990a:10) The project additionally included a component on how to improve communication when disasters strike, and how to improve disaster preparedness. Finland's part of the project had a budget of 42 million FIM for the years 1991–1998. (Ministry for Foreign Affairs, 1999b:246)

In a memo regarding the plan for cooperation in the region, MFA staff bring forward the question of how gender is to be taken into consideration in the project. The memo states that the Ministry wants to ensure that gender issues are considered in all parts of the cooperation, and that the issue will be taken into action in the plan for the year 2000. If there is no one in the project staff with the needed gender expertise, this person can be hired with the project funds, and if the project does not include gender as an element, money should be set aside for conducting a gender analysis during the following year. (Hirvelä-Lopez, 2000)

The regional project in CAI was structured around capacity building and providing needed services in the region. It included elements considered important by the Ministry, such as cooperation with the UN through the WMO, project components relating to the ethical aspects of aid, as well as providing the recipients with new equipment as part of the rehabilitation and expansion of the existing systems. Training components were naturally also included as a part of capacity enhancement. The issue of gender brought forward by the MFA was an example of how new elements and aspects were introduced to the projects.

At the end of the decade, Hurricane Mitch (November 1998) caused major destruction in many Caribbean countries. It demonstrated how difficult environmental hazards are to countries with inadequate infrastructure. The weak governmental and societal structures became clear in the aftermath of the crisis, which was handled inefficiently. The El Niño effect in the same region, in Peru and Ecuador, and torrential rains in Venezuela have made the region's countries even more aware of environmental issues. In 1999, in a conference in Stockholm, the improvement of governmental institutions and good governance were listed as conditions for aid. The EU and its member states allocated over one billion euros in support for these practices. Finland allocated five million FIM in aid to Nicaragua as a response to Hurricane Mitch. The aid was channeled through UNDP reconstruction programs. Four million was allocated to victims in Honduras, where over 4 000

people died, 8 000 went missing and 600 000 people were evacuated. Three million was allocated as humanitarian aid to victims through the regional programs of the Red Cross and Red Crescent, to help 400 000 victims by distributing medicine and providing shelters. (Ministry for Foreign Affairs, 1999:246) Funds were also allocated in the 1990s to the prevention of drought and desertification, reaching to over 40 million FIM annually during the years 1989–1998. (Ministry for Foreign Affairs, 1999)

Overall, the 1990s were a difficult decade for aid. The massive cuts to aid budgets and how they were handled did some major damage in the early 1990s. The abrupt ending of the SADC project was a substantial disappointment, which had an influence on future cooperation as well. At the end of the decade, natural hazards caused widespread destruction, setting development back in many received aid previously. Work towards capacity development in this field was not over and the need for it was perhaps clearer than ever.

6.4 THE COMPREHENSIVE APPROACH OF THE 2000s

During the 2000s, Finnish aid underwent major changes. Finland had now been a member of the EU for five years (joined in 1995). The Millennium Development Goals were set by the UN as the general goals of development cooperation. The decade was also a period of new ways of cooperating. The ICI-instrument was established, which directly affected the way in which meteorological aid was given. Aid in itself changed from mere "development cooperation" to a "comprehensive approach to development", which was also the time when the links between policy and practice weakened in the field of meteorology.

In the government's Decision-in-Principle "Operationalization of Development Policy Objectives in Finland's International Development Cooperation", set forth in 2001, the goals of cooperation are stated in the following way:

> The goals of Finland's international development cooperation and Finland's development policy were revised in 1996 and 1998. Finland's relations with developing countries are considered as comprehensively as possible, aiming at coherent goals in foreign and security policy, trade policy and development cooperation. Development cooperation's role as a significant part of foreign policy is underlined. Within the totality of the development policy objectives, the reduction of poverty, the prevention and mitigation of environmental problems, and the promotion of equality, democracy and human rights constitute the basic elements in the promotion of global peace and security. (Ministry for Foreign Affairs, 2001)

In the document, it is stated that in the past years, assistance has been given to a large number of countries (34 in 1999) and it is composed of small programs, about 13.5 million FIM per country, with disbursements exceeding over 50 million FIM only in Mozambique. Finland is stated to be involved in several sectors with relatively small inputs in the partner countries. (Ministry for Foreign Affairs, 2001) This applies to meteorology projects as well. The document outlines that in the future, Finland would concentrate on fewer partner countries and larger country programs. The majority of bilateral assistance was to be channeled to long-term partner countries, which were Egypt, Ethiopia, Kenya, Mozambique, Namibia, Nepal, Nicaragua, Peru, Zambia, Tanzania and Vietnam. With other partner countries, Finland would focus on thematic programs, which reinforce the capacities needed for successful national and internationally supported development activities. (Ministry for Foreign Affairs, 2001)

> The countries' political, economic and cultural relations and their development cooperation are discussed extensively in the political dialogue. This dialogue is premised upon the criteria within which Finland has established the partnership, including commitment of the partner country's government to poverty reduction and promotion of democracy, equality, human rights and good governance, as well as the economic policy pursued by the partner country and environmental issues. Finland encourages the partner countries to engage in genuine dialogue and to call attention to their own priorities.

It is also stated that:

> To enhance the impact and effectiveness of the cooperation, Finland will focus on fewer and larger efforts. In each long-term partner country, projects and programs of cooperation between the governments will focus on no more than three sectors or three development programs.

The limitation of aid to only a few sectors posed a threat to the meteorology projects, because it is a rather small field of cooperation compared to others. Since meteorology has a special role in Finnish cooperation, practices were continued.

In 2004, a development policy document laid out the main principles of the new development policy. The principles included a commitment to the values and goals of the UN Millennium Declaration[60], a broad national commitment and coherence in all policy areas, a commitment to the rights-based approach, sustainable development, comprehensive financing for development, partnerships for development (based on participation by the public and their people, both at national and international levels). It also included the integrity and responsibility of the recipient countries and their people. The document states that Finland's contributions are aimed at supporting each country's own efforts, and long-term commitment and transparency regarding both financing and policy contents. (Ministry for Foreign Affairs, 2004:5)

The development policy program of 2007 stated that the new millennium has witnessed a shift from a policy of development cooperation to a comprehensive approach to development. It has been recognized that changes are needed in all policy sectors that have an effect on developing countries. Conventional aid has been transformed into real partnership with an emphasis on the ownership of developing countries of their own development. Since the program of 2004, new challenges had emerged, such as the rapid economic growth in many developing countries, which proposed higher stress for the environment. The policy program of 2007 therefore stresses the importance of climate change and environmental issues, crisis prevention as well as peace processes. The guiding principles of development policy are coherence, complementarity and effectiveness. (Ministry for Foreign Affairs, 2007:5-6, 17, 21-23)

The project in the Caribbean "Preparedness to Climate Variability and Global Change in Small Island Developing States, Caribbean Region (SIDS Caribbean)" was executed during 2001-2007 (Phase I: 2001–2005, Phase II 2006–2007). The objective of Phase I was to provide tools for better planning of sustainable development in the Caribbean region. The idea was that the institutions would

[60] The Millennium Development Goals (MDGs) included eight main goals, which were to 1) eradicate extreme poverty and hunger, 2) achieve universal primary education, 3) promote gender equality and empower women, 4) reduce child mortality, 5) improve maternal health, 6) combat HIV/AIDS, malaria and other diseases, 7) ensure environmental sustainability and 8) develop a global partnership for development. (United Nations, 2016)

become capable of providing necessary and accurate information for national planning and contributing to global weather and climate information systems. The countries of the region would also be better equipped to fulfill their duties towards international conventions and agreements relevant to the chemical and physical qualities and behavioral patterns of weather and climate. The objective was planned to be reached by developing enhanced meteorological and climatological knowledge and skills in the participating countries by improving their individual capacities and thus also the capacities of the entire Caribbean region. (Srinivasan et al., 2009:97) SIDS Phase I and II led to critical improvements of the capabilities of the Caribbean to generate weather warnings for extreme events. Yet, the institutional linkages that translate weather warnings for disaster preparedness remain weak, which results in low degree of effectiveness in terms of community risk avoidance. (Srinivasan et al., 2009:53)

Projects in the late 2000s also included the new ICI-projects. Their main goals are listed below:

The project in SADC (2009): Cooperation in meteorology is a part of the Finnish thematic cooperation in Southern Africa to promote ecologically sustainable development. The purpose of cooperation in meteorology is based on the regional meteorology priorities for 2009/10 set by the SADC ministers responsible for Transport and Meteorology. The objective is to strengthen the implementation of meteorology services in Southern Africa by building capacity and to make early warning systems more effective. The implementation phase of this project was never carried out. The project was planned to proceed to the procurement process, but it was cancelled one week before the opening of the bid, as was explained by one expert interviewed for this study. This was a disappointment to some private sector actors who had already prepared to participate in the project.

The project in Nepal (started in 2009): was aimed at improving the capacity of the local institute in hydrometeorological observations, services and international data sharing and thus improve the capability of the Government of Nepal to respond to the increased risk of natural disasters related to weather and climate.

During the years 2006–2008, funds were also used for travel to various countries as a part of "creating contacts with meteorological departments and development banks in Central America and the Caribbean region". In 2009, funds were used for an evaluation project regarding Finnish aid in the prevention and preparedness of natural disasters and climate change from the perspective of global poverty reduction.

Projects in the 2000s, especially towards the end of the decade, started to show a perhaps wider gap between the policy and practice of development. This change can be especially observed in the period after the development policy program of 2007. The projects of the late 2000s still list similar types of goals than before, and do not as such directly show elements of the comprehensive approach to aid promoted by the Ministry. The only exception was the project conducted in Mozambique, discussed in Chapter five, which had a slightly different, more societal and political approach. It is interesting that at the same time that the Ministry declared the comprehensive approach to aid, it also started funding ICI-projects, which were essentially about capacity building, with strict budget and time limitations. Many of the interviewed experts considered the ICI-projects to be ill-fitting and limited, as did the evaluators who evaluated the instrument in 2013. When looking at the wider timeline of meteorology projects and analyzing the content of policy statements, this is the first time when a clear contradiction exists in terms of the policy statement and the instruments provided by the Ministry. As a result, the goals stated by the projects

do not fit the wider context of aid policy, but this was not because of the FMI's own approach, but because of the instrument provided by the Ministry itself. The fact that the ICI-instrument was developed and was actively used in this sector can be considered as an indication of the importance of the meteorological aid. The government found a way for these projects and cooperation to continue in a convenient, less bureaucratic format, although as such some of the elements of the instrument are contradictory to the policy goals formulated at the same time.

6.5 THE COMPLEX AID CONTEXT OF THE 2010S

During the 2010s, the link between policy and practice is further weakened as aid policy becomes more complex. The Finnish Development Policy Programme of 2012 consisted of four sections: 1) the human rights based approach, 2) cross-cutting objectives, 3) four main priority areas (a democratic and accountable society that promotes employment, an inclusive green economy that promotes employment, the sustainable management of natural resources and environmental protection, and human development) and 4) humanitarian assistance. (Ministry for Foreign Affairs, 2012:7) In reference to the human rights based approach, it was stated that:

> Cooperation modalities will be further developed specifically from the perspective of effectiveness and concentration. The size of programs and projects will be increased and the number reduced in both bilateral and multilateral cooperation. The number of small and short-term bilateral activities will be reduced as ongoing projects, programs and other cooperation modalities come to an end. More precise methods for reducing fragmentation will be developed. At the same time, Finland continues to take part in international processes generating new and innovative cooperation practices and modalities. (Ministry for Foreign Affairs, 2012: 16-17)

Additionally, it was stated that:

> In accordance with EU recommendations, each country program includes a maximum of three sectors, which are agreed upon in cooperation with the partner country and coordinated with the activities of other donor countries. (Ministry for Foreign Affairs, 2012: 16-17)

The policy program included humanitarian aid as one main section. In the program, it is outlined that Finland stresses the importance of the UN's central role in leading and coordinating humanitarian aid. In reference to this work, it was stated that:

> Finland strengthens the Linking of Relief to Rehabilitation and Development (LRRD)-approach, which means the flexible and mutually supportive alignment of prevention, humanitarian assistance, peace-building and reconstruction and development cooperation. The LRRD-approach in Finland's development cooperation is implemented largely with multilateral cooperation and through civil society organizations. Through these, Finland supports countries recovering from major natural disasters and violent conflicts. (Ministry for Foreign Affairs, 2012:43-44)

The Government report on development policy published in 2014 refers to the policy goals set in 2014, but it also describes the current approach in more detail. The

report focuses on the role of local ownership and the common responsibility for human rights. It also presents new instruments for risk management and discusses the interplay of policies. The development agenda beyond 2015 is also presented, with a focus on reducing inequality by shouldering human rights over the long term. For example through focusing attention on the poorest and most fragile states and including issues such as further development of effectiveness, openness, and risk management in development cooperation and supporting sustainable development with solutions from different policy sectors. (Ministry for Foreign Affairs, 2014b)

The projects executed during this time period included several projects. In the two cooperation projects in South America (2012–2014), the goals were to reduce the risk for the loss of human life and property caused by hazardous weather and changing climate in the local societies. (Finnish meteorological Institute and IDEAM, 2011, Finnish Meteorological Institute and INAMHI, 2011)

The project in Vietnam (2010–2012), aimed at strengthening the capacity of the National Hydro-Meteorological Service in the reduction of natural disaster risks and improving adaptation to climate change in the Vietnamese society.

The project in Nepal (2010–2012, 2013–2016) was aimed at increasing capacity in hydro-meteorological observations, services and international data sharing. Cooperation was developed to increase the quality and level of services of the local met-office to support the development of the Nepalese community in different socio-economic sectors and to improve the capacity to participate in regional hydro-meteorological cooperation and projects. The project promoted adaptation to climate change by reducing the risks for the loss of life and property caused by severe weather and extreme climate events in Nepal. The project's focus was on institutional capacity development through meteorological network design, hydro-meteorological observations, data management and international data sharing. The main goal of the second phase of the project (2013–2016) was to help Nepal adapt and mitigate the effects of the climate change and to continue enhancing their capacity to manage and produce comprehensive high quality weather and climate information and services to reduce the risks for the loss of life and property caused by severe weather and extreme climate events in Nepal.

The project in Bhutan (2013–2016) aimed at providing weather, climate and water related environmental services for the protection of life and property, economic planning and development, and the sustainable exploitation and management of natural resources in Bhutan. The main goal of the project was to improve the capacity of DHMS to manage and produce high quality weather information and services.

Cooperation in the Caribbean region during the 2000s and 2010s has included several projects aimed at strengthening hydro-meteorological services in the Caribbean region (SHOCS), having a special focus on the Small Island Developing States (SIDS). The project in 2001–2004 was funded by Finland and coordinated by WMO. In 2010–2012, four ICI-projects were conducted in the region, funded by the MFA and implemented by the FMI. The overall objective of the SHOCS projects (SHOCS I 2010–2012, SHOCS II 2013–2015) was to help Caribbean societies be better prepared for the adverse impacts of natural hazards and climate change. SHOCS II was especially aimed at ensuring that Caribbean societies are better prepared and able to manage risks related to severe weather and hydro-meteorological hazards. The local societies have attained stronger resilience on adverse impacts of climate variability and change. The project purpose was to strengthen the role and enhance the capacity of the Association of Caribbean States

and the National Meteorological and Hydrological Services and Disaster Management Agencies in the selected SIDS to help mitigate the impacts of natural hazards.

The ICI-project in Jamaica, "Increasing Capacity of the Meteorological Service of Jamaica to Supply Weather Services", was a follow-up project to prior cooperation. The main objective was to help the Meteorological Service of Jamaica to make the operative staff knowledgeable of the maintenance and use of SmartMet software[61] and to enhance its services to the customers, e.g. ministries, emergency services and the general public.

The projects in the 2010s essentially have the same main goals as before, despite the changes in development policy. Elements for approaching aid in a comprehensive manner are not directly included. Cross-cutting objectives have been added to projects, but interviews with the experts show that these are considered problematic and somewhat superficial, as discussed later in this thesis. No cooperation had been added with NGOs and other societal actors, and projects still engage mainly with local meteorological offices and their main partners, but not with actors outside the field of meteorology. Lacking connections to other societal actors is perhaps one reason why the role and importance of meteorology is not always understood.

In the context of the projects, both the long-term aspects and local communities could be more actively taken into consideration. Development policy and development cooperation should be transparent and consistent. These projects have been fairly transparent but not directly consistent. Projects have come and gone, and long-term cooperation has been established with only a few countries, and in these cases the continuation of cooperation has been done under constant uncertainty. The goals also include the active role of partner countries, who should be the owners of their own development. In many ways, ownership does not actualize in countries where capacity is exceptionally low and dependence on external aid is high. Local ownership continues to be a problematic issue and a key challenge.

The overarching goal of poverty reduction is quite challenging in the context of these projects. On one hand, projects have aimed at local capacity development, which contributes to the development of these societies. On the other hand, capacity development has been done reactively, rather than proactively. The continuation and length of cooperation has been a constant uncertainty. Projects have been given strict time and budget limits, often ill-fitting to the actual local needs. While the projects all aim at enhancing local capacity, they do not have a strong link to local communities other than through the impact they are able to have on the local institutes. If their abilities to function improve, then the link is clearer, but as such projects rarely have direct interaction with local people. Projects give the kinds of results that can be expected of them and the results are a reflection of the adopted approach.

6.6 CHAPTER SUMMARY – PRACTICES AS POLICY

In this section, I will present a summary of the policy themes of each decade, analyze them through the lens of the analytics of government (inspired by the concept of governmentality), as well as summarize the Finnish practices in this field from the perspective of policy. Even though no official meteorological development cooperation policy exists, the past and present practices can be interpreted as policy.

[61] Smartmet is a computer software that allows you to download and view detailed weather reports and forecasts on your PC. (Smartcom, 2006)

As the history chapter already revealed, meteorological development cooperation has developed from the early days of donating equipment with the goal of giving small assistance to those in need to large-scale ambitious regional programs, aimed at capacity development and international recognition. Table 12. summarizes the main themes in the history of Finnish development policy. Based on these, it suffices to say that development policy has become much more complex and detailed over time. The various goals listed during different periods are an indication of what has been considered important in the context of development and poverty reduction.

The ways of conceptualizing development have become more specific as knowledge and experience have accumulated over the years. This has resulted in an extremely detailed and specific development policy. Project documents show that over time the requirements for project goals and objectives have also become increasingly detailed. This is understandable, as it is important to state where and how funds are used, but essentially it leaves very little room for changes. It prohibits working in a flexible and therefore also an efficient manner. If something unexpected occurs in the planning phase, it results in significant problems in the execution phase.

One main challenge is that in the official policy documents, policies and practices are discussed mainly in the macro level. For example by stating that the goal of development policy is poverty reduction. The path from the macro level, through the meso level, to the micro level is quite long, as well as it is back from the micro level, through the meso level, to the macro level. For example, individual experts' experiences from one project or one sector of development may never be heard about in the macro level, unless there are active researchers or consultants to report about them. Development policy, or mainly Finnish Ministries responsible for development policy, have also received criticism for changing the focus of the policy, and the "development mantra" on a frequent basis. These changes of course trickle down the meso and micro levels. On these levels, changes often cause confusion and change the way development cooperation projects are framed, but there is only so much one is able to do in specific sectors of development, such as meteorology.

Governmentality as a concept included various ideas and concepts built around the concept of power. The idea of governmentality is to shape human conduct through calculated means. Here, it should be observed and discussed how the Finnish government shapes its policy, how that influences these projects in practice and how that essentially translates into various types of outcomes when the projects come to their end.

The analytics of government, as outlined by Dean (2010), included a focus on the ways of perceiving problems as well as the ways of acting and intervening. Based on the presented data, it can be argued that the ideology has been that "the more we know, the better solutions we can develop". This has led to the development of various tools and instruments, entailing the expectation that good tools lead to good results and an efficient use of funds. There is nothing wrong with this rationale per se, but the problem is that the tools and instruments may not work with all kinds of projects and contexts, and yet they are enforced just the same. In reference specifically to this problem, the ICI-instrument and the cross-cutting objectives of aid are discussed later in this study.

During the 1960s and 1970s, and in the 1980s, financial benefits were openly pursued in cooperation. In the 1990s, things changed and development politics became more focused on actual development themes. Motives for aid giving and benefits to donors were left out of public discussion. In the 2000s, development cooperation became wider in scope and has since aimed to include cross-cutting themes and to reach internationally set goals, as per the demand of the Ministry. Public pressure and use of public funds surely influences how things are done. The Ministry wants to show that the quality of Finnish aid is good. However, the motives

and incentives to give aid, openly discussed in the earlier days of cooperation, have not disappeared. There are still clear political and economic benefits that come from aid and cooperation, and they can be considered either good or bad, depending on the perspective. Finland's aim has been to increase capacity of the local meteorological organizations in order to improve their practices. As one result, better quality data becomes available. This data can then be used in climate change research, for example and through this process, aid yields benefits to a large group of people. However, in societal issues, there is always the question of whose point of view is used. For example, the same situation looked at from another point of view, may reveal that the same action can also have negative impacts. For example, the recipient of aid may partially lose control of their situation, or even their own organization, depending on how cooperation is done. If the local experts are trained and educated to do this work on their own, and are able to do it in the future without the help of the donor, then there is no problem. Nevertheless, if their role is small and they are not actively engaged and the project is mainly donor-led, then it might be that the result is a process that the local people are not able to continue once the project ends. So, the question of power becomes relevant when considering what practices are either good or bad, and from what perspective.

As explained in the coming sections, the role of Ministry officials has been fairly small in practice, as meteorological development cooperation has been mainly "used" to gain benefits for the field itself, rather than for international politics, — other than perhaps during the process of Finland applying for a seat at the UN's Security Council. Overall, it is suffice to argue that the goals set for development cooperation have become more complex over time, but the tools for dealing with this complexity have not evolved in relation to the needs. The strict structure of aid and the bureaucratic processes related to these practices limit the thinking involved and the ability to reach the goals set for cooperation. The meteorological experts interviewed for this study, representing both the public and private sector, struggled with the strict limitations, which were conceived essentially as a lack of trust towards their expertise. The structure of aid and the limits for creativity that come with it have been created to prevent financial abuse of the system. This is an issue that the meteorological experts have had to accept in order to be able to continue practices. It has not been a major problem since it has not taken away from their plans as such, but the recipients of aid have perhaps suffered in the sense that the achievements have not been transformative. Projects have helped and fixed central gaps in capacity, but have not offered permanent and sustainable solutions.

If the Finnish development policy is analyzed from the perspective of what it says about the mentality of government, or the policy makers, it can be argued that the approach has been to set a specific goal, and over time knowledge has accumulated and the "correct" ways towards achieving this goal have become more various, as well as detail-oriented. Over time flexibility, trust and freedoms within the system have disappeared and they have been replaced with ready-made options and choices the experts have to make in the process of applying for funding. Funding has been made based on who delivers a plan that is in concurrence with the policy of the time, and includes the elements that the government holds important. Outlining the actual development policy is a political process, influenced by experts but also the international community of donors. Power plays a significant role in these negotiations and having a policy that places the donor-side experts in a leading position serves the benefits of the donors themselves.

Table 12. Main policy themes of Finnish development cooperation.

Time Period	Main Policy Themes
1960s	A Western approach, influenced by modernization theory and population politics. Social development emphasized alongside economic development.
1970s	Nordic countries and the UN as reference groups, removing structural bias between developing and developed countries, centralization as a principle in administration, trade interests and development policy connected, economic benefits of cooperation, increasing trade relations with developing countries, ethical, political and economic motivations for aid acknowledged.
1980s	No new policies formulated, mainly influenced by the policies defined in the late 1970s.
1990s	Reduction of poverty, prevention of global environmental threats through helping the developing countries to solve their environmental issues. The promotion of societal equality, democracy and human rights in developing countries. EU as a reference group. Focus on the poorest developing countries. Promotion of global security, reduction of widespread global poverty, promotion of human rights and democracy. Prevention of global environmental problems and promotion of economic dialogue. Focus of trade relations in areas where Finland has the opportunity to strengthen its market share.
2000s	A comprehensive approach, coherent goals in foreign and security policy, trade policy and development cooperation. Reduction of poverty, prevention and mitigation of environmental problems, promotion of equality, democracy and human rights as basic elements in the promotion of global peace and security. Focus on fewer and larger efforts, three sectors/development programs per country. Commitment to the main principles of the MDGs. Importance of climate change in development is emphasized.
2010s	A human rights based approach, cross-cutting objectives, four priority areas (democratic and accountable society that promotes employment, inclusive green economy that promotes employment, sustainable management of natural resources and environmental protection, and human development) and humanitarian assistance, LRRD-approach, the role of local ownership and common responsibility of human rights, the interplay of policies. New instruments for risk management. The development agenda beyond 2015: reducing inequality by shouldering human rights over the long term, focusing attention on the poorest and most fragile states, further development of effectiveness, openness, and risk management and supporting sustainable development.

The research question set for this chapter was to explore how effective the projects have been from the perspective of Finnish development policy goals and global poverty reduction as an overall goal of development cooperation. There are a few important contradictions to be understood. During the period from the 1960s to the 1990s, projects were effective policy-wise in a sense that they corresponded well to

the goals set for development cooperation. In the early days of cooperation, there was not much experience and know-how about cooperation in this field, which surely impacted the outcomes of projects. During the 2000s and 2010s, as policy has become more layered and complex, the projects have included ambitious policy goals, which have not been fully materialized in practice, due to reasons explored later in this study. However, this does not mean, that the projects have not been effective, mainly because now there is a long history of cooperation in this field, and experts have more knowledge and experience overall. The link to poverty reduction is a more complex issue. The practices have targeted the local met-offices whose capacity has been improved, but their ability to reduce poverty is limited. They have an essential role at times of crises, but they are only one governmental actor among numerous others, and their specific role is focused on sharing weather data. To improve the ability of these projects to assist in poverty reduction, stakeholders should be more actively engaged with other societal actors, who play a key role in protecting the citizens at times of natural disasters.

The content and development of policy may also be analyzed through applying the complexity approach. The problem, which becomes evident early on is that policy is typically very rigid and inflexible, while real-life phenomena are opposite. The challenge for now and in the future is how to make sure that policy decisions and content supports development, and doesn't hinder it.

Formulating policies is a long and typically slow process. The list of things to consider is extensive, and it is typical that not all issues may be taken into consideration. Additionally, politicians influence policy content. Often, it is just a matter of making a political choice what the focus areas will be. Additionally, policy development suffers from the fact that there are quite opposing approaches to development aid overall and typically policies are an compromise of some sort. As Ramalingam (2013) argued, there are those who want to protect the system and increase its practices, those who attack the system, and those who want to re-think and improve it. Complexity theory is based on an understanding of the complex nature of human behavior, and its unpredictable and non-linear aspects. Formulating policies that reflect this approach, is difficult. Instead of emphasizing bureaucratic conformity, upward accountability and achieving financial objectives, the alternative approach would be to replace them flexible, innovative procedures, multiple lines of accountability and the development of skills for building relationships, and focusing on language and cultural education. This study shows that there is a need for all these issues in the field of meteorological aid, but changing the system towards these is a long process. In order to make it happen, it would be required that there would be an actor who is motivated, has power and mandate to do so.

7 COOPERATION IN PRACTICE : PERSPECTIVES, VALUES AND THE INCENTIVES OF ACTORS

> ...The lack of rationality is quite astounding, how to get the most with a small amount of money — not many think about that.
>
> -Meteorology expert

This chapter presents the perspectives, values, and incentives of the actors involved with meteorological development cooperation. This chapter includes the common project challenges from the perspectives of the different stakeholders, each in their own section, as brought forward in the interviews. Additionally, aid behavior is analyzed based on the donor experts' experiences, applying the theoretical approaches discussed in section 3.4.3. The chapter ends with a summary of the issues influencing cooperation in practice, which are rooted in the values and motives of those involved. The question to be solved in this chapter is: How different stakeholders perceive challenges in development practices in this field, and in what ways these perceptions relato to stakeholders' incentives, motives and values?

7.1 PROJECT CHALLENGES IN PRACTICE

It is impossible for any development cooperation to be done in isolation from the surrounding society, and its political, cultural and economic atmosphere. All past and current meteorological development cooperation projects have had the same general goal of capacity enhancement. To be able to develop capacity, there must be good knowledge regarding the local realities influencing the existing level of capacity. The level of capacity prior to "external intervention" is influenced by several issues, most of which the projects themselves are not able to influence. Nevertheless, they are issues the projects have to deal with and practices need to be adjusted accordingly, in each individual country case.

"Local realities" include the availability of resources; skilled and well-educated staff, technology and financial means for running the institutes. The political stability of the country is also relevant, as met-offices are public institutes. In many developing countries, the directors of these institutes have a strong political background and often changes in the regime result subsequent changes in staffing. The economic situation, the stability of national finances, is highly important since it influences the day-to-day practices of the institutes. Also, a poor economic situation usually also implies a poor level of salary, which makes these institutes non-appealing employers for highly educated experts. The local culture, and more importantly, cultural differences between the donors and recipients, are also relevant — how they go about with the daily operations, how high is the level of hierarchy between the experts working in these organizations, and what kinds of leadership styles there are. These issues also set the tone of the general cooperative spirit in the local institute, and influences for example how openly problems and difficult situations are discussed, making it either easy or difficult for the donor side experts to understand the local needs and the "point of entry" when planning for the practical aspects of these projects. The local donor situation also influences practices; is there competition between the donors and how well is the local "aid scene" working. This affects the

approach of local experts to the projects — what are their expectations, what kind of a role have they had in previous projects and how do they approach cooperation in general. If experiences have been good and productive, they set a very different tone for cooperation than if their experiences have been negative. The geographic location is also highly relevant as it defines what kinds of services are needed from the met-office, and how often for example extreme phenomena are to be expected. If the country is situated in a high-risk or multiple-risk area, the met-office most likely has access to more resources and is more known and respected in the society.

The problem with inadequate local resources is an issue that all development cooperation experts are familiar with. The cycle of "developing poor capacity with lacking resources" is truly hard to break. All meteorological development cooperation projects seem to suffer from this vicious cycle. Patching things up "here and there" is not a solution. Capacity may develop for the better, but if the cycle is not broken, the change will not be sustainable. As a result of local insecurities in getting funding and/or skilled staff for the institutes, a large portion of the donated equipment is left unused, is not maintained properly, or only works for some time and then breaks down since there is no one who is able to fix them. As one African expert stated, "problems start once the projects are over". If the problems start once the support system is gone, it is a clear indication of the fact that capacity development has been superficial rather than sustainable. Throwing money at the problem usually does not work either since many of the problems creating poor capacity are essentially political, and not financial.

The political and economic stability of the recipient country is a factor that greatly influences the daily lives of the people working in meteorological institutes. Typically, countries with poor meteorological capacity are led by directors who have been chosen based on their achievements or political status. As governments and regimes change, these people are lifted from the organizations. As one South American expert stated, if you are working for the government, "you know when you started, but you never know when you will stop". While it is common in South America that officials change as regimes change, in African societies, it might be that they never change, no matter who is elected. The instability created by this practice in South America significantly influences the daily practices of local institutes. This creates problems in setting of long-term development goals and causes an overall lack of commitment by the directors. If you are aware of the instability of your position, then most likely you will not aim to make drastic changes, or even get involved in the daily practices of the institute. The most important problem resulting from this practice is that the directors rarely have any substance expertise from the field of meteorology. In some cases, the positions have been given as a sign of appreciation to war heroes, or other persons who have a notable position in the society. One expert even brought up a case where a gynecologist was chosen as the Director General of one meteorological institute. The lacking expertise in the field of meteorology combined with poor capacity, strong organizational hierarchy and slow bureaucratic processes, seems to be a nightmare for the typical Finnish expert working in the projects. The changes occurring in the positions of the high-level personnel were considered difficult in all phases of these projects. On some occasions, changes occurring in the planning phase prevented the projects entirely from proceeding, and some projects were cancelled even though significant efforts had been put into them. In some cases, the director has changed during project implementation, sometimes even several times, which has slowed down most processes.

Economic instability is a common societal problem in all developing countries. The problems created by this instability are numerous. The main problem the local institutes are faced with is the need to lobby for their cause and to be able to give sufficient grounds for the allocation of funds to meteorological institutes, when there is a lack of money and corruption is widespread. Meteorological institutes compete

with the education and health sectors for their financing, and in most cases they lose. The risk of widespread societal destruction in the aftermath of a potential extreme meteorological event is easy to overlook when there is a long list of urgent problems to fix.

The overall instability of these institutes, in terms of politics, finances and resources, creates a challenging working environment. It is difficult to balance between the actual content of the projects and the limitations set by the surrounding society. Given the relatively short time reserved for the projects, cutting corners is a necessity and not everything can be taken into consideration. Given the fact that meteorological experts lead the projects, projects often stay strictly within the limits of "meteorology", leaving the difficult aspects, such as policies, untouched. As a result, project outcomes are usually reached, but only in the short-term.

The local culture influences many things, such as the organizational hierarchy and leadership styles, which were named by the interviewees as some of the most relevant cultural issues influencing project outcomes. Regarding the importance of culture, one expert stated that "there are no technical hindrances for the development of capacity, but cultural, which are hard, if not impossible, to change."

Many experts stated that strong cultural differences between Finnish and local experts had caused problems which had resulted in some delays in the projects. Cultural issues, for example different conceptions of time, puzzled the Finnish experts perhaps the most in these projects, mainly because cultural issues were considered unfamiliar territory and hard to prepare for beforehand. Short-term visits to the local institutes were another problem. If there is a limited number of days reserved for the visits, there is not enough time to be immersed in the local culture and understand the local customs and work-life practices deeply enough to be able to change them. Those experts who had spent long periods in the field, mentioned that living in these countries for even some years is often not long enough to understand the depth of the local cultural complexities and the ways of working and interacting, and how these influence interaction in development cooperation set-ups. When visits are brief and experts are not locally based, it is suffice to argue that cultural issues will be overlooked upon.

One key underlying issue is the difference in thinking concerning weather and weather phenomena. Experts who had more extensive experience with cultural issues mentioned that weather is not conceptualized the same way in the recipient countries as it is in Finland. The experts described that they understood the local people to be more focused on today than tomorrow, and considered them to live in the moment, instead of constantly thinking or worrying about the future. In Finland, the weather is discussed daily and in many ways our lives revolve around it. In most developing countries, weather is not discussed until something unusual occurs. There seems to be a higher level of acceptance of natural phenomena and the destruction they can cause. Often extreme events are considered as "Acts of God", and having a deeper meaning than simply being natural phenomena, which can be explained through a series of physical events. They can for example be perceived as God's way of punishing people for bad behavior. One expert told the story of a man he had met, who had watched a program on TV, which was considered inappropriate in his religion. A massive typhoon had struck his country some hours later and he blamed himself for the destruction.

During my fieldwork in the Caribbean region, I had conversations with locals regarding their perspectives towards hurricanes, which are somewhat common in the area. Most people relied simply on luck as their main strategy of survival, and did not have any specific ways of preparing. I was surprised of the high level of acceptance of the fact that events like this may occur, and the calm understanding that their lives may end because of such events. There also seemed to be a clear spiritual link between nature and the local people, at least much stronger than in Europe, where much of

our efforts are targeted at controlling, mitigating and explaining similar events with technology and science.

Differences in the work life culture are a hindrance to the development of local capacity. Cultural differences in ways of working were a topic most experts wanted to discuss thoroughly because they had a lot of experiences with these problems and perhaps also because many of them did not know how to resolve them. The main problems identified included a strong level of hierarchy in the local institutes as well as inadequate leadership skills and practices. In many institutes, the management and operational side seem to remain quite separate from each other – one not knowing a whole lot about the other. Often, there is not enough interaction between the managers and experts, or between experts from different parts of the organization. A local expert might need permission from his boss to talk to an expert working in another part of the organization. Quite frequently, the managers hold all the contacts, which can for example limit what the experts are able to do when the managers are out of town.

The Finnish experts argued that there is not enough free interaction in the organizations, which would be required to truly develop capacity. Inadequate leadership skills are considered the reason behind many of the problems. Strict procedures and a general lack of flexibility cause various obstacles. Organizational goals might only exist on paper, with no real effect on the practices. In one case, an expert mentioned that the managers were mainly interested in learning how to control their staff. Local practices were evaluated in general as being inefficient and lacking adequate long-term planning, which would be highly beneficial for all parties.

The flow of information can be either slow and controlled by the managers, or simply non-existent. Experts may feel reluctant to talk about issues when their supervisor or boss is present, which often made training sessions difficult in practice. Many experts stated that it has been a challenge to get to the "inside" of these organizations. One donor expert stated that despite trying the best she could, she did not see any progress. The role of the donor can be quite controversial and difficult in situations where the local institute has many challenges in daily practices. It was stated on several occasions that solving these issues from the outside rarely works and creating trust in these relationships takes a very long time. It was also mentioned that it is easier to educate the local experts, but the people in supervisor roles are much less receptive to change – to listening to new ideas regarding leadership styles or practices, or developing new procedures.

Based on the expert interviews, getting the local institutes truly committed to the development cooperation projects can be quite a struggle. It is important to understand why, and to further improve development cooperation practices. Various important issues may be behind the lack of commitment. International development cooperation projects may not be the first on the list of priorities. There can also be donor competition and different projects going on simultaneously. Projects may be short-term, so that it seems to locals like it does not make much sense to put a lot of effort into them. Projects might be considered too donor-driven, where donor experts do not give the local experts enough recognition or actively allow them to take part in project execution. It may also be that the local institute has had a lot of experience with failed development cooperation efforts and does not see the value in pursuing this kind of cooperation. Although all assistance towards capacity enhancement seems to be highly appreciated, the locals are aware of the various motives and driving forces behind aid. If local needs are not prioritized over donor needs, it is understandable that the locals will not be as committed as the donors. Cultural issues influence cooperation in practice as well. Getting something official on paper and signed, may be difficult in some countries simply for cultural reasons. Sometimes promises are not kept and agreements do not hold, which was difficult for many Finnish experts to accept. Disagreements over promises may cause friction between

the different parties on a personal level and consequently hinder capacity development processes indirectly.

Local customs and a lack of knowledge regarding them have caused some problems in the projects. Those experts who had spent long time at the local level were naturally much more familiar with the local customs, how they influence practices and how to take them into consideration. One key problem was caused by the fact that in many cultures politeness drives over directness. As one expert put it, people tend to say "nice nice" and "fine fine", even when you can see that things are not going as expected. Another expert stated that it was impossible to figure out what the locals were really thinking. Getting past the phase of being polite for the sake of politeness seems to be a key challenge. To overcome it and create a mutual sense of trust, a lot of time, effort, interaction and presence at the local level as well as cultural expertise are needed. Unfortunately, these seem to be often lacking in the projects due to limited time and financial resources.

The local "aid scene" is also important, as it influences how the locals conceptualize and value development cooperation. Donor competition and/or overlapping development cooperation projects have an effect on the local aid scene. All recipient country experts were aware of other development cooperation projects going on simultaneously with the Finnish project in their own institutes. In one case, the institute was actively cooperating with over ten countries in terms of capacity development. Competition may create better and more focused programs, but if coordination is poor, it can also result in chaos.

Donor competition is an important issue, because projects usually generate income to the donors themselves and gives them the opportunity to spread their knowledge abroad and gain recognition. It is highly beneficial for donor institutes to engage in these kinds of activities, especially if external funding is available. In a way, it is a win-win situation for the donor institute. They get to employ experts to work in the projects with project funding and gain international recognition while doing it. The cooperation might have politically relevant consequences as well.

The most relevant issue regarding the local aid scene and donor competition is the question of whether or not the presence of several donors is beneficial or detrimental to local institutes. One key problem caused by "over-enthusiastic" donors was that different donors tend to use technical equipment by different manufacturers, making them incompatible with each other. For example, in the Caribbean region, this had resulted in a situation where not all donated equipment could be used, and it took a lot of effort to recode the existing systems to accommodate new equipment. Only a few people in the entire region had the needed training, expertise and skill-sets to do such work. In a discussion with one local expert, it was brought up that this is a relevant problem with no apparent solution except to put in numerous hours of work to try to make the systems somewhat compatible. Combining equipment from different manufacturers may also lead to problems with warranties and repairs offered by the manufacturer and for that reason can cause problems for local institutes. Donating equipment to local institutes is highly beneficial in terms of financial gains, because the institutes are then dependent on the manufacturer's spare parts and consumables, often included in project budgets for only short time periods. Donations often tie the user to the manufacturer for several years.

7.1.1 THE PLANNING PROCESS

To get a development cooperation project started, there are numerous practical and official issues to be taken care of. The process leading up to the actual signing of the contract may be long and strenuous, including (often slow) bureaucratic processes in both donor and recipient countries. The extensiveness the preparation phase depends on the type of the project, as well as the ability of the donors and recipients to cooperate and negotiate. Often, the preparation process may include some surprises, and it might be much longer than initially expected, even years in some cases. The planning phase does not seem to support the implementation of the projects as well as it should, as many experts point out that there are always unexpected surprises coming up.

From a theoretical standpoint, it seems that the beginning of the project is donor-led, and the surprises coming up can be a result of managing the project from a distance.

The initial idea for cooperation or creating a new project can come from various sources. Most often projects are initiated by recipient countries and are based on their needs. Sometimes destruction caused by meteorological events is the main reason for the request of assistance. Donors may also initiate cooperation, based on their own interests and desire to help. Projects may stem from past cooperation, an official request through the WMO, or unofficial/official discussions between high-level representatives of met-offices and/or politicians. Commercial interests might also be motivation for doing the projects. Donors may engage in "friendly competition", as characterized by one expert, regarding where and with which partner organizations they manage to cooperate with. Some met-offices were considered to be more pleasant partners than others. Various reasons influence this, for example reputation or special expertise. In the case of Finland, especially in the new millennium, cooperation has been actively sought in various parts of the world. What is also relevant to point out is that most met-offices in developing nations currently engage in active development cooperation projects with numerous donors simultaneously. This places both the aid recipients and the donors in a difficult position. For the donors, there is motivation for both cooperation and competition. The recipients are left with the difficult challenge of combining the (sometimes overlapping) inputs of various donors in an efficient manner.

7.1.2 GOAL SETTING – CAPACITY DEVELOPMENT

Meteorological development cooperation projects are essentially about capacity development. How "capacity development" is understood and conceptualized has changed throughout the time period under focus. In the beginning, it included simply the improvement of technical capacity. Currently, capacity development is understood more widely, and societal aspects are also included. Capacity development is also linked to global poverty reduction, a common goal to all development cooperation projects. The perspectives towards project goals vary between various experts. During the interviews, some acknowledged the macro-level goals set by the Ministry and some discussed the aims of the projects on a more practical level, based on their experiences from the meso (organizational) and micro level (individual) practices. Both are relevant, but what is perhaps most interesting, is how these two levels of goals are, or are not, connected to each other in practice. In the first chapter of this thesis, some general problems were brought up from evaluations, which highlighted a disconnect between practice and policy.

In general, all projects aim at improving local capacity, but in project documents, these goals are naturally defined in much more detail. They might include the installation of certain technical equipment, or training in a specific field of expertise, for example in aviation meteorology, radars, and so on. They might also be more general, such as language training for local experts, or workshops to set organizational goals for the local met-office. Looking at project documentation from the earliest projects to the current ones, it is noticeable that the goals have become more detailed. In addition, the role of development policy is more "present" in the recent documents. The changes in the level of detail are essentially a reflection of changes in the structure of aid, which has set more strict limits to the projects and their requirements.

From a theoretical standpoint, the fact that the goals have become more detailed means that there is less freedom for the experts to utilize their own knowledge in innovative ways. This is a reflection of how the Ministry uses its power and ensures accountability to the public.

7.1.3 EXECUTION AND THE ISSUE OF OWNERSHIP

After the preparation phase, the project can finally officially begin. In the 1980s, Finnish projects included experts relocating to project sites, where they could observe project implementation in practice and make sure that they proceeded as planned. Since the 1980s and mid-1990s, there has been a change in the ways these projects are conducted in practice, and current projects are usually led by experts located in Finland. They cooperate with the recipient side experts via phone conversations and email. The project managers travel to the region mainly in the preparation phase, as well as a couple of times a year during the implementation. Most often, these visits include workshops or training led by the Finnish experts, and the recipient side experts also visit Finland. Usually, both kinds of visits last about one to two weeks, but sometimes just a couple of days. The current system of cooperating "from a distance" has many downsides. Interaction occurs only occasionally, and a low number of hours is actually spent in face-to-face interaction.

Practical challenges in day-to-day operations include numerous issues, some small and some big, each with their own impact on cooperation and each reflecting perhaps larger issues on other levels of cooperation. Practical challenges in interaction vary from slowness in responding to emails, to problems emerging from strong cultural differences. The primary challenge seems to be the long process of finding a common ground and establishing an adequate level of mutual understanding and trust. Most projects are short-term and include a limited amount of face-to-face interaction, which does not help with overcoming the hierarchical relationship inherently present in the donor-recipient cooperation. This also relates to another relevant topic, the problem with local ownership.

> The typical scenario is that Vaisala brings the equipment to the local level, and we teach them how to create and use the system. We teach the meteorologists to do the work and train them based on their needs. In Finland, our cooperation works well, but also globally, so that is what is wanted from us. Vaisala makes the best equipment in the world, and we believe that we here at the FMI are global leaders as well, and that we have a lot to give to others.
>
> -Meteorology expert

The question of ownership is a central issue in the projects. It is also one of the most complex issues. From the perspective of development cooperation theory and

research, local ownership is considered highly important. It is important because local ownership ensures that there is some continuum between the project and the local society, and what is done is actually beneficial. Ownership also engages the local stakeholders closely in the project, which is key in terms of project success. If the locals do not care, or have a relevant role, the project will most likely have only superficial and short-term results.

From the perspective of the donor stakeholders, local ownership can be tricky. In the context of meteorology projects, some stakeholders recognize the value of local ownership, while others are more hesitant about it. This hesitation stems mainly from the vast differences in the level of expertise between the recipient and donor organizations. There are also differences between the capacities of recipients. Ownership seems to be easier to "give" to the locals if local capacity is high. Donor stakeholders were also concerned that local ownership might influence the achievement of project goals, or that poor performance will influence future project funding from the Ministry. In some cases, personal skill-sets or even the personalities of the local staff influence the willingness to give local ownership — if the donor experts do not think that the locals are able to handle the project practicalities, they tend to hold on to their leadership position more tightly. The stronger the role of the donor, the greater the risk for weak results. If projects are mainly donor-led and actively managed by them, they can be characterized more as "external intervention projects" than true "development cooperation" projects and results may be superficial. Finding the right balance between efficient project practices and an appropriate level of local ownership seems to be a key challenge.

On paper, the role of local ownership is often recognized, but currently project practices seem to cater more closely to donor needs than to the needs of aid recipients. Much of the practical work of these projects takes place in Finland, and not at the local level. Although day-to-day communication may be fairly active, face-to-face interaction is less frequent in current projects. This can create several problems, such as the donor not being entirely aware of what is really going on at the local level. "Lacking presence" at the local level serves the purpose of the donors, since it is more convenient to direct the projects from Finland, compared to situations where individual experts would have to move across the world with their families, and commit to relocating for some years. In the regional projects during the 1980s and 1990s, some experts moved to the recipient countries, but currently short field visits are the main mode of operation. Suffice to say, the recipients of aid could benefit from an expert being physically present at project sites. This would enable faster problem-solving as well as a higher awareness of what is needed at the local level from the perspective of capacity enhancement. During the interviews, it became clear that finding staff willing to relocate is a challenge. The current employment opportunities for meteorologists in Finland are very good and most of them are not interested in moving to areas where the surrounding society is perhaps unsafe and the work conditions are highly challenging.

From a theoretical perspective, not being present in the local level is a difficult issue, one that relates to especially the problem of ownership. Ensuring local ownership can be especially difficult when there is no daily face-to-face interaction. From the point of view of governing aid, it is interesting that the Ministry has allowed for this type of project structure when it is widely known that local ownership is key to projects' success.

7.1.4 THE TERMINATION PHASE OF PROJECTS

Despite many problems faced in both project planning and implementation, the ending phase of projects seems to be perhaps the most problematic. It is only natural that once a project draws near its end, all actors are looking into the future — the next project has often already begun, and the focus of the experts has shifted elsewhere. Most experts pointed out that projects simply come to their end too soon. Especially for projects which last two to three years, it is generally considered too short of a time to achieve sustainable results. Both theory and practice supports this finding. At this point, cooperation has often just started to go smoothly and the level of knowledge in terms of what can and should be done in the local context has just risen to the level it should have been in the beginning phase of the project. This can create a lot of frustration, especially if cooperation with the same institute is not continued, and there would still be a lot to do in terms of the primary goal of the project.

Getting to the main point, to be actually able to develop local capacity is a challenge and all other issues involved with doing the projects — the local realities, cultural differences, a strong hierarchy, a long planning phase and so on — seem to interfere with reaching the actual point of developing capacity. The implementation phase, where the experts are in direct contact with the local experts, might be just a couple of weeks during each year of cooperation. Most often, workshops are organized in both recipient and donor countries, and they include for example different kinds of training sessions and visits to relevant organizations.

The fact that these projects are currently completed within relatively short periods of time, brings up many relevant issues. For example, what in fact are realistic expectations for projects including cooperation between stakeholders who are unfamiliar with each other, which last two to three years, where no experts are placed in local institutes, and have a budget of about 500 000 euros, most of which goes to the salaries of the donor-side experts placed in Finland? The structure of how these projects are organized in practice is not in relation to what is needed by the locals, and not even what is recommended by most donor-side experts. The continuous "sense of hurry" built into the projects does not serve the purpose of reaching project goals, but it may serve the purpose of reaching benefits to the donor. Overall, in development aid, goals and means towards them should be evaluated critically. If the goals are unachievable with the available resources, there is the danger that experts will not take the goals seriously, and they are thought more as “ideals” rather than actual, achievable goals. The solution to this dilemma would be to allocate more resources or change projects’ structure so that goals actually become realistic, and if not, goals themselves should be changed.

The evaluation of project success is another problematic area. As projects are relatively short-term, this often means that in practice, when the projects end, there is little time to revise their success and failures. Due to this, very little is learned from the projects from the perspective of stakeholder interaction. The focus is mainly on the production of the final report, which evaluates the projects from the perspective of the Ministry. As concrete documents, they are relatively brief, only about 20 pages in length, including the basic outline of the projects, how they proceeded in practice, what were the main goals and how well were they achieved. Most often, they do not include much critical reflection or recommendations regarding how to improve cooperation or change the ways of working. The section regarding "lessons learned and recommendations for the future" usually includes a narrow description of things to consider, but no in-depth reflection on what are the factors behind these issues and how to tackle them. As the professional perspectives of the donor and recipient experts are not collected and analyzed, a lot of information, for example the tacit knowledge of individual experts and practical challenges, is forever lost. If one merely looks at the project documentation, but has no discussions with the experts who were

involved with the actual practices, one ends up with a limited understanding. Of course, it is not realistic in terms of financial resources to do in-depth evaluations for all projects, but there are some improvements that could be made in how project documents are outlined, which could then encourage project managers to bring up difficult issues in a cooperative spirit. Due to the positionalities of the various stakeholders, it might be difficult to bring up challenges because there is always the hope that cooperation will be continued and for that reason it might be difficult to bring up problems and ill-working practices. This discussion also relates to the public image of development cooperation. Since public funds are used, it is problematic to focus on the difficulties rather than successes, but that would be needed to develop the system further.

From a theoretical point of view, the practices the experts explained regarding the projects' end, it seems the management of projects is done in a way that serves the benefits of the donor organizations; next project starts before the previous has ended. Therefore, there is little time reserved for reflection and internal evaluation, which could benefit the recipients of aid.

Next, I will discuss the perspectives of the experts regarding the practical issues of projects and cooperation. For the sake of clarity, these perspectives are presented in separate sections, according to stakeholder organization, and include local experts, FMI, Vaisala and MFA staff.

7.2 BETWEEN HIGH EXPECTATIONS AND INADEQUATE RESOURCES

In this section, I will present the perspectives, values and incentives of the actors involved with the projects. In the previous section, I discussed the most common challenges present in different phases of the projects and in this section I will examine the differences between the various stakeholders. I start by presenting the local meteorological organizations in more detail and by discussing the perspectives of local experts towards their role and situation overall.

7.2.1 PARTNER ORGANIZATIONS

This section presents the experiences of aid recipients with meteorology and meteorological development cooperation projects. This study includes interviews with 19 local representatives, who all had several years of experience in working for their local met-offices; some experts had worked in the meteorology sector for over 40 years. I will first present the organizations briefly, after which general problems brought forward by the experts during the interviews are discussed, and finally some additional perspectives regarding cooperation are presented. Experts from Sudan, South Sudan, Malawi, Zambia, Ecuador, Columbia, Barbados and Thailand were interviewed.

Sudan's Meteorological Authority (SMA) is located in Khartoum and placed under the Ministry of Environment, Natural Resources and Physical Development. The SMA has a staff of 550 people and it operates 40 weather stations around the country. Meteorological observations date all the way back to 1890 and the SMA was officially established in 1937 under the Post and Telegraph department. The objective of the SMA is to contribute to the increase of crop production and overall food security, sustainable development and poverty reduction in Sudan. To reach these

objectives, the SMA develops and improves a range of meteorological and climatological products and services to benefit the relevant social and economic sectors. (Finnish Meteorological Institute and SMA, 2011) Sudan joined the WMO in 1956 (World Meteorological Organization, 2014a). Sudan has received ODA from Finland during the years 1972–2014. Over this time period, it has been allocated a total of 252.2 million USD.

The South Sudan Meteorological Department (SSMD) was established in July 2011, when South Sudan became independent. The SSMD is located at Juba Airport. The SSMD is a governmental institution and it is placed within the South Sudan Civil Aviation Authority, under the Ministry of Transport, Roads and Bridges. Its primary objective is to provide weather services for air navigation and contribute towards the safety of flights. South Sudan was admitted to the WMO community in December 2012. The mission of the SSMD is the provision of high quality, reliable and timely meteorological information, and early warnings to contribute to disaster risk reduction. There are five functional synoptic stations, two stations were closed during the civil war in 1984. There are also nine automatic weather stations, installed by the Food and Agriculture Organization of the UN in 2009, but only two of these are still functioning. Juba airport operates only 12 hours a day, there is one forecaster, one technician and two meteorological observers working there between 4 am and 3 pm. The challenges facing the SSMD are numerous and include not having a fully operational National Meteorological Service, a lack of offices for staff accommodation and forecast center and having only very few instruments available (some the available equipment does not function). Additionally, problems are caused by lack of maintenance, the fact that there are no adequate tools for weather forecasting (equipment, computers and software), there is a limited number of qualified staff, and a limited telecommunication network. (Modo, 2016) South Sudan has received aid from Finland during 2011–2014, a total of 34.5 million USD been allocated during this time.

The Malawi Meteorological Service is located in Blantyre and placed under the Ministry of Natural Resources, Energy and Mining. Meteorological data collection in Malawi dates back to the early 1890s, when Malawi became a British protectorate and missionaries, farmers, administrators at the BOMAs[62] and few interested individuals started to collect weather data. The locations of the current weather station have been influenced by the past, and by the owners of those stations. In the past, records were taken once or twice a day, but not at fixed times. The observers at the time were untrained volunteers and consistent operations hadn't been established. In the 1930s and early 1940s, Malawi had 102 operational stations, but by the mid-1940s, only a handful were still taking records, and most of them only collected rainfall data. The systematic building of the station network started in the mid-1940s. Reasons for the development came first from the aviation industry but other sectors followed soon. (Malawi Meteorological Service, 2016a) In recent years, the stations have serviced the needs of agriculture, forestry, water resources, wildlife, fisheries, education and so on. The present network in Malawi includes 22 full meteorological stations, 21 subsidiary agrometeorological stations and over 700 rainfall stations. Two of the 22 full stations are doing observations 24 hours a day. (Malawi Meteorological Service, 2016b) Malawi has received aid from Finland during 1976–2014, and during this time it has been allocated a total of 30.16 million USD. Malawi joined the WMO in 1965 (World Meteorological Organization, 2014a).

[62] Refers to the district government office, used in many parts of the African Great Lakes region, as well as in Central and Southern Africa. It is particularly associated with European colonial rule.

The Zambia Meteorological Department (ZMD) is located in Lusaka. It was established on January 1, 1967, as a specialized agency under the then Ministry of Power, Transport, and Works, currently known as the Ministry of Communications and Transport. The ZMD joined the WMO in 1967, the same year Zambia gained independence from Britain. When the ZMD started operating, it had to recruit all of its personnel from abroad as there were no qualified Zambians. Through a massive and well-organized training program, the ZMD was able to fill most of the key posts with Zambian professionals by 1982. The ZMD has offices in all the provinces of the country and is the custodian of the official records of Zambian weather and climate. The ZMD has 36 weather stations operating full-time. (Zambia Meteorological Department, 2016) Zambia has received Finnish ODA during 1976–2014, and a total of 555.81 million USD has been allocated. Zambia joined the WMO in 1964 (World Meteorological Organization, 2014a).

Ecuador's Instituto Nacional de Meteorologia e Hidrologia (INAMHI) was founded in 1961. It is an authoritative statutory body with legal status, acting under the National Secretary of Risks. It is located in Quito, but a regional center is located in Guayaquil. The INAMHI is the source of hydro-meteorological data and services for different target groups for decision-making support. Its funds come mainly from the government, and its average annual budget is circa 5.5 million USD (2002-2009). The funds generated by the INAMHI itself were about 150 000 USD and have grown in the recent past. It has about 200 employees, with 70 percent of the staff working with hydrometeorological issues, and remaining 30 percent have administrative or supportive tasks. (Finnish Meteorological Institute and INAMHI, 2011:5) Ecuador has received 14.37 million USD from Finland during 1972, 1974, 1976–78, 1981 and 1983–2014. In 1991, Ecuador paid off some of its loans to Finland (250 000 USD). Ecuador joined the WMO in 1951 (World Meteorological Organization, 2014a).

Colombia's Instituto de Hidrologia, Meteorología y Estudios Ambientales (IDEAM), the Hydrological, Meteorological and Environmental Studies Institute was founded in 1993–1995, and is a public establishment within the Ministry of Environment, Housing and Territorial Development, which gives technical and scientific support to various government agencies and economic sectors. The key mission of the IDEAM is to act as the technical and scientific excellence of the Colombian Environment Information System (SIAC) for decision-making on the sustainable use of natural resources and an authority in the field of data generation and collection, including forecasts and warnings. Additionally, their role is to generate information and knowledge for the government on the sustainable use of resources, as well as making public forecasts and alerts relating to hydro-meteorological disasters. The IDEAM has 471 employees distributed in 11 operational areas around the country. (Finnish meteorological Institute and IDEAM, 2011:4,7) Colombia has received 21.21 million USD in total from Finland during 1972, 1974–1976, 1979–1981 and 1983–2014. Colombia joined the WMO in 1962 (World Meteorological Organization, 2014a).

The Barbados Meteorological Services operates as a self-contained department within the Ministry of Agriculture and Rural Development. Its basic public interest functions are funded by the government of Barbados. The main goals include the safety of life and property, reduction of the social and economic impacts of natural disasters, community health and quality of life, provision for the needs of future generations as well as the preservation and enhancement of the quality of the environment. (Barbados Weather Service, 2016) Barbados has received ODA from Finland during 1980, 1983, 1986 and 1988–1990. It paid off some of its loans to

Finland during 1991–1998 (950 000 USD). Barbados joined the WMO in 1967 (World Meteorological Organization, 2014a).

The Thai Meteorological Department (TMD) Meteorology was originally introduced to Thailand in 1905 by the Commander-in-Chief of the Royal Thai Navy. It was taught as a part of the Royal Thai Navy's navigation courses. In 1912, the first meteorological textbook in Thai language was published. Thailand's first Meteorological Service, known as the Meteorological and Statistics Section was established in 1923, and it was attached to the Water Management Division of the Royal Irrigation Department, under the Ministry of Lands and Agriculture. Observation stations were established in many provinces for the purpose of collecting rainfall and temperature data. Later on, in 1936, the Meteorological and Statistics Section of the Royal Irrigation Department was transferred to the Hydrographic Department of the Royal Thai Navy, known as the Meteorological Division. Because of its importance, it was later promoted to the level of Department in 1942, and two decades later it was transferred from the Royal Thai Navy to the Office of the Prime Minister. From there, it was transferred to the Ministry of Transport and Communications in 1972, and in 2002 to the Ministry of Information and Communication Technology, where it remained in 2016. The TMD has four meteorological centers in the northern, northeaster, eastern shore and western shore regions. (Thai Meteorological Department, 2016) Thailand has received Finnish ODA from Finland during 1971–2014. Overall, it has been allocated 83.41 million USD. Thailand joined the WMO in 1949 (World Meteorological Organization, 2014a).

7.2.2 CHASING TIME – LOCAL EXPERTS

> For every meteorologist, to see the future, it is a very fascinating thing.
>
> -Local expert (Africa)

Local challenges described by the recipient experts most often had something to do with the conflict between high expectations set forth by the public and low and inadequate resources available to the local NMHSs. The experts described problems with technology, the technical infrastructure and data archives, but also with local networks, communication and public relations, training and developing new ways of working. Pressures to perform well are highest when disasters strike and forecasting has to be done without proper equipment and resources. As stated by one expert: "People expect that our forecast is 100 percent right. However, a forecast is a forecast. It is never 100 percent right."

The role of meteorological data is crucial in areas where agriculture is a central part of local incomes. Some even mentioned that it is very dangerous to get the forecast wrong, if for example people lose income due to heavy rains at unexpected times. Additionally, extreme events were a great cause of concern for the local experts, mainly because of the high level of responsibility the NMHSs hold at times of crises, and because they do not have enough resources to support this work. Naturally, some extreme events are easier to forecast than others, for example droughts are easier than rapibly occurring flash floods. If such events occur, often there is not enough time to issue adequate warnings to the public or organize evacuations.

> So, you are collecting data, issuing a forecast, and you are wondering if it is right or wrong. You want to correct it, you are using all your time observing and

predicting, is it right or not. So you are chasing time actually. This is why we are getting very grey! You cannot sleep, you are working 24 hours. Chasing time.

Many experts described the contradictions between the high expectations and the inadequate resources, and it was clear that most experts struggled with not being able to perform as well as outsiders expected them to. The problems inside the meteorological institutes are known to the experts working there, but not to outsiders – the general public and farmers who are expecting correct information during for example the planting season or at times of crises. Problems regarding communication to the public should be first items to be fixed, mainly because they can prevent loss of lives and other damage, but also because problems regarding these issues can usually be solved with establishing clear guidelines and they usually don't require massive financial resources.

In addition to doing forecasts and stressing about their correctness and distribution, general development work is also a cause for concern. In one local met-office, the process of transforming the observation system from manual to automatic was going on at the time of the project:

> Now, we are moving from a traditional system to automated system. This is in itself an important challenge. If we are doing that, if we are moving to an automatic weather station system, the challenge will be the calibration of the stations, how to maintain this? How to convince people it is working properly?

In this particular case, the hesitation with the transformation process was resolved by maintaining both, manual and automatic, systems simultaneously. This was a way to ensure that data is accurate and reliable. However, this will once again require more resources. Additionally, another expert discussed the process of automatization, and mentioned that the equipment available for use in their offices is quite dated, and that there are a lot of problems regarding their overall use in weather forecasts. Archiving was also mentioned as a problem – it was described by one informant as chaos, where one might look for something and not find it for a whole week. Meteorological data archives are highly important for climate research, so keeping them in order serves many purposes, both for the country itself and for the global community of meteorologists and climate researchers.

The interviewed managers identified training as a major cause for concern regarding the development of the met-offices. It was stated that "a building is a building, and technology is very easy to buy, but knowledge cannot be bought", and that educating staff regarding the various technical components is slow and demanding. Not everything can be solved with money. Most experts interviewed had studied entirely or partially abroad. The opportunities for becoming a meteorologist were described as very low in most developing countries. Regarding the future development of meteorological services, everything is focused on the end-users of the data. One expert from Vietnam discussed their approach regarding the process in the following way:

> Now we want to develop a more user-oriented approach. It means that all designed technology, all knowledge, should be targeted to certain people. It means, we try to solve the demand of our users (and the technological aspects relating to solving these issues).

An NGO representative I interviewed during my fieldwork in Barbados discussed these issues and brought up that capacity building for local societies regarding disaster preparedness is done completely separate from the local met-services. Her

point of view was that the warnings issued by the local met-office are not understood by the local people, and that a lot of work needs to be done to remove myths about weather. The ways in which warnings are given needs to change as well. Her critique was directed at what words are used, that they are too technical, and do not focus on telling people when for example a hurricane is coming, how strong it can be and how and when to best prepare for it. It was clear that in that particular society, the processes relating to crisis management could be more streamlined, but also that the met-office should come closer to the local people and educate the communities using non-professional terms. Overall, bridging the local communities with the local met-offices was an issue that was not very much included in the projects, but seemed to be a good idea in terms of developing the services in the desired direction.

Cooperating with Donors and Companies

> In the field of meteorology, we are similar. In the way of thinking, when this project came and started discussing how to improve the meteorological department, in the way of thinking, I think we are different.
>
> -Local expert (Africa)

Cooperating with donors and companies was something all experts had experienced. Those holding managerial positions had more experience of the political aspects of cooperation, and those working in expert roles mainly had experience of the practical aspects of cooperation. The quote above reflects the main thoughts of the local experts. The field of meteorology connects the local and donor stakeholders, but when the "aid system" comes between them, problems start to emerge. During the interviews, it became very clear that cooperation is highly needed. The technical aspects of aid usually improve the local situation, but getting the results to stick after the projects end, seems to be a big problem. This is an indication that there is a need for stronger links to other societal actors and politicians, who are able to help sustain the level of expertise achieved through the cooperation projects.

Cooperation with Finland was appreciated and described by one expert as easy, because the project-related issues proceeded fast compared to their own end, where the various governmental bodies tended to slow things down. It appears that the slowness of Finnish bureaucracy is relative, depending on contextual comparisons.

The recipient-side experts, who were not working in managerial roles, focused mostly on the practical aspects of cooperation in our discussions and were overall very positive about development cooperation projects. They were interested in training opportunities and learning new things from the Finnish experts. Many of them were interested in creating a better life for themselves through professional development. Some also emphasized their personal feeling of responsibility to stay in their home country and to proactively be a part of the local development. Problems brought up in the discussion varied from simple things like getting a stable internet access, to more problematic issues such as improving current data observation systems, and the role of politics. It became clear that the role of politics is very relevant from the perspective of local staff members, although the topic was also actively avoided and even denied by some experts, usually those holding managerial positions. Downplaying the importance of politics seemed to be a conscious strategy of some to avoid talking about it. Some experts did not want to discuss the topic because the interview was recorded, but clearly indicated that the topic of development cooperation in the field of meteorology is highly political and controversial. However, like the Finnish meteorologists, the local experts also preferred not to get too involved with that side.

Local experts were overall very passionate about their work and proud of the education they had obtained. They appreciated the opportunities the projects brought

them, but were often caught up between the actions and expectations of the outsiders and their own supervisors — "You have a situation where companies choose to come in internationally, do things, and then we are left to clean up the mess". The quotation referred to the actions of companies, not donors, but highlighted the fact that in many cases the local NMHSs do not hold a strong position and can be subjected to external interventions resulting in poor outcomes. This is one example of the power inequality between the stakeholders. Regarding donor projects and the lacking links to other parts of the society, it was stated that:

> There is a whole variety of reasons why these things are not working very well, but we do not really look at that aspect very closely. It is great to have new science, it is great to understand better. But naturally, to really make a difference to people's lives, there is a whole bunch of connections that need to be working well, and at the moment they are not.

Experts working in managerial positions were overall more critical towards development cooperation, mainly because they had seen both sides of it. Some had experienced frustrations and disappointments in their long careers and knew first hand that the impact of projects may not be as grand as some hope them to be. They also had experiences with managing multiple donor projects simultaneously. Essentially, the managers are in a different position than the technicians involved with the projects. They are also more actively engaged with the political aspects and the bureaucracy. Managers also seemed to struggle with multiple expectations and lacking resources. Because of the low capacity, many accept all possible cooperation opportunities, even though they can lead to having incompatible technical equipment piled up in storage rooms.

It became clear that in most cases, the management of local institutes is strict and experts have very tight limits in regards to what they are able to do and how they are able to act. Despite this, there were also cases where organizations had very loose expectations regarding individual performance, which in part explains the efficiency problems. These issues were also brought up by the Finnish experts, who had experienced these problems first-hand. One main issue coming up in the discussions was the fact that the local experts understood cooperation differently from the Finnish experts. Local experts interpreted it more straightforwardly as true cooperation, where both parties learn from each other. The FMI experts on the other hand understood the relationship as more hierarchical, with them acting in the role of teachers. In the next sections, I will present the perspectives of the FMI, Vaisala and MFA officials in more detail.

7.2.3 FMI EXPERTS

The FMI experts involved with the projects have the most active and demanding role. Therefore, they have plenty of experience in dealing with practical issues, as well as a strong focus on the technical aspects of cooperation, which is their main field of expertise.

In the interviews, the FMI experts often brought up the relevance of the local societal and political context. All experts agreed that one of the main influencing factors behind poor capacity is the lack of understanding among politicians regarding the importance of meteorology for all societies. All experts believed that not enough attention was given to developing the institutes. Local resources were considered inadequate. The economic, political and social instability of the societies receiving aid were generally considered to hinder cooperation and the development of capacity.

Culture and local customs were unfamiliar territory to most experts. The main reason behind this is the fact that experts did not spend much time at the local level and did not get to familiarize themselves with the local culture during their short field visits. Those experts who had spent more time at the local level in the 1980s, during the SADC regional project and the project in Sudan, showed a greater level of understanding and respect regarding the importance of local culture and customs.

The level of commitment to the projects was higher among those experts who had been working in the projects for numerous years, some even decades. These were individuals who had been deeply engaged with the projects, who had been living in the recipient countries and had formed close relationships with their local colleagues. It was impressive to see that some experts were active even after retirement, which was a clear sign of their deep care for the development of local capacity and this type of work. Clearly, the experts who had been more deeply engaged in the projects had a more positive approach towards the cultural issues at hand and were more comfortable working with people from other countries. Those experts who had not had these opportunities, were much more hesitant in their perspectives and had more concerns regarding interaction with local representatives. They also described cultural differences as the main hindrances of capacity development. There were challenges in how to approach the delicate issue of capacity development and give the locals a realistic view regarding their situation and options, which often were not what the locals were hoping for. The unrealistic expectations of the local staff regarding current capacity and future options were mentioned as problems. It was also stated that there was even some envy over equipment donated to other met-offices. This often resulted in situations where certain equipment donations were based on the argument that "others have them as well", instead of actual needs.

Added difficulty to the projects comes from the local bureaucracy. Finnish projects have aimed at establishing and improving local practices regarding the management of these projects. In some countries, these kinds of processes have been successfully created, but they tend to be very slow. Therefore, when a follow-up project is planned for that same country, it might take a long time to get the information needed for the project plan.

The FMI experts stated that the need for doing these projects is quite high, but despite this, projects do not proceed fast. Slowness stems from various issues, such as donor and local bureaucracy, customs, work permits, slowness in replying to emails, language barriers, a high level of hurry in local institutes, vagueness in terms of who is exactly taking care of what and general high level of hierarchy in the local institutes. As a result, the local experts were often unwilling to discuss problems in an open manner. Regarding project planning and preparedness, one expert said that usually it takes about three times longer than planned to get something done. It was mentioned that usually the practical aspects of the projects become easier and smoother as the projects proceed and a common understanding regarding the way of working is established. Still, having the right people at the right time, doing the right things, was considered a big challenge. The meteorological experts felt that it was a challenge to work in these organizations. Access to the management may be poor, and when there is not enough contact with the directors, most efforts can end up going to waste. Communication was also described as slow.

Local problems relating to capacity included difficulties with having the right people at the right time, doing the right things, a lack of systematic behavior, efficiency, randomness and a poor general level of familiarity with technical equipment and a poor general level of expert training. The locals often use manual systems, have outdated or poorly functioning technological equipment and spare parts are hard to find. If there are no local suppliers available, getting the right parts may take unexpectedly long. As a result, there might be great difficulties in data collection. It was also mentioned that local equipment was sometimes a challenge for

the Finnish experts, if they were not familiar with all different manufacturers of meteorological equipment. Since the Finnish experts are the most familiar with Vaisala equipment, it was the preferred manufacturer in the projects.

Bigger challenges included issues such as having a different understanding of things and disagreements over causalities. Often there were disagreements over what makes sense in terms of capacity development, and what exactly is required to make the "meteorological system" work at the local level. Communicating with the local staff was considered challenging at times due to the above-mentioned issues. It was also brought up that local ownership and commitment was problematic. Sometimes it was felt that things were bounced back and forth, and there were difficulties with getting the locals to commit at various levels. A poor level of management training was seen as poor project management skills, nonexistent development or strategy plans and a lacking ability to delegate things. It was also stated that developing local management was considered important, but a highly delicate issue "because managers and directors did not like to be told what to do".

Unexpected problems included things like getting the locals to commit to trainings organized by the donor. It was mentioned that sometimes there were problems with getting enough staff members to attend the trainings because other work-related things interfered with schedules, and it was hard to find someone to fill in for them. There were also difficulties with getting the experts from various parts of the country to one place at the same time so that training sessions could be organized in an efficient manner. Due to these issues, the planning for missions was considered difficult, since many practical things needed to be considered and that was hard to do from Finland. Sometimes training days were missed entirely, due to unexpected local circumstances, such as poor weather. Since project missions are relatively short, usually one week or maximum two weeks, there is little room for flexibility when unexpected things come up (and usually they do).

The role of other donors was also important. From the perspective of project success, it makes sense to inquire what other donors are doing in the same area, and especially if there are several donors working with the same local met-office. Sometimes, it was difficult to ensure that no overlapping occurred and that all project plans made sense at the local level from the perspective of other donors' practices. Donor and project competition is an issue, which will be further discussed later in this thesis.

Regarding donor side issues, the experts mentioned that there can be bureaucracy in Finland which slows down the processes, and one important issue mentioned was the high level of employee turnover at the Ministry. If and when employees change during the projects, there are always delays resulting from it. The issue of longevity was brought up in these discussions as well, the "after-care" of these projects was not at an adequate level and the issue of continuation is not developed enough. It became clear that things are much easier to take care of in practice if you are physically present, rather than taking care of things over email or phone. It is also vital to establish personal relationships with local representatives; things proceed much more smoothly if there is high level of shared trust and common understanding.

It was stated by one expert that the way meteorologists work in these projects is different from the way other development cooperation experts work in capacity development projects. Additionally, some experts discussed the problem of project plans and project realities, making it clear that projects in practice are not what they are on paper. One FMI expert discussed the issue of local ownership in the following way:

> We have to remember to listen to them, but not too much. Regarding development policy, this came up again that everything must start with the recipient of aid, and their terms, and I agree with it 99 percent, especially in grass-roots level projects.

> But in this case, if they ask for automatic observations every three hours, we do not listen to that, we set them to every ten minutes because we know that in the future they will need those. At times, we know better what to do.

The general problem with a high level of bureaucracy is that none of the parties involved like bureaucracy and think that it slows down processes and takes up too much time. However, projects still have many problems, local institutes are not perfect and things are always complicated in development cooperation. The idea behind bureaucracy is to create processes and to give much needed structure to these projects. Have the bureaucratic processes been developed too far, or does bureaucracy simply focus on the wrong things? These issues will be returned to in upcoming chapters.

In the following quotation, the "power" to hold a leadership role in these projects is based on the high level of expertise at the FMI and the low local expertise of the NMHSs. Referring to French & Raven's Bases of Power theory, most of the forms of power have been in use in these projects. For example, referent power in a sense that the local institutes aim to become as knowledgeable as the Finnish institute. Legitimate power which comes from the position the Finnish institute holds in this field as a leader. Expert and informational power, which both stem from the superior level of knowledge the Finns have over the locals in these projects:

> The best meteorological institute on the world is perhaps the one in the UK, and we are the second or third in Europe, and also place very high in global comparison. We have been reformist, we like to do new things and we also aim to utilize our knowledge, seek new clients, and develop new types of services depending on what the society needs. Our Ministry is very pleased with us and our input, and we have this type of positive cycle here. They want to invest in our services. We also do a lot of research that serves the society and that research also has political dimensions. Typically, the local institutes live in a negative cycle, they have a bad-quality meteorological institute and to invest in it is not an appealing option for the local politicians.

Even though the FMI is characterized to have a leadership position, establishing a trustful relationship with local institutes is very important for them. As one FMI expert stated, it is important that the relationships are based on trust, and that the actions of the FMI experts in these projects is considered smart and important by the local experts. It is considered important to ensure that the locals do not question the FMI's motives or relevance to act in this leadership role. In past projects, this has not been completely achieved. For example, in the case of the SADC regional project, donor and local motives clashed when the project included the purchasing of more expensive Vaisala equipment and not the locally available, cheaper option.

From the perspective of the FMI staff, a successful meteorology project is one where the meteorological capacities and capabilities of the local institute are improved. Most of the experts emphasize the importance of the level of practice, but also that the impact of the project can somehow be shown and ideally measured as well. Project goals are different and they depend on the financer. As stated by one expert, the financer defines the goals for the project. In the case of the MFA, the role of gender equality and HIV/AIDS need to be incorporated into the projects. It was also stated that generally these projects are about better preparedness for climate change through better forecasts and services. Another expert described that the goal of their project in Vietnam was to enhance the current system, and make better use out of it, since it was very scattered and the data flows did not work properly. There were additional goals to bring in expertise, shared experiences and try out new software solutions. The importance of global goals was also acknowledged, but they

had not yet materialized in practice, at least not as well as was hoped. One expert outlined the goals of the projects in the following way:

> Well, for myself, there is always the goal that there are some concrete aspects involved in these projects. We are an operational institute, and the recipients are also that, operational, technical actors. Therefore, we are developing their operational systems, and people's technical know-how, in a very practical manner, starting from the grass-roots level. Depending on where the money is coming from, we need to have goals incorporated into the projects that are suitable, and they might not always be concrete things. So it is kind of like seeking a compromise. In all projects, there is a goal that in the end you have something concrete, some development you can measure and determine. Additionally, that serves the benefit of the recipient of aid.

In the above quotation, the expert names the financers as the main influencers of the project goals. He also identifies the importance of concrete practices and practical level actions, starting from the "grass-roots", which refers to the individual experts working at the local met-offices. External goals may not be always "concrete things", but they still need to be incorporated to the projects and that is actually identified as a matter of compromise, where perhaps no one gets exactly what they want. One expert working in the SADC regional project stated the following when discussing the process of reaching project goals:

> Well, we took some equipment there, but I do not know whether we actually achieved anything lasting. They did not have the readiness to take care of the issues, and I remember in one country, they had, what was told to me, storage houses full of donations, that they had gotten from various countries.

Additionally, another expert shared their experiences with the same issue:

> I was involved with these projects head over heels, and it really annoyed me when the problem with maintaining the stations had come up, that they should have been repaired and maintained, that the recipient country did not have a penny to give for that cause. Then some other donor, a competing donor, went and donated a completely new set of equipment, and equipment that was still usable was removed from use and left somewhere to mold.

The situations described above exemplify some of the most extreme and worst possible outcomes of a development cooperation project. No lasting impact was achieved, local ownership did not materialize into anything beneficial, and lots of money was wasted on expensive equipment, which ended up in storage halls and not in use. Although it is perhaps understandable that problems like this existed in the beginning of meteorological development cooperation, in the first regional project done, it seems unsure that these problems have been resolved. Another expert also discussed the same issue, but mentioned that in practice there is not enough time to plan and prepare these projects so that they would be able to get a realistic view of the local situation at the beginning of a project. The expert stated that no financer would finance you in the preparation phase so one would know enough of what is going on, so one has to find them out gradually. Then, the focus should be put on looking at the bigger picture, what is important in terms of the development of that institute. One expert characterized the role of data sharing in these projects in the following way:

> In the developing countries in the 1980s, they understood that their weather data is important for others as well, and that it is not just about their citizens, the world

needs their data. And then that meant that it was already a great victory to get the agreement that one recipient country, for example Tanzania, would include meteorology as one program that gets financed. Finland was very liberal at times, allowed the recipients themselves to define and did not force anything on them, and then they developed the meteorology. When that happened with foreign and external money, when that ran out, the recipient government did not have any money to give, because they used it all for fighting wars and such. --- I think that the locals trust that when someone else needs their weather data from them, they will somehow pay for it.

The above quotation is a prime example of the set-up between the donor and recipient, and the tensions involved with that relationship.

7.2.4 PRIVATE SECTOR EXPERTS

In the interviews with private sector experts, the discussions included their work in meteorological development cooperation, but also their own projects in developing countries. As these both were part of the experts' work in their organization, it was natural for the experts to share their experiences regarding both topics. It was widely acknowledged that in developing countries the needs are high, but that the projects are slow-paced. Before moving forward with the experts' concrete experiences and perspectives, it is important to acknowledge that private sector experts work in a completely different environment than the meteorological experts. The private sector inherently sets different, high standards and requirements regarding individual performance, and experts in this field are working under strong pressure to perform well and achieve high sales in their geographic region. Additionally, Vaisala does not treat developing countries as a distinct group. In the previous organizational structure, developing countries were labeled as "emerging markets", but that has since changed, and now Vaisala handles meteorological business as one group and regions have been divided based on geography. Vaisala's involvement with developing countries involves both Vaisala's own projects as well as its role in supplying technical equipment in development cooperation projects. This dual role is the cause for some confusion, hesitation and critique regarding Vaisala's current role. Regarding the poor societal position of the local met-offices, private sector experts shared their proactive opinions regarding future action:

> Food production is one of the big themes in the world, and one of the main agendas of many development banks. I think that the African Development Bank's one main mission is to finance solutions that support food production, and meteorological services are in a key role in that. I think that agrometeorology has been one big problem, especially in Africa, that they should develop. This would require more lobbying, the significance of weather services and their societal development should be lobbied for more in the EU, and in the development banks, so that they understand that this needs to be invested in, and that it is just not another expense, but that it is in fact a real investment.

Regarding the contact that developing countries have with Vaisala's products, it was stated that Vaisala is an expensive option, and thinking about Africa and other developing countries, they have become familiar with Vaisala's products mainly through their radiosondes, which have often been donated by the United States and the United Kingdom. Therefore, these countries rarely pay for them themselves. It was explained by one expert that the reason for why the countries in Africa use them

is that the sounding data, the measurements regarding atmosphere profiles, are essentially important sources of data for weather forecasts, numerical forecasts, which means that they need to be received from everywhere. Moreover, for this reason large meteorology organizations have donated radiosonde stations to African countries, and they buy Vaisala radiosondes, just to get the data from there. Regarding the problems caused by the high pricing, the expert continues:

> That is how they have become familiar with Vaisala and understand our quality, but because we are so expensive, that causes problems and they are forced to buy cheaper equipment, with worse quality, for example in surface weather stations. That is one great challenge for us, the procurement rules say that you have to take the cheapest option. --- That might not be the best quality or best for fit the country.

Vaisala experts in general had trouble with not having a clear view inside the local institutes. They do not have a clear idea of what is going on there, and local practices are not usually very transparent. For this reason, they have established local offices in various parts of the world, and local staff members are their "eyes and ears", giving insight into what the situation is. This position of not having full access of course relates to Vaisala's role as a manufacturer with several significant competitors. Regarding the general timelines of projects, it was stated that:

> If you think about the timeline, in the preparation phase, the time is 3/4 of the entire time, what is used for the planning, just for looking for financing, thinking, and planning, and other things. When you finally reach the implementation phase, that part is usually pretty straightforward.

Regarding the local realities and availability of resources, private sector experts have a good understanding regarding local abilities to use their equipment. Vaisala's practices in the field are driven by their desire to remain the largest manufacturer in the field, and not ruin their markets in any country or area. There were some remarks made by other stakeholders that Vaisala and other companies have the possibility to take advantage of the poor level of local know-how. Vaisala experts however described that all of their practices are driven by the need to create trustful relationships with the local met-offices. Since there is so much competition, they cannot afford to ruin any markets. This is also the reason why Vaisala's experts are highly motivated to learn about different cultures and are engaged in direct interaction not only with the local representatives of met-offices but also politicians. Politicians make most decisions in developing countries, and thus Vaisala needs to market its products to the politicians. This is one key difference between the FMI and Vaisala. Vaisala also does not have to carry the burden of past development cooperation — their role is different, and the inherent hierarchy built into the development cooperation system does not influence their actions. They are able to form good contacts with local met-offices, without the donor-recipient set-up. This often means that their relationship is more equal, which makes interaction and cooperation easier. From the perspective of the private sector, the definition of a successful project is simple, one where they are able to make sales:

> Our goal is to sell, it is not very complicated. We want to stay as the largest manufacturer of meteorology equipment, and developing countries are now those, who are investing in them. All developed countries have tightened their budgets, and that influences these institutes as well. Maybe the FMI is an exception to this, they have managed to keep their financing well.

Another expert stated, regarding project outcomes and the achievement of goals, that project follow-ups are usually done, "but that they could be done better and that all projects are completed".

The goal of profit-making and equipment sales is far from the goals set for development cooperation. The relationship between a seller and a buyer is inherently different than the relationship between a donor and a recipient of aid. Since public and private sector actors also cooperate with each other in these projects, these ideologies and ways of thinking inevitably collide. Being able to create and sustain a trustworthy business relationship with local governments and met-offices requires different priorities than those of development cooperation projects. One expert discussed the goals and issues relating to customer satisfaction in the following way:

> Our project goals come from the commercial sector, of course we are directed by the profit margin estimates for the projects and the goals for the schedule, and that we are able to fulfill those goals in the given time frame. We measure customer satisfaction during customer training, which is one additional important issue that influences that we get to do business with that customer in the future as well. The most important issues relate to the fact that the project is financially viable and in line with our cost margins. We also have a low number of customers per country, so we cannot ruin the market.

The private sector experts interviewed for this study discussed project goals in a very straightforward way. For a company aiming to make a profit, making sales is logically the biggest issue defining project goals. The development cooperation projects these experts were involved with were one part of their work, and a way to make their products known around the world. Gaining recognition and demonstrating the quality of their products in practice is another way of securing good business relationships in the future. If a developing country receives donations of Vaisala equipment and the project ends, they still have to purchase consumables and spare parts. However, doing cooperation with the public sector has become more complex as times have changed and meteorological manufacturers have more competition. Vaisala's experts emphasized that they always finish the projects, and never leave the customer in trouble:

> One undisputed thing, I could say that in many ways we are better than our competitors that we never leave our customers in trouble. I am not saying that we do not have problems in these projects, surely there are projects that have technical difficulties and a lot of problems and such, but we always finish the projects.

7.2.5 MINISTRY OFFICIALS

> The Ministry officials' role in these projects is not very active. They oversee the practices and receive reports, but tend to stay away from the level of practice.
>
> -Meteorology expert

Ministry officials view the planning phase from a different perspective than FMI and Vaisala experts. They acknowledge that there is a lot of bureaucracy involved and according to one person, different stakeholders investigating the same things under slightly different titles and focus areas, which then produces multiple layers of documentation for the projects. Thus, there is a lot of paper work involved and many passages one has to pass, but for them, it is not merely about producing the papers

and getting the text on them. It is more about the political negotiation process of producing the text, in between the local and the donor organization, which serves the purpose of developing the cooperation forward. The ministry staff sees the creation of the documents in the planning phase as a process starting the meaningful cooperation, which essentially is a reflection of a deeper understanding of the bureaucratic processes of development cooperation. They have an inherent understanding of the system because they understand its purpose and see how it helps their own work.

As the meteorology experts were motivated by their interest in the development of meteorology as a field and Vaisala experts by economic interests, the ministry staff talks more about the ethical dimensions of aid, although it is well-known that Finland's benefit is also sought in all MFA practices. The perspective of the ministry staff towards local ownership differs from that of the FMI staff. While the FMI staff is hesitant towards local ownership, due to low local capacity, the ministry officials recognized the importance of local ownership, regardless of the local expertise. In their view, local ownership is a "given", it is a necessity on which everything else is built on.

Ministry officials stated that in successful projects, other societal goals have also been taken into consideration — successful projects support the reduction of global poverty. A good project contributes clearly to the general goals of Finnish development policy. One Ministry expert outlined the goals of the projects in the following manner:

> The goal is mainly to get sustainable development; those have been defined in the central goals of the development policy, the removal of poverty, and so on. Therefore, environment and sustainable development, all practices should be reflected towards these issues. Those are the official goals and to be able to reach them in all projects.

A big part of the work is to include cross-cutting themes into the projects, for example gender equality and HIV/AIDS. The aim of the cross-cutting themes is to tie the projects more closely to the local society and its general progress. Ministry officials considered the cross-cutting themes important, but to most meteorological experts, especially issues regarding HIV/AIDS, seem redundant and difficult, and they struggle with how to incorporate these goals into the projects efficiently. Often they are merely discussed in the final report, but not included in the actual project practices. In some cases, there was progress observed in terms of gender equality, with for example the behavior of single individuals, in how they do things at home for instance, but one expert mentioned that it was the kind of progress that was hard to explain in the format of an official report.

Ministry experts highly value local ownership and consider it vital for project success. Meteorological experts know that in principle local ownership is important, or they have been taught to think so (in Ministry trainings, as mentioned by one expert), but argue that on many occasions local ownership does not work in practice because they "simply know better". However, behind these opposite perspectives, there lies a different understanding of local ownership and what it means for the projects. The Ministry staff emphasizes how the local staff is best aware of what works and does not work in practice. Meteorological experts seem to link local ownership with local capacity. They argue that since local capacity is poor, they are not able to carry the heavy burden of project ownership. That the Finnish meteorological experts have had better training, are more experienced with various meteorological equipment and technical solutions, is an undeniable fact in most cases. However, that does not mean that they are experts of the local situation, where these projects are implemented. The in-depth understanding of the "best practices" for a particular

recipient country more likely exists within that country than outside of it. As mentioned earlier, there is rarely enough time to prepare these projects thoroughly. This fact speaks for the importance of local ownership even more, as Finnish experts are dependent on the locals to keep them up to date of what is needed and what would be smart to do in the context of the projects.

The MFA officials also discussed the challenges of day-to-day practices and brought up additional perspectives. The role of the Ministry staff is to oversee the projects, make sure that the reports are proper and that there is general clarity over what is happening. While there were many challenges pointed out by the Ministry officials, it was also stated that once common procedures with the locals were established, they were generally well committed to. The main challenges named by them were more about their role in relation to the FMI staff than to the locals. The fact that they did not have in-depth understanding of meteorology, and that the meteorologists in turn did not have in-depth understanding of the field of development cooperation, were the reasons behind most challenges. Also, the role of the Ministry employees was mainly concerned with overseeing the projects on paper, receiving reports and so on, which made them quite distant from the practical level of cooperation. In some cases, the expert had been able to spend long time at the local level and their understanding regarding the projects was more profound. This made it easier to understand what the local challenges are and what the focus of the projects should be from the perspective of poverty reduction, making it also easier to "give direction". In cases like this, where there was more involvement, the experts mentioned that they might have to take an excessively realistic approach to the projects, if and when the recipients had unrealistic expectations. However, only on rare occasions did the Ministry staff have sufficient time to get involved and give relevant input. The issue of conceptualizing capacity development was also considered very important. The Ministry representatives saw that the meteorologists had a more technical definition of capacity than they did. As one expert put it:

> Even though there might be the right technology present, it was emphasized that it does not mean that there is capacity to use that technology and produce something useful out of it, in terms of services to the local end-users, for example.

This was was not necessarily agreed upon among the stakeholders. It was also mentioned that sometimes the experts felt like some of the practices of the organizations and projects would have been better suited for universities, instead of the met-offices. The Ministry officials acknowledged the differences between them and the meteorologists in terms of their approach to the projects and offered critique regarding the practices, which were not aimed at improving the local services, but were more along the lines of "science for the sake of science" activities. One MFA official stated the following:

> Well, in the Ministry, we have to make sure that the projects overall proceed as planned. But we try to stay out of the actual practices, do not get too involved with the substance. We make sure that agreements are done on time, as well as reports. We have a relevant role like that because we are the financiers. But then the actual ownership, in a good project, the feeling that "this is our thing", that has to be with the partner stakeholders.

Regarding cooperation with meteorological experts, one expert mentioned that the technical level of expertise in project implementation has been top quality. However, when you look at the ICI-projects, even though the Ministry officials make sure that the societal dimensions of the projects are included, and that the chain of thought goes further than mere technical cooperation, in the project proposals that

just has not been visible. As the informant explained, "it was my opinion that we should have had this brainwashing session to wake them up and say that you really have to take these issues into consideration." Additionally, the expert continued by explaining the situation at the Ministry:

> The desk officials working at the Ministry, there were not many of us old-fashioned development cooperation people there — and shockingly, over half of them had been working there for less than a year. My opinion is that experience gives you vision in these projects. --- It is not the fault of these people, who bring the projects in and give the mantra of "removing poverty" and "how this is good for the poor people". And there is this great gap between the poor people and the realistic feasibility of these projects. Not only in meteorology, but also in meteorology, and it has not been understood how it happens. They look narrowly only at their own field. It is the same in forestry and agriculture, it is surely in everything, and partially because maybe the projects are too small, and they cannot fit everything. And of course they are not only our thought, they should include the developing country's own input, how they see it. --- And planning of the project, everything is led by consultants. A consultant makes the plans, identifies them, appraises the projects, evaluates them, and executes them. The only thing they do at the Ministry is reading the documents, and approving them. But how well they really have time to research and see. And the decision-making, really all the important thinking has been outsourced from the Ministry.

The issue mentioned at the end of the quotation, of how the important thinking has been outsourced elsewhere from the Ministry, is a highly important issue to take into consideration. It also shows how administrative changes have also changed the role of the Ministry. Experts working there have great expertise, but it is not perhaps utilized in the best possible way. The remarks made in the above quotation show that Ministry officials have a deep level of understanding of what has happened and how that has influenced things, but this raises the concern of whether or not anyone is responding to this criticism and changing the system so that the expertise would be better utilized. Additionally, one topic of discussion was the marketing aspect and communication between the experts and financers:

> At the time, we received a letter from Costa Rica saying that the radar that was installed in the region, without the upgrades, they could not have had prepared for the storms, and things like this have come up, but they have not been used in marketing, that this has happened. Maybe marketing, also to the political decision-makers, to say what the meaning has been, that it has not been only high tech --- that the efforts trickle down to the level of the normal people, and especially to the poor, who have nothing and lose even that. This [referring to communication] is something they should pay more attention to."

As can be seen in the above quotation, the Ministry official had concerns regarding the structure of the projects and what impact they actually had on the local people. The Ministry officials emphasized the importance of the links between the projects and the local people, but it seemed that their ideas were perhaps not listened to sufficiently, or that they were listened to and elements were added to project documents, but the projects were built around technology rather than these concerns.

In the next section of this chapter, I will bring together the donor experts' experiences and the theoretical views into donor behavior presented in Chapter 3. This comparison will show if and how these previously recognized common challenges of aid actualize in these projects.

7.3 AID BEHAVIOR — PATTERNS OF CONCERN

Theoretical aspects related to donor behavior were presented in Chapter three. These included aid incentives, relevant actors in development processes, the Samaritan's dilemma, moral hazard, positive and negative incentives coming from the system of aid, donor–recipient relationships (strong donor–strong recipient, strong donor–weak recipient and enlightened donor–weak recipient) and donor organization traps, which included accountability, solidarity, coordination and insularity. Table 13. summarizes the actualization of donor-related issues in cooperation.

Incentives have been discussed in terms of the overall incentives to participate in development cooperation projects. Financial incentives are relevant for Vaisala. The FMI has the incentive to participate in projects to develop and spread their expertise, but also to make the Finnish high-level know-how in this field known around the world. When looked at from the perspective of politics, it can be stated that aid in the field of meteorology has had an instrumental role as well.

The various issues listed by Gibson et al. (2005), included (1) the awareness of the importance of incentives; (2) paying attention to the nature of the good involved; (3) focusing on how ownership is related to sustainability; (4) examining how learning is encouraged at an individual and organizational level; (5) the role of consultants in development assistance; and (6) the importance of putting the beneficiaries first. (Gibson et al., 2005:223-224) Awareness of the importance of incentives seems to be recognized, but is less discussed openly. Paying attention to the nature of the good involved seems to occur; there is a clear common goal to help the aid recipients. Focusing on how ownership is related to sustainability is a more challenging issue, it seems that this does not happen often enough in the projects, based on the experiences of the local experts. Learning is encouraged at both individual and organizational levels, but it is most often focused on technological aspects, when issues taught could include also societal and political aspects. The projects have included consultants in various roles. Some experts considered the use of consultants isolating in a sense that it could make the experts feel more distant from the Ministry. The importance of putting the beneficiaries first does not seem to actualize in the projects. The ownership of local experts could be higher and their role overall should be more active, from the beginning to the end.

The Samaritan's dilemma is a situation where the Samaritan (the donor) chooses between helping and not helping, and the recipient decides how much effort to put into getting the help. If the Samaritan gives help, and the recipient exerts high effort, both benefit, but the recipient receives higher benefits when less effort is put in. The Samaritan is better off helping no matter what the recipient does, but once the recipient realizes this, then the recipient's dominant strategy is to put in a low level of effort. (Buchanan, 1977) There were some indications of the Samaritan's dilemma in the projects. Some recipient experts did not seem to care much about the Finnish projects in cases where there were other major donors operating in the country simultaneously. In one case where a much bigger project had just started in the country with another donor, this has led to a situation where the Finnish project was not of much interest anymore to the local experts, who were busy with the bigger project. Donor coordination would be highly necessary in cases like this, but understandably in the current set-up is difficult, since donors also engage in "friendly cooperation" with each other, as stated by one expert.

Moral hazard was said to occur when a person takes more risks because someone else bears the burden of those risks. A moral hazard can occur for example when the actions of one party may change to the detriment of another actor after a financial transaction has taken place. Moral hazard may also occur when there is information asymmetry between the stakeholders, and the risk-taking party knows more about its intentions than the stakeholder who is responsible for the consequences of the risk.

Moral hazard occurs when a party with more information has either a tendency or an incentive to do harm and act in an irresponsible manner from the perspective of the party who has less information. (Buchanan, 1977) In development cooperation, risks regarding moral hazard exist in both of the ways described above. Donors can take more risks because the recipients will bear the social and political burden of those risks. The recipients of aid may also take more risks because the donors bear the financial costs of those risks. For example, in meteorological development cooperation, doing cooperation with multiple donors simultaneously is not a risk for the recipient of aid, because they simply end up with more resources, but there are higher risks for the donor to use funds for something that does not end up being utilized by the recipient. According to the interviewed experts, this has happened in meteorology projects. Overall, the risk of moral hazard was fairly low because the ownership of the projects was mainly on the donor-side experts.

In terms of the positive and negative incentives coming from the system of aid, it can be stated that both types of incentives exist, depending on where the focus is put. There is a clear overall positive incentive built into the system to do well in the projects, because then you will more likely get funding for the next project, get to keep your job and continue cooperation. There are no positive incentives to report project challenges, because if you continuously report about problems and seem like you are struggling with cooperation, you will most likely not get to continue cooperation and may be at risk of losing your job. This is a problem from the perspective of developing the aid system. There are also

Table 13. Actualization of challenges in donor behavior in the context of the meteorology projects.

Issue	Yes	No	Comment
Aid incentives	x		
Awareness of the importance of incentives	x		
Paying attention to the nature of the good involved	x		
Focusing on how ownership is related to sustainability	x		Yes, but is not reflected in practices.
Examining how learning is encouraged at an individual and organizational level	x		
Role of consultant in development assistance	x		
Importance of putting beneficiaries first		x	
Asymmetries in power	x		
Asymmetries in information	x		
Samaritan's dilemma	x		
Moral hazard	x		
Positive incentives of aid	x		
Negative incentives of aid	x		
Donor-recipient relationships			
Strong donor – strong recipient	x		
Strong donor – weak recipient	x		
Enlightened donor – weak recipient	x		Yes, but not really allowed by the system of aid (cooperation not long enough)
Donor organization traps			
Accountability	x		
Solidarity		x	
Insularity	x		
Coordination	x		

negative incentives for both the Ministry and the FMI. The Ministry may say that if you do not do as recommended, the projects might be suspended. The FMI could, in theory, use the same approach with donor organizations, but there were no clear signs of this type of behavior. Regarding donor-recipient relationships, it can be stated that each recipient country is a case of its own and has different types of challenges. In cases where the recipient country has a very low level capacity and know-how, and is defined as "weak", problems stem from the vast level of difference between the donor and recipient stakeholders. However, if the recipient is also strong, they have fairly good capacity and resources available, problems may come from the availability of other donors or demands from the recipient side. Regarding "the enlightened donor" issue, it is fair to say that the Finnish experts have put a lot of effort into understanding the local context and situation, but short project timelines allow for only limited time and resources spent on these tasks. Also, there are individual differences between experts. As outlined in Chapter three, the accountability trap refers to situations where the fact that aid is based on public funds begins to gain too much meaning. A donor might rather allocate money to their own national organization, which is likely to use some of it in an unproductive manner, rather than give the money to an organization in a developing country, which would be in a better position to use the money efficiently, but the risks for fraud and embezzlement are higher (Bate and Schwab, 2005). The accountability trap is somewhat relevant in meteorology projects. The MFA allocates money to the FMI for this cooperation because the FMI is an internationally respected organization, and highly capable of doing this type of cooperation. In theory, it might be that there are some local actors who could be able to use the funds in a more productive manner, but overall meteorology as a field is so narrow that all relevant actors have been usually linked to projects executed by the FMI.

The solidarity trap refers to situations where aid is given as an act of solidarity, without any conditions attached to it. It becomes a problem when ideological concerns override economic ones, aid is given without any reciprocal requirements, the recipient government's objectives tend to uncritically dictate aid, and feedback does not serve as a corrective mechanism. The solidarity trap does not seem to be a substantial risk in meteorology projects. It does not seem that ideological concerns would override economic ones, or that aid would be given without any reciprocal requirements.

The insularity trap refers to situations where organizations are so inward-looking, that they allow autonomy to overshadow responsiveness considerations. This becomes a problem when the agency believes it knows what needs to be done better than all other actors, the political oversight of the projects is weak, the agency has great autonomy because it is politically trusted, and feedback is non-existent, poor or ignored. The insularity trap seems to actualize to some extent in the meteorology projects. All main actors in meteorology cooperation seem to be somewhat inward-looking. Some experts criticized the field of meteorology overall for being like an ivory tower. There is great trust in their own expertise, but this trust is not blind or based on false issues since Finland has a great track-record of success in the field. Political oversight is not weak, but there is room for improvement in terms of feedback practices and mechanisms, and networking in the recipient societies with other governmental and non-governmental actors, who might have good expertise regarding some aspects of the projects.

The coordination trap refers to the coordination of international donor community practices. Coordination becomes a trap when it generates a degree of corporatist conformity, which limits the perspectives of aid and its implementation. More specifically, when donors unite to impose conditions that take away responsibility and ownership from the recipient, when donors perceive a need to be more effective in their own operations, when consensus breeds a particular way of

how aid is conceived (being "trendy"), and when the capacity of the recipient institute is low. The coordination trap is problematic in the context of these projects because the practices of the international donor community are limited in the projects. The meteorological actors play a bigger role, and in some ways, they take away responsibility and ownership from the recipients of aid by taking the leading role. There is also a general consensus observable regarding aid and what is to be done, that it might blind the stakeholders from other possible options and approaches to problems.

7.4 CHAPTER SUMMARY – CHALLENGES WITH THE "PRACTICAL"

The research question set to be answered in this chapter was: How different stakeholders perceive challenges in development practices in this field, and in what ways these perceptions relate to stakeholders' incentives, motives and values? Overall, it is clear that different stakeholders approach projects and cooperation from different points-of-view. While Ministry officials look at the higher level — societal and political goals — meteorological experts focus on the level of practice. Private sector companies are driven by profit-making and economic motivations and the local representatives' focus mainly on practical issues. The focus areas of each stakeholder represent their values as well. The Ministry focuses on societal and political goals, and is mainly motivated by the ethical aspects of aid. Meteorological experts focus on practical things, which reflect well their motive of developing the field itself and the services provided in the local organization. Private sector actors' profit-making motivation is reflected in their ways to focus mainly on the ways of making sales.

The main issue of concern is the fact that the focus of Ministry officials on the actual poverty reduction aspects are essentially missing in the project activities; MFA experts do not have enough time to be present in the projects in person, which leads to a situation where the technical goals are prioritized over political and societal goals.

When thinking about aid governance and the structure of aid, the practical experiences of stakeholders reveal that projects are donor-led. The aid recipients should be given a more meaningful role and their ability to influence the content of these projects should be higher. Currently, there are many insecurities regarding for example how processes of change will succeed. The issue of low responsibility might explain the low level of commitment observed in some projects. Local experts experience strong pressures to do well in their work and provide good quality services to the local people, yet they are operating under continuous uncertainty with inadequate resources. It was noted that project practices were aimed at the wrong things, which is an indication that the perspectives of local experts are not heard. Additionally, the Ministry operates in a very strict manner and the level of bureaucracy is high. The amount of bureaucracy is highest in the beginning, but can cause delays at various stages of projects. Projects have become more detail-oriented in terms of goals, as explained earlier, which means there is less room for flexibility. When projects end, there is usually a rush to start a new one, which often means that meaningful information is lost due to the limited time frame for evaluating practices and the overall societal impact of the projects. Different stakeholders have their own approaches and emphases in actions, and do not engage enough with each other in practice. Mainly the problem is that the Ministry is a distant, yet very powerful actor.

It is clear that approach adopted by the stakeholder reflects the role of the organization they represent, and the powers of that organization. Regarding donor behavior and some general phenomena occurring in development cooperation, it was found that there is some risk of a Samaritan's dilemma in the projects. Moral hazard risks existed both ways. There is a clear positive incentive to do well in the projects, and no positive incentives to report about project challenges. If you continuously

report about problems and seem like you are struggling with cooperation, you will most likely not get to continue cooperation and are at risk of losing future funding. This is problematic from the point of view of developing the aid system.

There were also different types of donor-recipient relationships in the projects, depending on the recipient country. The characteristics of the enlightened donor were prevented by the short timelines of projects, which FMI experts struggled with. Regarding the traps, it was found that there were risks of accountability, insularity and coordination traps.

The topic of the next chapter is the politics of development cooperation in the field of meteorology, where the reasons behind these issues are explored in more detail.

8 THE POLITICS OF DEVELOPMENT COOPERATION IN THE FIELD OF METEOROLOGY

> ...then he said that here in Mozambique we have a saying that all meteorologists are liars, and I said to him, that a good meteorologist needs to be a politician.
>
> -Meteorology expert

Weather is commonly considered a safe topic to discuss with everyone, as it is thought to be apolitical. However, when looked at from a broader perspective, it is revealed that weather in fact has many political dimensions. Extreme weather conditions propose threats to societies around the world, and capabilities to address these risks are especially weak in developing nations. In areas where risks are high due to geographical location, poor societal infrastructure and a level of expertise, weather-related events are even more political. The political aspects of weather was a most interesting topic of discussion with the experts interviewed for this study — mainly because there was great disagreement over whether or not there are in fact political aspects to weather. The experts differed in the ways in which they were willing to discuss these political issues, as some addressed them openly and others denied their existence completely. This clear controversy was somewhat unexpected because the perspectives were so different among different experts. The question to be solved in this chapter is: What kinds of experiences do the experts have with the political aspects of cooperation and what types of political challenges are present in this field?

8.1 EXPERIENCES WITH THE "POLITICAL"

> Often, it seems that it is easier to do cooperation between countries which are located on opposite sides of the world, than with neighbors.
>
> -Meteorology expert

Meteorological organizations are political actors, which function under the government with public resources. Politicians have a strong presence in these organizations, more so in the developing countries than in developed countries, where practices are usually expert-led. Most experts interviewed for this study had some connection with the World Meteorological Organization, which is part of the United Nations. As such, it has a highly important political role. Donor behavior is also political — decisions regarding which organizations to fund and when, are major political decisions. Aid incentives are important to acknowledge as well. One main issue to explore are the motivations influencing in the background. Is the motivation to help driven by altruistic aspirations or perhaps economic opportunities? Donor competition makes things even more complex, as there are political power struggles in this field as well.

The topics discussed in this chapter include the above-mentioned issues. Firstly, some general perspectives into the politics of meteorology in developing nations are discussed. The perspectives of each expert group are presented separately. Political controversies regarding the role of data, defense politics and Policy Coherence for Development (PCD) are discussed. These sections are followed with a discussion on experiences and perspectives towards the WMO. The chapter ends with two sections

on the juxtapositions between politics and science, and public and private sector actors. Meteorological organizations are conceptualized in this study as political actors. The interests lie with exploring the role of politics in meteorological development cooperation projects, but also in the daily lives of the meteorological experts working in these organizations. There are also relevant differences between the stakeholders, public and private, in terms of how they see, interpret and relate to the political aspects of practices and cooperation.

The political aspects of meteorology are not only a recent issue of concern. It needs to be acknowledged that meteorological institutes have been functioning in some parts of the world for decades, in some cases for centuries. In most developing countries, the representatives of colonial powers were often involved with these organizations, or even had a role in setting them up. As countries gained independence, most of the experts left these organizations, and the capacities to function lowered immediately when the political support significantly decreased or vanished completely.

The quotation at the beginning of this section portrays the difficulties of regional cooperation. In the history of Finnish meteorological cooperation projects, several major regional projects have been conducted, in Southern Africa and Central America, and more recently in the Caribbean and the Pacific, with one regional cooperation ICI-project in Central Asia. In other parts of the world, cooperation has been usually set up as bilateral projects. Regional projects have additional challenges, because there is a lot of coordination involved in addition to regular project practices.

A few experts of this study stated that creating good cooperation between neighboring countries can sometimes be challenging, but interestingly they argued that from their perspective, the difficulties often exist only on the higher, political level, and experts as individuals are usually able to cooperate in practice. It was stated that the political aspects usually do not trickle down to the level of the experts, and practical cooperation between individuals could be used to create a friendlier political atmosphere, which in turn would enable official cooperation at some point. The fact that weather and its extreme events move across national boundaries and cannot be owned by anyone, makes cooperation in this field a bit easier, since there is no debate over resources or rights of ownership.

The central dilemma in terms of the politics of meteorological development cooperation seems to be the fact that political processes remain distant from the actual, practical processes. However, politics highly influences these organizations, how they are able to function and what their level of capacity is. In practice, meteorological development cooperation currently happens between local institute experts and FMI experts in short-term face-to-face interaction. Most FMI experts are perhaps unaware of, or not interested in getting involved with, the political aspects of cooperation. Those in leadership positions of course have access to political negotiations and are part of the political processes, for example as members of Finnish Development Policy Committee, but participation is typically limited. Local experts involved in cooperation do not, however, have much decision-making power. This usually lies within the local political actors, either partially or fully. This means that key problems coming up in training sessions or meetings cannot be directly addressed, or that it simply takes a very long time to change things through the hierarchical organizational structures. Local political actors seem to be only rarely interested in the struggles of the met-offices. There might also be hidden political power struggles and corruption, which influence decisions. These remain unseen by the FMI experts visiting local institutes only for short periods. Inadequate project planning and strong differences in the know-how between the FMI and local staff complicate the processes even more. As projects are planned as mainly technical capacity building projects, the political element does not receive sufficient attention. This might mean that cooperation remains at a superficial level and does not lead to

sustainable capacity building. Sustainable capacity building requires strong political ownership, since it requires financial means and support from other societal actors. If the political aspects of capacity development are overlooked in governmental institutes and capacity building is conceptualized merely as a technological issue, problems will come up once the technological support disappears, which is usually what happens once these cooperation projects end.

Important political decisions are made even before any development cooperation starts, in terms of for example, which countries Finland decides to cooperate with. Finland has traditional partner countries, but in the context of meteorology projects, cooperation has also been conducted with non-traditional aid recipients. The geographical occurrence of natural phenomena also influences partner choices on a global scale.

There are multiple processes through which a country may receive donations, or end up as a project partner and long-term recipient of aid in this field. For instance, the geography of natural phenomena may motivate cooperation. In one interview it was mentioned that the Philippines receives financing from Japan, China and Taiwan, because the route of typhoons goes from the Philippines towards these donors. This way, the donors can ensure that the information they get early on from the Philippines is reliable and serves their interests as well. Historical aspects can also carry influence — if partnerships have been formed between local met-offices, there is a chance that cooperation will be continued at some point, even if there are some inactive years in between. New relationships may be formed through unofficial or official meetings between the Director Generals of donor and recipient countries. International conferences and WMO meetings provide a good platform for networking. The minister responsible for development cooperation may also bring up the issue during country visits. Official requests for assistance and cooperation are channeled through the MFA. Sometimes, they are based on official requests for assistance from a country, sent through the WMO. Some years ago, Pakistan had requested assistance because floods had destroyed their automatic weather station network, and following the request, ten weather stations were provided by Finland. Therefore, there are various ways of starting cooperation, but it is important to note that all decisions are managed by the MFA. Since there are many requests for assistance and cooperation, and resources for donations/project money are not endless, the selection of recipients is a political process that is influenced by many issues, such as the local political situation, the actual need for help, the recipient government's stability, the level of corruption, and so on. During the 2000s, Finland has actively pursued a more relevant presence in many countries and regions of the world in the field of meteorology. Partially this is explained by the desire to help those in need, but there is also the aspect of maintaining Finland's reputation as a country with special expertise in this field.

The political atmosphere and the general situation in the recipient country naturally has an impact on project site visits. Some experts gave detailed descriptions of difficult situations they had been caught up in, caused directly or indirectly by political issues. Unstable political situations caused some insecurity as to how to act and what to discuss with the staff of local met-offices. Some had visited the same countries many times, and noticed great differences after political regimes had changed. It is clear that politics is actively present in local institutes, much more so than what the experts are used to in Finland. The most common strategy seems to be to simply not get involved or not discuss politics, because it is considered a highly delicate, difficult and complex issue. Additionally, when discussing capacity development, it was mentioned that political aspects may influence the level of capacity, and its development, and that these issues might not be visible to the donor-side experts. A big part of the politics involved seems to happen "behind the scenes", before cooperation projects actually start. Once a project begins, new kinds of political

elements emerge and there is a clear shift at this point in which local political aspects become more relevant than donor politics — if for example examined from the perspective of project success. There are similarities between the donor-side stakeholders in terms of how they conceptualize the politics of meteorology, but also differences in the ways they conceive the politics of meteorological development cooperation. For example, all experts agreed that enhancing the societal role of local met-offices is highly important, but differ in terms of how they think one should go about it. Next, I will explore these aspects in more detail.

8.1.1 THE PERSPECTIVES OF METEOROLOGICAL EXPERTS

Meteorological experts overall consider it very important to raise the societal role, and hence the political influence, of meteorological organizations. This is considered vital because it would make it possible to have a greater impact on end-users as well. If meteorological organizations would have a higher societal relevance, their warnings and forecasts would be listened to, and people would be more aware of local risks, and perhaps able to understand climate and weather phenomena better. One expert stated how it would be relevant for locals to understand that weather phenomena do not just occur randomly, but that one can be prepared for them. In a way, enhancing the political status of meteorological organizations is seen as a way of to break cultural myths related to weather phenomena and to raise the general awareness of the nature of these phenomena. The main problem is the lack of capacity of these organizations. If the forecasts and warnings are not of good quality, it is hard to get more recognition. Moreover, without added recognition, it is hard to get the needed financing for efficient capacity building. One option would be to significantly increase interaction with politicians. This could open up a path towards increased mutual understanding and subsequently better project outcomes. Over the course of the history of these projects, interaction with political actors has increased, especially during the last decade. One influencing factor to this has been climate change, which has become an important issue to tackle, and meteorological expertise is needed in that work. However, even more active interaction is be needed since the interviewed experts all agreed that meteorology as a field is not respected enough and the role of it is not understood.

The political situation of the country can influence how projects proceed. If the country is in a chaotic situation, as has been the case of some recipients of aid in the SADC project, and the society surrounding the meteorological office is not functioning well, it is hard to get anything productive done. It was noted that especially in Africa, there were often political reasons behind poor infrastructure. The general national situation may also influence what meteorological data is available from the area. For example, during the recent war in Iraq, there was a blank spot on the map because no observations were sent forward from this one area. Depending on the size of the country, this might or might not have some impact on the overall weather models, but what makes it more difficult is that if you are not able to get up-to-date observation data from an area, it becomes much more difficult to estimate what the weather is really like. Usually, in crises a country might not want to reveal what is happening in terms of weather in certain areas. In cases like this, satellite images are usually still available, but important observations from the ground disappear, as one expert explained.

The political role of meteorology in Finland was also briefly discussed. It was brought up that the justification for its existence needs to be continuously earned in Finland as well, and its role and societal status is not set in stone. Many described that this kind of "non-productive" work takes away from the actual work they should

be doing. Thus, a similar juxtaposition between politicians and meteorological experts exists in donor countries as well, but in donor countries these organizations are better equipped to defend and determine their societal role.

Regarding the politics of meteorological development cooperation, FMI experts argued that politics determines perhaps too much of what happens in the institutes. "Too much control" by the government was considered a problem in most countries, meaning that local institutes do not have enough possibilities to influence their practices and decisions come from above. In practice, this can mean that politicians decide which persons are appointed to various positions within the organization, and that they make funding decisions. It is common in these institutes that mid-level and upper management have been chosen solely based on their political background. This can and usually will cause problems in the practical cooperation processes. Politically appointed people usually do not have the needed expertise to make decisions and "everything becomes a fuss when no one knows what they know or what to do, but officially everything works", as explained by one expert. In addition, these political posts often only last a short time. This makes things more challenging as people in key positions change after a couple of years and it takes a long time for the new person to get acquainted with their tasks. This slows down all development processes and may influence development cooperation projects as well. In many countries, the mandate of the local met-office is not defined by law, and this can make it more difficult for them to fulfill their societal role. From the perspective of the Finnish experts involved, these issues mean that people who do not have the needed expertise get to make decisions, and the voice of those who have the expertise, is not heard. This can generate a lot of frustration during the projects, and give the feeling that much of what is done is going to waste. One expert explained that increasing independence in decision-making would raise the motivation of local experts to develop their own organizations. Weak motivation is a problem in many of these organizations, since decisions mainly come from above and not from within:

> Being goal-oriented is something we aim to be in all the projects, that there would be some strategy or concept which would outline what they are doing. This is usually missing. For them, being goal-oriented usually means that they do something because the minister has told them to do it, or that they simply produce data for a single file, which is then put "somewhere".

However, there are also opposing perspectives to the issue of increasing the local staff's independence. One expert, having experience from both the public and private sector, states that:

> If I think about this from the perspective of a radar, for example, a radar costs one million, which is a huge sum of money. The lower the decision-making happens, the bigger the risks are that stupid decisions are made. Of course there is the risk that the radar will be located in the home village of the minister or the deputy director, it always is. There is always someone behind the decisions of who gets to decide, and their motivations are usually something else than patriotic. But a foreigner does not know that better either.

The issue of who to "give" decision-making power to is central. The argument for giving more decision-making power to experts in local met-offices is based on the fact that they have more substance knowledge than politicians. However, is this a strong argument? There has been also a lot of talk about an inadequate level of education and training, and problems with finding competent staff. Big decisions, such as where to place a radar or how to organize a national weather observation network, have strong political relevance, of which meteorological experts might not have enough

knowledge. Perhaps the right way to move forward would be to add cooperation between the political and expert staff, so that both could contribute according to their expertise.

In addition to decisions coming from above, there is also the problem of interventions and decisions coming from outside, referring to the complex role of donors. In some extreme cases, it was noted that there can be a huge number of cooperation projects going on at the same time, which are not only initiated but also led by donors. Many of the local met-offices are understandably reluctant to turn down offers for cooperation and aid when it is presented as an opportunity, simply because they have a constant need for more resources. Many donors are reluctant to give full ownership to local representatives, because of for instance fears of corruption. This has led to situations where some met-offices have piled up a huge number of simultaneous development cooperation projects, with similar or even overlapping goals. Coordinating these projects then becomes an impossible task, and since there is no true local ownership, the outcomes of these projects do not necessarily serve local needs. One expert mentioned that the finger should be perhaps pointed at the local political leadership, and not the local institutes. Nevertheless, it should also be pointed at the community of donors, which encourages equally, if not even more harmful aid practices.

Overall, the experiences and perspectives of the meteorological experts show that the role of local politicians is generally considered too influential in many aid recipient countries, and the role of the "aid industry" is considered to be fairly strong. There seems to be very little one is able to do with the decisions made by local politicians or by the MFA in these projects. The political aspects of cooperation are something most experts are not involved with, and are happy with that, but this issue leads to a situation where the decision-makers in the aid community don't have easy access to important information and tacit knowledge that the experts have accumulated over the years they have been involved with these projects. This is one main reason why the mentality of governing aid with a top-down approach doesn't work.

The discussions regarding the political aspects of cooperation also included some ideas of the experts regarding concrete options to solve some of the difficulties the local met-offices are dealing with. One strongly supported option was to work towards changing the role of these institutes and enable them to sell their services and generate income, as proposed by several of the interviewed experts. This has already been done in some countries, but in most cases, the income goes directly to the government and not to the local institute. This should be changed, and all profits from these practices should be used for the development of local meteorological services. In some countries, this has not yet been tried, and in extreme cases, selling services is actually forbidden by law. In recent projects, Finnish experts have pushed these laws to be changed — sometimes successfully. Activity like this would benefit both governments and local institutes in terms of their capacity. It would make the practices of local met-offices more structured, goal-oriented, and open up the possibility of gaining additional external financing. This would naturally also decrease their dependence over the Ministry, which can be be a problem.

The problem behind poor capacity seems to be related to a lack of resources — staff, equipment and finances. The problems behind poor resources are essentially political and hard to solve. Generating more cooperation between developing countries is seen as one of the most important ways to overcome this. The argument is that since many countries are struggling with poor economic situations and inadequate resources, it would benefit all if there were more cooperation and shared systems of operation. This could produce more cost-efficient systems with better quality outcomes. However, as mentioned in the quotation starting this section, it is

often hard to create cooperation between neighboring countries. Even though this option is promoted and considered a solution, it often remains on the level of ideology and not practice. Regarding the issue of regional cooperation, one expert stated the following:

> They should be able to cooperate with their neighbors, but that is really difficult. That would be a significant improvement, and I think that Europe should act as an example in this. To show that all neighborly relationships do not need to be about exploitation, but that you can do cooperation.

The above quotation is very interesting, as it discusses the role of Europe as providing an example of non-exploitative cooperative relationships. And yet, there is a long history of European colonialism and past relationships between European nations and most countries receiving aid in these projects. Of course, the point here is to look at cooperation from a non-political perspective, and that European countries, since they are at the forefront of meteorology, should portray good practices.

To get to the point where international cooperation highly benefits developing countries (so that less money is required and added benefits are gained), a lot of work needs to be done and many political issues need to be resolved. For most of the poorest developing countries, a lot of promotional work needs to be done to get the local politicians interested in or even aware of the work of local met-offices.

In the regional cooperation projects, there have been problems in creating well-working cooperation solutions. There are also national political security issues involved with these aspects. All countries want to manage their own systems, and have the responsibility and ability to administer them. Being dependent on another country's practices or equipment can create major problems in crises. Systems should be developed to provide win-win situations for both, but this might be hard in practice, since systems of operation use hardware located in specific geographical areas.

> These meteorological projects have not been that interesting or fascinating to the decision-makers, because we have trained people, we have supplied them with technical equipment, and have done follow-ups in terms of if the equipment has been used. So money has not been transferred directly, it has been mainly equipment that has been sent.

As mentioned, donor experts agreed that the societal role of these organizations needs to be enhanced, because these organizations seem to be "forgotten" in many ways. One practical suggestion has been to try to get weather forecasts on national TV channels, which is still missing in many countries. Currently, the relevance of the met-offices is mainly acknowledged at times of crises. Much of the work done by met-office Director-Generals in developed countries is aimed at promoting meteorology. In practice, this means a lot of awareness raising and meetings with key political figures. Estimates regarding return-on-investment calculations are used to demonstrate how much a society can get money back per invested dollar, in crises situations. Although creating these estimates can be somewhat problematic, there is clear evidence that investing in meteorological services and disaster preparedness is beneficial. However, the problem of lacking financial resources remains, as money for meteorology essentially competes with money for education and money for health, and in this competition, it often loses.

> If one asks for money for education, and another wants financial support for food production, and there is corruption in the country, so the field of action is not in

any way clear. In cases like this, the meteorological office is just a drop in the ocean, with the other ones.

Several experts mentioned a disinterest by local politicians regarding meteorology or the concrete practices of meteorological organizations. Interestingly, it was also noted that perhaps there is not much interest for doing cooperation with the politicians among the meteorologists either. As one expert put it "in their met-office, there is this idea that as long as the Ministry does not get involved, everything is fine". The problem with having a poor societal role may not be caused by the failure of politicians to understand the relevance of local institutes. It might be that there simply is a strong divide between these actors, and both sides fail to seek common ground. The meteorological experts in this specific case based their unwillingness to cooperate on corruption. There had been talk about a previous case of trading passwords for money, which understandably created a lot of mistrust between the stakeholders. Having continuous struggles with corruption outside and inside the meteorological offices is a major hindrance to capacity development.

The most productive time for local institutes to convince politicians of the importance of good meteorological capacity is unfortunately when disasters strike. This is an example of how the experts of recipient organizations can use episodic power. It is an opportunity to make the decision-makers hear the perhaps previously unheard voice of the local meteorologists, and say that if we get more input and investments for our capacity, future events like this could be handled better and more lives could be saved. Showing in practice what the benefits are, was considered a good way to approach decision-makers.

Regarding the required promotional work and enhancing the local relevance of the institute, there were discussions related to the role of local leadership and directors. One expert described the political leadership as mainly authoritarian, and stated:

> It influences things at many levels. They change the managers overnight when the government changes. In cases like this, the basis for selection is "appropriate" and not "competent". The last time I was there, I was especially amazed at how the regular staff's actions change, at the level where they do development work, because the government has changed.

She continued by noting:

> When I give trainings, the directors say what the answer is. It is difficult to do practice tasks and tell them that now they can ask questions, if the manager is present. There is this hierarchical structure, which is part of the culture. It is not just part of the leadership culture, but everything, you see it in the way they act. In all countries, there is this sort of bouncing around, which happens, because the director's power is so influential. When the director changes or their opinion changes, plans become old plans.

Strong managerial power is problematic, especially when leadership has been chosen on political grounds. They might not have the needed expertise to make decisions and external experts are usually caught in a difficult situation.

Another problematic issue in addition to political leadership styles was the absence of the directors. In some countries, there is the feeling among local experts that the management travels a lot, perhaps too much, and sometimes it causes problems at the local offices. Things might not proceed at the local office when all the decision-makers are gone, and it is not always clear whether these trips are in fact beneficial for the local met-offices. Moreover, while they might be actively engaged in

networking abroad, there can be major difficulties in doing cooperation with their neighboring countries or even within their own country. This has led to a situation where there are overlapping systems, which is essentially a waste of money. For example, in many countries, the meteorological office and airport weather services are two separate organizations. They might even both have their own weather radars, and it would be highly beneficial for them to exchange information with each other, but they simply do not do that. In cases like this, getting rid of "redundant" weather observation equipment could also bring up political power struggles.

There is also a lot of variation in terms of what kind of a relationship the local met-offices have with the political representation. Mainly, it was mentioned that this is influenced by under which ministry the office is located. It was stated that typically a met-office located under the ministry of environment has less political relevance than if it is located under the ministry of transportation or defense, and this is simply because marginal ministries have less financial resources. Additionally, it was mentioned that met-offices connected with aviation usually have better financial resources. International standards for weather services for the use of the aviation industry are rather strict and therefore all countries who wish to have flight traffic, must invest in these services. One indirect way of influencing the level of capacity would be to lobby for the relocation of met-offices to ministries, which are valued and have access to better financial resources. The role of the donor is problematic as well. One expert stated that:

> There is the risk that the perspective is too narrow, and this applies to development cooperation people as well. The bigger and more influential the [donor] country is, who is doing development cooperation in some country, the more they merely copy their own system there. And for that reason, I think Finland has a surprisingly good role in this, because we are a small country and a small weather institute. We are able to say that in Finland we have done this, but there are other ways.

In the quotation, the expert defined a narrow perspective as a problem for donors from big countries, but classified Finland as a small country, whose staff is better able to identify with the local situations of developing nations and develop solutions which are more suitable for their needs. Based on other interviews conducted for this study, I agree that this is true in the sense that no one is suggesting that the Finnish way of doing things would be the only correct path for the countries they are cooperating with. Still, there is this teacher-student set-up present in cooperation, as well as hierarchy built into the donor-recipient relationship, which does influence how things play out in the end.

8.1.2 THE PERSPECTIVES OF PRIVATE SECTOR EXPERTS

Private sector experts have similar perspectives towards the political aspects of meteorology; they see that there is a clear need to strengthen the position of these organizations in their own societies. Interestingly, one expert brought up this issue in the following way in a discussion regarding the independence of these institutes and their societal role:

> It varies from case to case. Where there is good leadership, they are able to be independent. Finland is a good example of this; they are able to influence things on all levels of the local society and in some developing countries as well. Only on

rare occasion is there a similar situation in developing countries. A big majority of them have not been able to take their place.

Meteorological experts share this opinion as well, but their argument is formulated differently. While meteorological experts lay the blame on politicians and their inability to understand the relevance of meteorology, the aspects here are much more proactive, "taking" recognition and "owning" their position, instead of waiting and expecting it to be given. Regarding the role of politics in met-offices, one expert characterized a typical situation in the following way:

> There is usually this traditional set-up that the director of the met-office is often a political figure, who does not have any substance knowledge, not necessarily even a history from working in meteorology. He/she is a political figure, who is put there during one regime and it causes problems because often the decision-making process is very conservative, authoritarian. So, when the director decides and you have to get him/her on your side, and it may be that this person does not understand anything, especially regarding weather, and things get stuck there. Nevertheless, it may be that on the operational side they are very active, and well-informed people who are desperately trying to get things improved, to get modernization and projects going. --- I have seen in many met-offices in Africa, places I have been to, that they [experts] understand the needs and requirements, but then things get stuck on the upper level.

Private sector experts have different perspectives on the political aspects of meteorological development cooperation, mainly because they are actively involved with politicians, unlike meteorological experts. As mentioned by one expert, "It is always good to talk to those who make the decisions". This does not apply to projects where they are simply suppliers of technical equipment, but rather to projects that they do independently. Since politicians make the decisions, they are the people who Vaisala staff has to and wants to be in contact with, for example when marketing their products and negotiating practical issues if and when business transactions occur. It was stated that they mainly focus on the negotiation processes, and do not engage much in lobbying, which according to one expert, "would be going a little bit overboard". It was highlighted that it is important that politicians accept everything that is going on in the met-offices, and for that reason, it is sensible to be directly in contact with them. One expert explained that substance issues can of course be discussed with the meteorological office staff (to determine what their needs are), but that all official negotiations happen with the political decision-makers. At times, this process can be quite complex:

> Things move back and forth, and it often takes a long time before decisions are made. During the negotiation process, you meet the politicians on several occasions, and try to convince them to buy, and to think about it, and sometimes a proposal goes through to the minister, but it can take up so much time that new elections are held and the people change, and you have to start things all over again. This happens. At times, it is frustrating, but once in while you get rewards.

The success of the meteorological organizations was parallel to the general ability of the country to function. The better the society is organized, the better is the level of output from the meteorological organizations as well.

Since private sector experts are "forced" to interact with the local political representation in their daily work, their perspectives towards the politics of meteorological development cooperation seems to be quite realistic, as it is based on actual interaction and personal experience. Because they are actively involved with

negotiating with the political representatives, they have had had to learn how to play their game, with their rules. They have also had to learn how to take advantage of the system and the political dilemmas of doing cooperation:

> In some countries, there is this lousy situation that neighboring nations are not able to cooperate, not even share data, with each other. If you think about it in a mean way, for us it is a good thing, because then you can say that they have to put a station on the border, and another one on the other side of it, because they will not share the data with each other. Overall, this is an absurd situation, to have two stations next to each other.

The above quotation demonstrates how politics can influence global capacity development. As the main project goal for private sector experts is to sell more equipment, in situations like this, one can benefit from better sales. But this is not something the private sector experts necessarily push for, because added cooperation between South-South partners can also open up new business opportunities. In a discussion regarding the cooperation between various countries, the juxtaposition between politicians and experts of meteorology was brought up in the following way:

> The political aspects are highly interesting, how they influence the market and what kind of cooperation one is able to do. Because weather cannot be owned, there are benefits to all if you cooperate with each other. It would be interesting to see how countries who have been fighting over things for a long time, could become closer to each other. On the operational level, they get along, can sit in the same table and discuss, but the people "above" bicker over things. This applies especially to hydrology. --- For the scientists, the substance is more important, they prioritize that over national questions.

Another expert, with experience from both the private and public sector stated that their generation of meteorologists in Finland consider themselves scientists and want to use knowledge to do something concrete. They have professional pride and they understand how things work. "But that is not enough; the other side of our job is to be able to explain it in a way that someone can base their actions on it."

The above statements, both discussing the role of meteorologists as scientists, are important reflections of how meteorologists see their role. The first quotation, ending with the argument about scientists prioritizing substance over national questions, is highly interesting. Statements like this were presented by many private sector, but also FMI staff members. The common undertone detectable in these statements is that experts value the content more than politics, but experts making this argument still acknowledge that politics has more relevance, since it can hinder and even stop developments. In the latter quotation, the expert uses the word "bickering" in a way that implies that in his opinion, the politicians are in a way childish because they are focusing on political issues instead of the content. The argument also implies that if everyone, content experts and politicians, would solely focus on the content instead of politics, there would be no problems. It does not matter if this is true or not, since it is an impossible proposition. No matter how much the meteorologists would want to focus on meteorology, the political aspects of the field are inescapable. In addition, the currently observable juxtaposition between the scientists and politicians does not help to solve the problems of capacity development. In fact, it is making it even more difficult to solve the problems. Further coming together is required to gain more sustainable solutions.

There are also questions of where to draw the line between the substance of meteorology and politics, why the experts are not interested in the political aspects, and could there perhaps be less "political problems", if the experts were more

involved? Additionally, private sector experts argue that the less politics is involved with the local institutes, the more professional the institutes are, and the less political the practices are. Meteorology as a field has political aspects to it, and it is eventually harmful to distance oneself from these matters even though many experts tend to separate them. In the met-offices of developing countries, politics has a more relevant role than in Finland and elsewhere in the developed world. Politics influences cooperation and should be taken into consideration in both planning and execution.

On a different note, in the discussions regarding the role of national met-offices and adding their level of independence and decision-making power, it was mentioned that this could lead to a situation where the local institutes act solely based on their own interests instead of the benefit of the local society. Therefore, in a way, political steering can in fact be beneficial, if it is of good quality. It was also mentioned that society in general, referring to the political actors, should determine the focus areas and needs of the local society, and outline those for the met-offices. For example, it might be decided that tourism or fishing are the focus areas for which services need to be developed. Those can be quite different from the needs of agriculture.

8.1.3 THE PERSPECTIVES OF MINISTRY OFFICIALS

Ministry staff had a slightly different perspective regarding politics, in terms of for example the societal role of the met-offices in developing nations. Experts with a lot of experience in the field recognized the importance of raising the societal role of local met-offices. But unlike the FMI and Vaisala staff, some Ministry officials argued that their societal role is at a decent level, and that during the past few years, there has been a significant improvement in the role of local met-offices, which they credited to the recent focus on climate change:

> A significant change has occurred in the past three years, because of climate negotiations. Every minister in each nation is aware of the processes going on. I am not saying that the met-offices have been promoted to the inner circle, but that it has been noticed that they have something to say on these issues and that they are able to give background material needed for the negotiations.

A similar shift in importance was not pointed out by any of the FMI or Vaisala staff members. This might be because they focus on different things when discussing capacity. Their focus might be on technological equipment, the outputs of the met-offices and the general list of services they are able to provide. The view of the Ministry staff of the situation originates from a slightly different perspective, looking at where met-offices are mentioned and what is going on in the field in general. It might also be that the role of the institutes is recognized on paper, and politicians are present giving impressive speeches when the donor-side financers are visiting, but in practice, their role might be less significant. As proposed by one Ministry expert, it might be that Ministry representatives are purposely given an embellished view to the local situation during their short visits to project sites. Recipients have also shown great appreciation for the aid they receive, but that does not mean that the aid is actually effective. There were also differences in how the experts conceptualized societal roles. One expert argued that since the local met-offices are included in the negotiation processes, they therefore have an adequately recognized societal role. It was also brought up that in countries where climate change poses a serious threat, the local met-office has more relevance and hence, its societal role is respected as well. Other experts did not necessarily share this view, but argued that precisely because climate

change poses such a serious threat, the role of the met-offices needs to be further enhanced.

When discussing the reasons behind the success of local institutes, it was mentioned that the main responsibility lies with the local staff:

> I think the institute itself has to understand its societal role, and the management of the institute plays a significant part in this, to convince their own government that what they are doing is actually important. This way, the financers become convinced as well.

As was the case of the private sector staff, the Ministry expert in the above quotation recognized the importance of developing the ownership and responsibility of local met-offices.

Regarding local development, Ministry officials emphasized the importance of good governance, raising the societal role local met-offices to an adequate level, and ensuring that the basic observation network functions well. This would mean that the institute is able to collect sufficient data, pass it on for international distribution, make basic forecasts and issue proper warnings. More advanced meteorological equipment should not be received until the basic operations function properly, and the country can afford to maintain them. This perspective comes from the long tradition of technical aid, and the problems traditionally associated with it. There have been many cases in the history of Finnish aid, where expensive equipment has been left unused or used only for a short period of time. Most often, this is because there are insufficient financial resources to buy the needed consumables for the equipment or there is not enough skilled staff to make the needed repairs. This approach is somewhat different from that of the meteorological experts, who see that knowledge is transferred to the local institutes from the donor side, and in this process it is possible for the local institutes to skip some stages of development, and move directly to the level where they are able to utilize more recent technology. If we are talking about Vaisala equipment, for example, they are selling the most recent technology, not old and outdated equipment. This is a concrete obstacle for the strategy proposed by the Ministry expert.

Regarding information flows, it was stated by one expert that the flow of information is a difficult process, but that applies to all countries, not just developing nations. She also brought up that it would be good if information was not used as power. Of course, in a field like meteorology, many things may be sensitive and can thus be used for various purposes, some of which are ethical and some which are not.

When talking about the field and the political issues involved with it, it was brought up that, from an outsider's perspective, meteorologists seem to form a quite tight-knit community. They get to know each other well in international meetings and in many ways meteorologists have a lot in common, no matter where they come from. A community like this has its downsides when it comes to meteorological development cooperation, since there can be jealousy regarding the assistance received by some countries when others are also in need of assistance. This may create discontent and disappointments. This can also induce competition between aid recipients, and even between donors.

In many cases, there is not much room for flexibility in terms of governmental structures. As one option, it was proposed that meteorological institutes could function across governmental boundaries, providing services to all organizations in need, so that they would be cross-cutting in terms of their practices. Nevertheless, working in this manner would require a major shift in ideology. One expert stated that it might be hard to do something like this in Finland, but it is even more difficult to try it in the context of a developing country. The culture is just like that, that if you step on someone else's box, you instantly get a note from the Ministry or a director

reminding you to stay within the boundaries of your own box, as was explained by one expert.

Regarding the ownership of the projects, the Ministry staff recognizes the importance of local ownership as a key issue influencing project success, but that at times it can be difficult to find good partners, who would for instance be able to take care of regional cooperation. In some cases, not having good local coordination served as a reason for discontinuing project planning.

Another politically sensitive issue mentioned was the amount of people employed by the local institutes. It was mentioned that there is usually a huge number of people working in these organizations. Often, this was seen to decrease the productivity of the met-offices, but to be an issue which is hard to change. Some private sector experts discussed this topic as well, and mentioned that since labor is cheap in these countries, it is not a problem to have many staff members, but that work has to be organized completely differently than in developed countries, where most operation systems are automatic. So, a large staff can either be seen as a hindrance or a benefit, depending on the perspective. The main argument used by those defending the large number of staff members is that it makes sense to employ locals when it is possible to do so. For the local communities, losing any job opportunities might be detrimental and something to be avoided whenever possible.

Some Ministry representatives had quite a cynical view of improving local services and operation systems. One expert discussed his experiences in Africa and said that since the experts working in these institutes are government officials, most likely their salary is not high enough for them to get by:

> They are government officials, and their salaries are terribly low. Simply, you cannot provide for your family with a low pay like that. You have to come up with something else. Meteorology as a field is difficult because it is hard to ask for extra money under the table, and you know that they do not show up for work. Many of them leave, but there is also some value in the white-collar worker status, it is important for the family. In addition, this may open up important doors. And the culture is, even for me, having lived there for many years, it is hard for me to understand it.

The same expert continued by arguing that the reason for why the met-offices have poor capacity is simply because they are not appealing to investors.

> Because they do not have investor money, which requires efficiency and requires results, so the politics of going about things is a "for you - for me" type of mentality, between the political parties, their own tribe and within their own extended families. So, where to start with unwinding this...

Politics also play a role in the more practical aspects of developing meteorological capacity. For example, in some countries, there is strong public opposition against the installation of weather radars. This was explained by the fact that they are government owned, and some fear that they will give out radiation. In Finland, if the FMI is establishing new weather radar, there is heavy competition over which area gets it, because the job creation aspect of it is considered important. But in some countries, it has been a problem to get permissions for radars. To avoid public opposition, in some of the meteorological development cooperation projects, there have been heavy PR campaigns included in the projects to gain public acceptance and support.

Overall, the approach of the political experts differs from the meteorological and Vaisala experts. Political experts of course have much more experience regarding the difficulties of the political decision-making processes and things that happen behind

closed doors. From their point of view, it seems that the decision they make and things that happen all happen for a reason. The reasons may however not be so visible to the meteorological and private sector experts, or the local aid recipient side experts. The strong role of the Ministry in terms of decision-making and power is clear, that's the way the system works and there are no exceptions. The role of the meteorological experts is to provide information for decision-making processes and policy processes, and there is a pre-established system for doing so. However, it seems clear that this channel is quite narrow and access to it is not granted for everyone. Accessing the macro level is difficult from the meso and individual levels of operation.

8.2 POLITICAL CONTROVERSIES

In this section, I will discuss some more detailed aspects of the political controversies surrounding the main stakeholders and topics of this study. These include controversies with international data exchange, legislation regarding the selling of dual-use items and Policy Coherence for Development (PCD).

The controversies surrounding the donor-side stakeholders discussed are not something that was part of the research interviews. When I started this study, I read about the actors and their role in the field. Some of the controversies were known to me prior to starting this study. The reason for including them here came from the fact that no person is able to work in these projects in isolation from their employee organization's history. Although I think that none of the informants of this study are connected to the controversial issues discussed in the following sections, it is important to provide this information to the readers of this thesis. This way the reader becomes more aware of the complexities involved with this field in general and the practical challenges relating to them. These controversies are also important in terms of understanding what types of challenges there are in public-private partnerships in development.

8.2.1 DATA

In this section, I will discuss the political role of data in the context of meteorology and meteorological development cooperation. The WMO Resolution 40 is the WMO policy and practice for the exchange of meteorological and related data and products, including guidelines on the relationships in commercial and meteorological activities. The following policy was outlined by the 12th WMO congress in 1995:

> As a fundamental principle of the World Meteorological Organization, and in consonance with the expanding requirements for its scientific and technical expertise, WMO commits itself to broadening and enhancing the free and unrestricted international exchange of meteorological and related data and products. (World Meteorological Organization, 2014d)

Political debate regarding the content of the Resolution 40 heated in 1998, when the National Weather Service (NWS) of the United States announced that they have unanimously decided that on September 30, 1998, all European data (model or synoptic data) will be made available through the NWS website, and will be open to all free of charge. It was assumed that users will be aware that the data cannot be used for commercial practices, but no technical limitations were set. The Europeans were stunned by this announcement. (Tiainen, 1998:27) During the summer of 1998, heated debates surrounded the rights of the Americans to publish and make available

European data, which had thus far been sold. The interpretation of the Resolution 40 was different on the opposite sides of the Atlantic. What made the situation more complicated was that the principles of Resolution 40 were vague, as they had formed over time because of multiple negotiation processes and compromises. This enabled different interest groups to interpret the resolution based on their own needs. The nations which had signed the resolution, did not want to be seen to have broken the spirit of the resolution, but instead wanted to act as diplomatic partners. The fact that meteorological services in Europe and in America were financed through different systems further complicated the matter. Contrary to common belief, European met-offices have been headed towards financial self-sufficiency, while the American system has in fact been more "socialist", with the NWS completely financed by the government. The UK Met Office had calculated that if the Americans go ahead with their plan, they would lose five percent of their annual income. The Europeans had demanded that some kind of a technical protection mechanism should be created for the website, for example a password or a corresponding authorization system. The Americans pleaded on the fact that the data was primarily meant for US citizens, and to create and sustain such a system would be expensive. In April 1998, the cause for concern was that if the debate on data heats up even more, European data sources will be closed, and the situation might complicate data access for developing nations as well. (Tiainen, 1998:27)

Weiss (2002) argues that the federal information policy in the United States is based on the premise that government information is a valuable national resource. The economic benefits to the society are maximized when information produced with taxpayer money is made available inexpensively and as widely as possible. This policy encourages the development of the private sector by offering raw data. In other countries, especially in Europe, publicly funded government agencies treat their data as a commodity used to create short-term revenue. Usually, a monopoly system controls certain categories of information to recover the costs of data collection or creation. Weiss argues that such arrangements tend to preclude other entities from developing markets for the information, or otherwise disseminating it for public use. In the United States, the adopted policy of free data sharing has generated growth in information intensive industries, particularly in the fields of environmental services and geographic information. Similar growth has not occurred in Europe due to restrictive government practices. Differences in data access between the Europeans and Americans frustrate European private sector actors, because the Americans have significant competitive advantages. European data policies also hamper the development of transnational data sets. (Weiss, 2002:2)

Research into the economic potential of public sector information and the effects of governmental information policies on the economy activated in the early 2000s. One relevant research commissioned by the European Commission's Directorate General for the Information Society, conducted by PIRA International, was on the subject of commercial exploitation of European public sector information. The study attempted to quantify the economic potential of public sector information in Europe, and suggested relevant policy initiatives and good practices. The study found that charging for public sector information might be counter-productive even from a short-term perspective of raising direct revenue for government agencies. It was also suggested that governments should make public sector information available in a digital format, at no more than the cost of dissemination. Governments gain two additional financial gains if charges are removed: a higher indirect tax revenue from higher sales of products using public sector data, as well as higher income tax revenue and lower social welfare payments from net gains in employment. (PIRA International, 2000)

Weiss also wrote about the appropriate role of government in relation to competition with the private sector. The main question is whether commercial

activities that compete with the private sector are appropriate for a government agency funded primarily by taxpayers. In 1995, European national weather services prevailed in the WMO on the issue of replacing the organization's previous policy of full and open exchange of meteorological information, with WMO Resolution 40 CgXII, which places sanctions for any charges or user restrictions for broad categories of data. (Weiss, 2002:9)

> The change of policy was aimed at preventing private sector entities from competing with national meteorological services in Europe, which recoup costs through sales of data and services. --- WMO resolution 40 substantially decreased the amount of data member nations made freely available. (National Research Council, 2001)

Recent examples of the activities of national meteorological institutes highlighted this point. For example, in Switzerland, a commercial meteorology firm claimed that the Swiss national meteorology agency was engaging in price discrimination by offering discounted, nominal prices to its own commercial arm. In Germany, the leading newspaper *Der Spiegel* published an exposé of the national weather service, Deutscher Wetterdienst (DWD), and claimed that it was engaging in price discrimination by attempting to drive its newly emerging commercial weather service competitors out of business. A claim was put forth that the DWD offered ready-to-air weather forecasts to television and radio stations at prices equal or lower than what they charged commercial meteorological firms for the raw data on which to base their competing forecasts. The Finnish Meteorological Institute has also engaged with related practices in the past. In an apparent attempt to drive commercial weather companies out of business, the FMI deliberately degraded radar images sold to private sector companies between June 1999 and December 1999. The degraded images included "clutter", false radar signals, which the users mistook for rain. The FMI used high-quality radar images in its own operations. The Finnish Competition Authority found the FMI to have abused its dominant position in the meteorological data market and issued the FMI a 200 000 FIM fine (33 500 euros). As a result, the Finnish government announced plans to privatize the commercial arm of the FMI. (Weiss, 2002:8-9)

Some years later, in 2007, the European Union adopted the INSPIRE directive, which requires public authorities to describe spatial data covered by the directive and to offer them for shared use via information networks. During the same year, the FMI started an open data project. The Open Data Online service was launched on May 15, 2013. The data sets which have been made available are continuous observational and model forecast data produced by the FMI. (Honkola et al., 2013:6) In November 2014, the open data sets included weather, sea and climate observations, radar and lightning data, as well as information regarding the national weather forecasting model. The use of this data requires registration and the use of a password. The data is freely available, but some fees are charged in cases where the FMI is asked to search and deliver specific data for the customer. The fees are based on the fee regulations of the Ministry of Transportation and Communication and the government. (Finnish Meteorological Institute, 2014d)

8.2.2 METEOROLOGICAL EQUIPMENT AND DEFENSE POLITICS

Meteorological phenomena have major political relevance at times of crises. In the context of this study, this has been mainly discussed in reference to natural disasters, but weather plays a major role at times of conflicts and war as well.

The political controversy surrounding Vaisala has been mainly about selling equipment that can be used for defense purposes. In a documentary released in 2012 (Finnish Broadcasting Company, 2012a), it was argued that weather equipment manufactured by Vaisala is used in warfare by many countries. Weather data is for instance highly important for accuracy in targeted bombing, for example. The issue behind the controversy is the confusing legislation regarding so called dual-use items, which can be used for both civilian and military use.

In Finnish legislation, dual-use items refer to products, technologies, services and other goods which may have military applications or may contribute to the proliferation of weapons of mass destruction (WMDs). These products can be high-technology products such as nuclear substances, electronics, computer devices, data communications and data protection equipment, sensors and lasers. The transit and brokering of these items are subject to a license. However, the control is limited to such cases where there is reason to suspect the use for WMD purposes. (Ministry for Foreign Affairs, 2016a) Equipment related to weather forecasting is not included on the list of dual-use items, and thus do not require a permit for export. The Ministry for Foreign Affairs states that since weather equipment is not included on the list under EU legislation, permits are not required for them. The controversy stems from the fact that some of Vaisala's equipment is clearly intended for defense purposes and yet is not placed under export control. (Finnish Broadcasting Company, 2012a)

Additionally, relating to these issues, Vaisala has been claimed to be involved with some controversial business deals. For example, WikiLeaks documents[63] reveal that the United States was concerned about a possible deal between Iran and Vaisala, and approached Finnish officials about it several times in 2006 and 2007. According to the MFA, no Finnish technology ended up in Iranian Unmanned Aerial Vehicles (UAVs) (Finnish Broadcasting Company, 2012a). Another source stated that the deal was cancelled by Vaisala because their employees did not believe the explanations of the Iranian buyers regarding the planned use of the equipment. (Pykälä, 2014:27) Vaisala has also been linked to selling equipment to both India and Pakistan, who have been and are still fighting each other in the Kashmir conflict, which has been ongoing since 1947. (Pykälä, 2014:27) In 2011, the pacifist NGO Committee of 100 in Finland placed a complaint to the Chancellor of Justice of the Government over Vaisala exporting its products after 1995 without a license (which was required before), and claimed that its equipment has been used in the war in Iraq in 2003 and in the bombings of Serbia and Kosovo in 1999. (Kansan uutiset, 2011)

The controversy over the policies regarding the labeling of dual-use items and trade on these items relates to the decision of policy-makers to either give direct support to Finnish trade or indirect support to global peace efforts. In a book about Finnish arms trade published in 2014, J. Pykälä argues that in general supervision is well regulated, but poorly executed. Regarding international export permissions, a "one permission policy" is becoming more common internationally, but in Finland these permissions are handled by different officials. Permits for dual-use items are handled by the Ministry for Foreign Affairs, permits for war products by the Ministry for Defense, and civilian arms and bullet licenses are granted by the National Police Board. Licenses for products regarding to torture instruments and the execution of the death penalty have to be applied for from the Police Department at the Ministry of Internal Affairs[64]. (Pykälä, 2014:142) If a company wants to export such items outside the European Union, a political assessment is made. This does not apply to countries declared safe by the Finnish government; Australia, Japan, Canada, Switzerland, New Zealand and the United States. Political assessments are

[63] For example, in the document titled: Providing the GoF with new information on possible cooperation between a Finnish company and the Iranian UAV program.

[64] Officials were unsure about this in 2013 when the book by Pykälä was written.

coordinated by the Unit for Arms Control at the Ministry for Foreign Affairs. Since permits are applied for from various officials, there is the risk that no one has a coherent overview of the overall situation, of what exactly is exported and where. The Ministry for Foreign Affairs has emphasized the political importance of export permissions, and according to the Ministry, officials making the decisions follow official policies. In practice, it is the Ministry for Foreign Affairs who makes the decisions regarding Finnish arms trade policies, not the other officials and ministries handling the permits. In practice, only the Council of State can override the Ministry for Foreign Affairs, and it has done so for example when it bypassed the MFA's negative position on an export trade of mortars to Saudi Arabia. Permits are handled by the Council of State when export permits are applied for equipment used in combat and when the size of the deal is substantial. The size limit of such trades has not been defined in the law, but the established custom has been that the Council of State deals with permits regarding trade for one million euros and above. (Pykälä, 2014:145-148)

In general, the weapons trade industry is full of controversies. Exporting arms is usually justified with national reasons, for example that arms trade has relevance for national defense politics and that it employs people. The domestic demand in Finland is not high enough to fulfill the companies' expectations for growth, profits and production capacity, which leads them to export a large share of their products. Restrictions set for arms trade are also based on international treaties and global restrictions on the growth of armed violence. The arguments for and against arms trade are not fulfilling on either side. Arms trade can reduce violence, if and when government officials are able to use it to provide a higher level of safety and general order. For these reasons, arms trade deals are and should be evaluated on a case-by-case principle. What remains important, however, is to ask what goals are set for arms trade in general and how the decisions contribute to these goals. (Pykälä, 2014)

8.2.3 THE AID SYSTEM – POLICY COHERENCE FOR DEVELOPMENT (PCD)

The controversies surrounding aid in general relate to the actions of the Finnish government as well as the Ministry for Foreign Affairs. The reason behind most contradictions is the fact that the main goal of the Ministry is to both promote the commercial and economic interests of Finland and take responsibility for development policy and development cooperation. On many occasions, the main goal of development policy, "poverty reduction", is in conflict with actions aiming to promote national economic and commercial interests. For example, during the time period between January 2015–June 2016, 522 permits for weapons trade were given, 50 of which were given for trade with countries located in the Middle East. Finland's arms trade during 2004–2014 was worth a total of 1.2 billion euros. (Finnish Broadcasting Company, 2016)

When talking about development policy, it is important to discuss policy coherence. Many economic and political forces have an influence on developing countries, and the expected outcomes of aid cannot be very high, when in many cases what is given with one hand is taken away with the other hand. This happens especially when products from developing countries are discriminated through customs and commerce regulations, or when funds from developing countries are transferred overseas with tax evasion procedures. (Koponen and Seppänen, 2016, 345)

Policy Coherence for Development (PCD) has been a regular part of the discussion on development policies since the early 1990s. It is potentially one of the most powerful instruments in the fight against poverty. Ensuring its effectiveness is an

enormous challenge, in which transparency and political commitment are in an essential role. The OECD defines PCD as action to ensure that the objectives and results of development policies are not undermined by other policies influencing developing countries, and other policies, whenever feasible, should support development objectives. (Droeze, 2016, 165–166) The areas which are especially important for policy coherence are trade and finance policy, environment policy — especially climate change policy — as well as fields that influence food security (such as agriculture and fishery), and politics relating to security, human rights and immigration. (Koponen and Seppänen, 2016:347) In the context of this study, policy coherence issues relating to environment and security issues are considered the most important and interesting.

Processes in development and development policy are aimed at getting the entire system, and all the stakeholders involved, to work on achieving the same goals. Aid is a concrete investment that is, or at least should be, aimed exclusively at development. Other policy elements should also be harmonized with these goals. For the donor, the investment is clearly defined, which they are able to target as they please. For the recipient, participating in the global economy is economically more important than receiving aid, but especially for the poorer developing countries, aid is still highly important. Through aid, these countries get financing and resources, which they themselves can influence. Aid is also a way to build national identity, as it is visible in societies in many ways. Officially, aid is about transferring resources from more advanced countries to those less advanced to ensure economic development and well-being. In other words, it is an intervention aimed at achieving "development" with a specific amount of resources. At the same time, aid is also much more. It has always had economic and political goals, and it has been used by donors to seek political and economic benefits, such as political popularity, orders for companies and jobs in exotic environments. Recipients of aid also have motives that are not included in official development policy goals, such as strengthening their political position or getting benefits for local private sector actors. Many stakeholders in developing countries benefit from aid, openly and officially, or unofficially through corruption. (Koponen and Seppänen, 2016:356-357)

8.3 EXPERIENCES FROM THE WMO

In this section, I will discuss the experiences of the experts with the World Meteorological Organization. This part mainly includes the experiences of FMI and Vaisala staff with the WMO, since the MFA staff is not as closely connected with the WMO in practice, and most of the experts representing local institutes worked in positions that did not include practical cooperation with the WMO.

Overall, the role of the WMO is appreciated and valued in the sense that it directs the field of meteorology from a higher level. The WMO's role is valued in creating long-terms strategic programs and development priorities. In general, experts appreciated the WMO for enabling international cooperation, networking and training. The WMO also received criticism. Much like other UN organizations, it was perceived as too slow, bureaucratic and inefficient. One expert who had extensive experience from the field, argued that the role of the WMO is in fact not to be efficient or fast, its role is rather to surpass the haste of everyday business life. Another expert described the WMO meetings as "stiff and bureaucratic and not that interesting", but that they are the source of important long-term strategic programs and development priorities. The FMI experts had the most practical experiences with the WMO. Some experts had also worked there for some years and had positions in WMO bodies. Regarding the WMO's main practices, one expert stated:

> In the actions of the WMO, there are two main directions. First is that it ensures that the global observation network functions well, and that the international cooperation for new observations and new weather service development works well. Then, half of the practices are aimed towards supporting the least developed countries, to improve their practices, and to improve their observations. Moreover, we have pretty good shared responsibility there, and we see that the success of developed countries requires that developing countries are also doing well. Maybe also this sharing of knowledge and developing these support projects, which is in our common interest. We need a good global observation network for weather forecasting activities, and if part of the world is unable to make good observations in real-time, that influences the quality of our weather services as well, so there is this common mindset for actions.

Another expert agreed, stating that the good thing about cooperation is that both developed and developing countries are involved, and that regardless of the issue, they are coordinating things together. Regarding the practical aspects of the role of the WMO, it was stated that:

> The WMO is good in the sense that they have these commissions for climate and instruments, at least they have had them, I have not kept up, but most likely they still do and they do these international controlled tests for different equipment. All manufacturers show up, and during two weeks they have controlled tests and they see how different instruments function and they report it to everyone. --- It has been great to see that Vaisala's radiosondes have always done well, and for that reason developed countries have been buying them for ages.

Regarding the current focus of the discussions with politicians, it was stated that the WMO likes to discuss with ministries about this topic. Lately a central topic has been that the economic benefits and socio-economic value of the practices is clear. As described by one expert: "When we start a new one, we do this feasibility study to show the economic benefits of the weather activities, weather services, and what the expected outcome is, if it was invested in." Regarding the expert's own practices at the WMO, he continued:

> When I was at the WMO, I always went to meet with the ministers and on my own behalf, always tried to market this industry to the decision-makers and say that it is smart to invest in this. And I use our own example, what you can get, if you invest in it.

The experts stated that there are not enough connections between WMO officials with political leadership in developing countries. As one expert stated:

> The WMO does not do that enough, WMO has a network of local offices and when the Secretary-General or some other WMO official comes to visit, they should take up this as a process and during it, actively promote the role of the local meteorological organization. Of course the organization needs to want it as well, you should never do work that is not congenial for the local institute.

Another expert agreed, stating that:

> The WMO has financing, which they use for inviting these [referring to experts] from poorer countries, and they can finance the experts. It is great for them, but the problem is that it stays there. They should be present in the country, support them and you cannot get that if you are not more involved with the ministries.

In reference to the role of the WMO and the actions of local institutes, one private sector expert stated:

> Internationally, the meteorological organizations follow the WMO's operations model, and I think that most of the developed and developing countries are involved with that actively. In the WMO's regional organizations and in the global organization, everything functions based on WMO guidelines and I think that it works the way the WMO wants it to. About how effective it is, that is a whole other issue. What other things are happening on the global level, there is much more, but that is not what we see. In the local level, in the countries, the meteorological organizations are public organizations, and part of the government and their customers are often public institutes. It depends on the country, how well they have networked, and how well the practices work between the public organizations, but typically there is a lot of friction. As an example, typically how the responsibilities have been shared between the meteorological institute and aviation weather or coast weather activities, and so on. They can be completely separate organizations that function completely independently, and do not do any cooperation. They do not develop the practices in a coherent way.

Regarding the practices of the WMO and developing the know-how of experts from developing countries, one expert described how the benefits typically relate to networking and travel, and not so much to the actual development of the local institute. For example, the WMO pays for local experts to attend meetings and workshops, which was not considered to be very goal-oriented — "it is more like this that I will send you to the meeting, come to the technical meeting to Geneva and we are reviewing the new standards we are getting." The expert might get new information but it is not linked to the development of the local meteorological organizations. The expert goes there for a week and shares some of the information and the practices go on in the same way as they did before.

Meteorological experts valued the opportunities set forth by the WMO, but many FMI experts clearly disliked the apparent political aspects and preferred to distance themselves from them. For example, one expert had participated in several important WMO meetings during his last years of employment, but clearly stated not being involved with "the political aspects of the WMO". The juxtaposition between politicians and scientists was evident in other statements as well.

One expert described the role of large donor countries and the WMO in the 1980s by stating that the UN system forces the donors to take all countries into consideration, and no one country can call the shots. Although, if the United States and the Soviet Union did agree on something, there was not much anyone else could say about it. The United States was of course the largest donor country, but then there was the United Kingdom, Germany, France and Finland. Many times, Finland was a bigger donor than the other countries mentioned, with the difference that Finland made the donations mainly through the WMO, while the other countries had their own assistance projects, and they kept their money and the implementation in their own hands. They did not let the WMO get involved in any way. "So from the perspective of the WMO, Finland was a wonderful country, almost giving truckloads of money to the WMO, for them to govern."

FMI experts had quite extensive experience with the WMO, as some experts had worked there to gain international work experience. These experts also discussed the bureaucracy and slowness, which was mostly explained by the large number of member countries. The experts also identified the political role of the WMO, and explained that the WMO is not a completely unified actor. It was also stated that

looking at the organization from Finland, it seems too bureaucratic, but when put under global comparison, "it is not that bad".

In general, the WMO's role is seen to be important in gathering together key people in the field of meteorology. The FMI usually organizes a side event during WMO meetings for their cooperative organizations, which come from all WMO regions. Most experts criticized the actual meetings again for being too bureaucratic and stiff. The benefits of the meetings included the opportunity to meet with all the key people simultaneously, getting relevant input from local experts and giving updates in terms of developments, as well as getting feedback and networking with other stakeholders operating in the same regions. One major challenge identified was donor competition. It was stated that donors can be jealous of each other and might prefer to work alone, instead of cooperating with other donor countries. As a result, there are overlapping activities and sometimes even opposing actions. Interestingly, it was pointed out that Finland does not act in this way:

> I think that Finland is the most active in terms of not having this jealousy and we aim, in all our projects, to cooperate with local actors in these projects and other donors as well.

Regarding donor interests, one expert stated that "Of course everyone in a way is trying to promote their own interests, and you have to bring forward your own country's interests." Directors of meteorological organizations understand the positions of their colleagues in developing countries. If they lack funds and cooperation with officials is not working well, solutions to the problems are not easy to find, but one always aims to find them. "I would say that there is this understanding for selfish reasons, it is important that these services work in developing nations."

Other serious issues were also observed in WMO meetings. One female expert stated that because she is a woman, perhaps she is a bit too blue-eyed when it comes to things that happen in these meetings. There are things "happening behind the curtains, and there are these networks --- but that you still want to believe that everyone is doing things honestly." However, she was aware of incidences where "money moves from pocket to pocket", in cases for example when small WMO member countries have not been able to pay their WMO fees. It had been observed that some financiers have then come along and paid off their debt. This way, the WMO member country gets back their right to vote, but of course in situations like this their voting behavior may be heavily influenced. Poor countries with financial difficulties are thus in a vulnerable position.

Additionally, the importance of good quality leadership in the WMO was pointed out as an important issue. It was mentioned that the Secretary-General of the WMO had significant influence over the practices and regarding how well things proceeded. Some experts also identified that FMI staff members had had desires to work in high-level WMO positions. One expert stated that maybe Finns should just take advantage of such opportunities directly, if someone has personal aspirations for some major position. In general, the required process of political lobbying was considered unappealing and laborious. Referring to the process of selecting the Director-General of the WMO one expert stated that:

> It is always this process of hammering, when there is a major selection coming up, of course there are substantial election campaigns, even though they are not the same as they are in political elections, but not being used to these, one may only marvel [at the process].

One FMI staff member, with work experience from the WMO, stated that there was a wish in the WMO that they could improve services all the way to the end-users,

but that this goal had not been entirely fulfilled. But that in general that has been the goal, to have global impact. The approach of the WMO is that national services should be improved, but the global aspect is important as well. For example, gathering national observation data on a global scale, which also enhances abilities to monitor climate change. Therefore, the agenda of the WMO does not merely include the development of national services, but has a strong focus on the global scale as well. The general principle of this approach received some critique. One expert, with work experience from both the private and public sector, stated that the WMO's paradigm is to establish strong national offices, which would mainly be grounded on research. Each national office receives certain equipment and a communication system for sending through messages, but there will most likely never be any input from the met-office. The WMO's approach was criticized by some interviewees because developing nations do not necessarily need organizations that are primarily based on research, they would essentially need service facilities instead. Focusing on the scientific aspects of weather and not the improvement of local services, pushes these organizations in the wrong direction, by developing something that is not necessarily needed, at the expense of something that is needed. The main point of the critique was that more simple solutions and less complex systems than what is currently pushed for by the WMO could be more beneficial for local end-users.

The Ministry staff considered the benefit of the WMO to be that both developing and developed countries participate in activities and coordinate together, as one community. One expert however criticized the way of operating, for example regarding the VCP, which is mostly about the equipment, and was not necessarily considered the most productive way of helping:

> This VCP, aid going through the WMO, it is about getting the equipment, and I think the rhetoric is that “give me the money and we will take care of it”. But I am not so sure if that is the right way.

Private sector experts also valued the WMO for the fact that most countries are members, and that both developing and developed countries participate, which makes it a good forum to discuss common issues. The content was considered interesting, but not the format necessarily. Presentations given in WMO meetings were considered useful, even though some presentations given by external organizations were considered rather heavy. But presentations given especially by developing nations were thought to be good, since information is distributed efficiently that way.

The challenges outlined were the same: mainly a critique towards the high level of bureaucracy and slowness in operation. Private sector officials gave even more critique than other experts. The slow pace and bureaucracy was explained by historical aspects: "It has formed into this bureaucratic giant over time, and not dynamic. Hopefully it will change. The people who have been there for a long time admit it themselves."

From the perspective of local met-offices, some important aspects were brought up by both the Finnish experts and local experts interviewed for this study. In general, the WMO appears to be a distant organization for most experts working in the local met-offices of developing countries. They are aware of the WMO's practices and role, but have not necessarily been in concrete interaction with it. Mainly, this is because most often only the Director Generals of the local institutes travel to WMO meetings. Sadly, this is the lesser evil, since there are also extreme cases, where only political figures are sent to the meetings. Thus, practical contacts with the WMO can be rather limited.

Some developing countries are not members of the WMO. The main reason for this was thought to be the cost of membership, and that some might not see the

benefits of joining the organization[65]. Regarding the general goals of the WMO and what it promotes, one expert, who had experience from both the public and private sector, argued that:

> What the WMO promotes, it is not what is going on in the forefront of the science of meteorology, in many ways they are twenty or thirty years behind. --- The WMO promotes these traditional research institutes, from the last century, but the problem is that developing countries do not need research organizations, they need a service organization, which has the task to tell the citizens what the weather is at the moment, and what it has been in the past and what it will be in the future. And this perspective is completely different from a researcher's perspective.

It became apparent in the discussions with the experts that the political aspect of cooperation is considered to be a very problematic issue and the coping strategy adopted by many (mainly) FMI experts has been to simply not get involved, which was reflected in the discussion regarding the WMO. The problem with distancing oneself from these aspects of the projects is that it is reflected in the end results of the projects. Experts call for more political influence in practice and also in the level of WMO, but political components are mostly still missing in the projects. Projects are mainly concerned with improving technical capacity, but often the projects do not include many components that would influence the sustainability of capacity. Vaisala's experts have to work in close cooperation with political decision-makers, because they are the ones who make the decisions. This is a relevant difference between the two stakeholder groups. Ministry officials, on the other hand, are experts when it comes to the political aspects of cooperation, but they are often not present to solve problems relating to these issues.

8.4 POLITICS AND SCIENCE ON A COLLISION COURSE

In the introduction chapter of this thesis, I contextualized meteorology projects as existing between two central divides in society, those between science and politics, and between culture and nature. The practical experiences of the experts show that the juxtaposition between politics and science is real — it is reflected in practices and it influences cooperation.

When analyzing the relationship between politics and science, the key issues in this field include the differences in approach, motivations and incentives between political and scientific stakeholders. Political actors and government officials emphasize the importance of values, ethics and development effects while scientists emphasize the role of technology, innovations, solutions and science. It seems that it is difficult to bring together the best aspects of both approaches when stakeholders want to make sure their own standpoint is represented and "defended".

Political actors also played an instrumental role for some experts. For example, one expert described how politics had been used to attract interest at the local level, for example by having an ambassador open workshops. This has helped them get attention from the local media. Overall, the role of the Ministry was described as low-key in terms of actual practices:

> They do not have that many opportunities to participate in our projects other than comment on our project plan in the beginning, and then that is it. Not much from

[65] The ten states that are members of the UN but not the WMO are: Andorra, Equatorial Guinea, Grenada, Liechtenstein, the Marshall Islands, Nauru, Palau, Saint Kitts and Nevis, Saint Vincent and the Grenadines, and San Marino.

them is heard, especially in the case of ICI-projects. Their monitoring has been outsourced to FCG[66], so then we might not have any contact with them for three years.

A Ministry expert explained the same issue in the following manner:

Well, in the ICI-projects, the monitoring has been outsourced to FCG, so in theory I should only be getting fancy reports, which have already been checked. So, I would be happily just observing here that everything goes as planned. However, in practice, it depends on the projects, how much fuss there is involved with them. We hope none, but of course it also depends on your personal ability to direct the project towards another way, or if you want to give comments, it is dependent on your personal willingness.

It is clear that the role of politics fluctuates in the projects because of the different practices of projects. Some experts mentioned that the activity of the Ministry staff in the projects appears depend on the individual who has been assigned to the project. In some countries, there is very little interest, but some experts are much more actively involved. Regarding the outsourcing of monitoring of the ICI-projects, the MFA official's comment reveals that the Ministry's involvement depends on the individuals' capacity and willingness to take care of the project in practice. Thus, they have the opportunity to steer the projects and have an impact on what happens, but they can also choose to stay silent. It appears that the less you get involved, the less stress there is for you.

The MFA's role was acknowledged as "following the money", allocating funds and staying on top of how funds are used. Local MFA "desk" officers receive reports on project progress and their job is to monitor how things proceed. It was brought forward that it is in the interest of the Ministry to be present in as many countries as possible, but that FMI experts preferred to maximize long-term presence in a smaller number of countries.

The fact that the Ministry has a small role in practice allows for the juxtaposition between science and politics. In the current system, control over practical issues is given to the stakeholders with a scientific approach, and those are the values which are reflected in the practices, even if it would state otherwise in project documentation. A Ministry expert described issues relating to this and stated that, for example, plans for purchasing equipment had resulted in a situation where "meteorologists were fighting over what equipment to buy and what not to buy". The point was that technical issues were given too much emphasis, which was taking time and effort away from achieving the bigger, development-oriented goals set for cooperation. Meteorological experts on the other hand had a problem with the plans and agreements coming from above:

These plans and agreements, they are political, and come from above, and the first time we visit the site, we see what exactly has been promised and what we are actually able to do. Most often those who discuss the project plans, do not have the technical expertise, so that they would be able to evaluate what really needs to be done at the local level. --- What has been promised might not be realistic.

The worlds of the political and the technical seem to remain far apart. Although it is not unheard of for politicians to give unrealistic promises, certainly the ideal would be that the political and practical aspects of development cooperation are aligned with each other. One MFA official described their role in the projects as mainly being in

[66] Finnish Consulting Group

conversation with the FMI experts, regarding the project practices. The FMI has the substance knowledge, while the Ministry has knowledge and expertise on all the aspects of development cooperation. Nevertheless, what needs to be acknowledged is that FMI staff mainly has training in the field of meteorology, and the Ministry staff interviewed had received education in the fields of social sciences and natural sciences. Since there is not much interaction between these parties during the actual implementation, the political, development-oriented goals of the projects may be left to the background. One expert explained that usually in projects lasting four years, the first progress evaluation is done after two years. This expert had not been actively involved with more extensive project evaluation processes, which according to him, "would be highly beneficial, but I simply do not have the time".

One expert, who had worked for both public and private sector organizations, brought an additional perspective to this issue forward. He characterized the field of meteorology as a monopoly of meteorologists and that there is no real room for politicians to influence the practical aspects of the projects.

> The meteorological community drives everyone to think this way, and they are such a small part of the national budget, that politicians are not really interested about it. Like we have seen in Finland, the MFA finances these projects, meteorological institutes implement them, and write on the papers that they need Vaisala equipment and the equipment is taken there and all of the money stays in Finland.

An MFA official, who described the field of meteorology as an ivory tower, also brought the monopoly aspect forward. "Meteorologists have been globalized since the 19th century, but they do live in, how would I put this, in their own ivory tower." The experts who brought up this issue had extensive experience in the field, and were perhaps courageous enough to criticize the system because their own position was not threatened anymore. The field of meteorology is so specific and narrow and the international community is overall fairly small. These issues have influenced the emergence of the "ivory tower". During the course of this study, it became clear that in general meteorologists see eye to eye no matter where they come from. They find their common language quickly and are able to connect with each other. One reason for this is that most of the experts in recipient countries have received their education in industrialized countries, in Europe or the United States, and during the Soviet Union era many experts were also trained there.

The same does not apply to politicians, which becomes an issue in the context of projects where the goals and the modes of operation are given by the Ministry. Like meteorological phenomena that come from the sky, practices and policies also "come from above", and are almost as uncontrollable as rain and sunshine. The local possibilities for being trained as a meteorologist in many developing countries are practically non-existent. The local experts of this study had usually been educated in mathematics or physics, and then separately applied for a higher level training in meteorology. Older local experts had often been trained in the Soviet Union, which had offered opportunities for young experts coming from developing countries (although some of them had not had the opportunity to choose the field themselves, they had just been sent there, to for example escape war). The ivory tower set-up may also be observed in the way education in this field has been traditionally organized. One expert gave critique regarding the topic and explained that it is focused on the theoretical aspects of meteorology, the logic of the atmosphere. The purpose of the field is to understand how it works and the results are given in the format of dissertations and research papers. Weather service, on the other hand, is customer-based, and its role is to transform the studies into products the locals are able to use. He explained how one is able to study meteorology, but not meteorological services

anywhere in the world. In Finland, meteorology studies are very theoretical; one does not get to the issue of doing weather forecasts until you work for a meteorological institute. “Doing weather forecasts requires serious expertise.” The expert continued by explaining that when you think about marketing, or other services, they require other skills.

> If an engineer goes to a met-office, they do not ask him how to design some computer system. They tell him how to do it, and then one ends up committing resources into doing the wrong things. Even if there are lawyers, they do not listen to them.

The interviewee's approach was that there should be a better balance between the meteorologists and the same amount of people for technological development, programming, commercial side and administration.

Returning to the issue of education in this field, the fact that many young experts from developing countries go abroad to study meteorology, leads to serious brain drain in this field. Most of the experts enjoy the many possibilities of moving abroad, so much so that they never return to their country of origin. In some countries, this problem has been solved through forcing everyone studying abroad to return and work in the local met-office for at least some years. Some experts mentioned that their reason for returning to their home country was their sense of responsibility and their desire to improve local capacity by utilizing the expertise they have gained abroad. A separate issue is the question of the monopoly. If and when, primarily Western universities train people in this field, as they currently are, there is the danger of creating "tunnel vision". This problem was mentioned by some experts, who stated that there is no real room for disagreements or alternative perspectives. As an example, one could compare this issue to the field of politics. If only "Western" ideas were listened to, and most of university level training in the field of politics would be given in Western universities, there is no doubt that the ideas, values and ideologies would be different from what they currently are in developing countries. In the field of politics, this problem would naturally be much bigger, because the voice of the marginalized would not get heard. Most people in the field of meteorology do not consider this issue problematic, since their approach towards meteorological issues is primarily technical and essentially that of "natural scientists". However, if we look at the political and cultural issues involved, it could be argued that perhaps something is missing. In the background chapter of this study, indigenous and traditional approaches to meteorology were briefly presented. My argument is that because most of the training in this field occurs in countries where meteorology is merely seen as a field of natural sciences, and the cultural as well as the political aspects surrounding the topic do not get enough, if any, attention. In an interview with an NGO representative during my fieldwork in Barbados, an expert stated that the locals do not understand the local meteorologists. The interviewed expert was actively engaged in training local communities in disaster preparedness, and mentioned that when for example a hurricane is approaching, the notifications from the met-office reach the local communities, but they do not understand the language used, or have no idea of how to react to them accordingly. Essentially, warnings are not designed for people who do not know the science behind the phenomena. Basic information should be given in a clear and simple manner. The citizens living at risk should be more actively engaged in the processes aimed at protecting them.

In studies regarding the traditional/indigenous and modern approaches to meteorology, it was noted that the indigenous and modern methods of weather forecasting used in Malawi were not in fact that different from each other and yield similar data sets (Kalanda-Joshua et al., 2011). In Kenya, traditional rainmakers and meteorologists could work together, understand each other and make joint seasonal

weather forecasts (Guthiga and Newsham, 2011). In Zimbabwe, indigenous methods have helped to predict agricultural seasons and determine patterns of climate change (Muguti and Maposa, 2012). In New Zealand, the Maori people have collected a wealth of environmental knowledge, which has been important for both modern and traditional practices of medicine, agriculture, fishing, education as well as conservation (King et al., 2008). Since the Western approach towards meteorology lacks the cultural aspects which are present in many developing countries, the current system of training meteorologists primarily in Western universities further aggravates the gap between meteorology and local societies as well as politics. Perhaps this is also one reason why politicians do not always understand or value meteorology as highly as the meteorologists hope.

The general paradox observed was that the meteorologists speak a lot about the political and societal relevance of meteorology, but their concern for the lack of respect is not reflected in practices, the ways in which projects or training in this field are organized. Politics should play a bigger role in practice, as should the cultural and religious dimensions of weather. They cannot be escaped, no matter how scientifically the problems regarding them are approached. Climate change is essentially a problem caused by human behavior. Politics and policies can be used to influence this behavior. Although science and technology are needed to create solutions, technology will not solve the issues, which have created the problem. In the beginning of this thesis, Albert Einstein is quoted stating that we cannot solve problems until we change the way of thinking that led to these problems in the first place.

A separate issue brought forward regarding the politics of meteorology in Finland was the political steering of the FMI. It was stated that the system currently drives the benefits of the FMI and Finnish companies. The question posed by one expert was that the way cooperation between the FMI and Vaisala is organized, is utilizing taxpayer money to sustain business opportunities for Vaisala. Moreover, if the public was aware of this, would this be accepted or criticized? The proposed question is of course intricate. While sustaining and promoting one company's success might be problematic, they do create job opportunities for many, generate income in various forms and maintain Finland's reputation in the field. Additionally, the ethics of the issue can be considered somewhat problematic because Vaisala's practices abroad have also garnered some criticism, for example relating to the dual-use items. However, it should be taken into consideration here that the meteorological development cooperation projects form only a small part of Vaisala's practices overall. Additionally, there are other companies doing cooperation with the government in other sectors, meteorology is no exception to the norm, but perhaps the relationship is more problematic since Vaisala's role has been so prominent in this sector. Laws determine and define the limits of these relationships and there are no indications that laws have been broken. In the introduction chapter of this thesis, it was stated that the "Ministry promotes Finland's commercial and economic interests". The promotion of these, or any other interests for that matter, is always challenging and the history of meteorological development cooperation shows that the relationship between public and private sector actors has become significantly more complex over time. This relationship is further explored in the next section where the experiences of the experts are discussed in more detail.

8.5 PUBLIC–PRIVATE PARTNERSHIPS

> Still, within the Ministry, there are different perspectives in terms of how Vaisala's role is seen in these projects.
>
> -Ministry expert

> Of course we have Vaisala, that likes to sell the equipment there, but they do not care much about what happens after that.
>
> -Meteorology expert

> Our main goal is of course to get a project in which we are able to sell a maximum amount of Vaisala equipment and we want to maximize our own content in the project. This means that we do not necessarily want to have a leadership position, if there are other elements in the project as well.
>
> -Private sector expert

The relationship between public and private actors came across in the interviews as highly complex, where on the one hand, the stakeholders are in a symbiotic relationship with each other, but on the other hand, they are also competitors in some ways. The competition aspect comes across mainly when talking about the future of meteorology and what direction the experts see the field developing towards. Private sector experts generally see their role as more prominent in the future, and their approach as more modern and efficient than that of the public sector. The issues creating tension between the individual experts are the strong differences in perspectives regarding the best practices. The interaction between the stakeholders can therefore be characterized as a game, highly similar to the interaction between the donors and recipients of aid. Cooperation in practice still seems to work fairly well despite contradicting motivations for action.

Public–private partnerships in development cooperation have been studied in various contexts. These partnerships are popular because in a globalized world national governments lack the skills that many other actors have. In principle, cooperation leads to more effective work, when compared to situations where the actors would work alone instead. The popularity of partnerships may also be explained by shrinking government budgets. Partnerships make it possible to combine the efficiency of the market and the regulatory capacity of the public sector, but it is unclear whether this potential is realized. Research on partnership outcomes has given mixed results. The key issue in partnerships in development cooperation is how the achievement of public objectives is ensured. There is little incentive for private sector actors to invest in public objectives. To ensure that private actors work towards achieving public objectives, it is important that the objectives are clearly defined and the agreements are both monitored and enforced. (Bouma and Berkhout, 2015:12)

Typically, the FMI starts a project with a field visit or visits and a feasibility study, and based on these, a proposal on what to do in the given area. Vaisala comes in the picture later on, to sell their equipment to the local institute(s). In earlier cooperation, Vaisala's equipment has been donated as such, through the WMO's VCP. The ethical dilemma in the cooperation between one specific company and the government is that while Vaisala has clearly had a prominent and undeniably relevant role in establishing the highly respected international position Finland enjoys in the field of meteorology, conducting cooperation mainly with a single company has become problematic over time. The official guidelines for development projects and procurement state that when the MFA forms contracts for services, which will be paid for with development cooperation resources, a public announcement is made and all interested companies

are free to submit a tender. When agreements are made between governments, it may also be agreed that there will be a public competition for projects and procurement is the partner country. The Act on Public Contracts does not apply to projects and procurement whose value falls below the national threshold of 30 000 euros. (Ministry for Foreign Affairs, 2016b)

Cooperation between Vaisala and the Ministry was described as "indirect support", and having some access, but not as much as many other countries are doing:

> In some countries, we are able to use the services of the ambassador, so that we are able to hold a reception, etc. But the promotion of Finnish trade is in no way on their agenda. They cannot help us to get these projects all that much, by supporting funding, or something like that. This is quite unfortunate, because other countries are doing that.

The interviewee continues by stating that other countries have different components of support — if not direct project funding, then at least for the project planning phase. "You could give direct financial support for getting a project, but Finland is very cautious regarding this." It was also apparent that the Minister for Foreign Trade could influence the practices, and that during the time of the interview, the experience was that things were moving towards a more traditional direction, opposite to what the situation had been before, when a more "business-oriented" Minister was in office.

> The thing is that if we want to see development impact in these countries, they need investing in. They need to invest in new technology, not just expertise and training, but also technology and equipment. And if that means taking Finnish top of the line technology there, then that is okay.

Thus, unlike the expert who saw the Ministry and the FMI pushing for Vaisala's benefits, Vaisala staff actually saw the support as minimal and not along the lines of what other countries are doing. From their perspective, there would be numerous opportunities to support their practices more actively, but the Finnish government has adopted a cautious approach in private partnerships. Additionally, the expert stated that "The Ministry is of course afraid that they will get accused of unethical behavior, and they want to be as transparent as possible.".

In the above quotation, interestingly the interviewee links unethical behavior with giving support, which in a way is a recognition that support like this is problematic. Additionally, when asked about the Finnish role in the field of meteorology and Vaisala's role in making Finland known, one FMI expert compared Finnish practices to international ones, pointing out how many other countries are less concerned than Finland about favoring local companies:

> Well, it all started from the fact that we had something to give. Pure meteorology, so yes, without Vaisala, it would have been a miracle if things had picked up. Now, these other countries, like Japan, well already in the 1980s, they had this habit, that their development cooperation committee included meteorologists. They went to a country and had these big notebooks. They handed them to the recipients and said that pick what you need, if you find something what you want, put a red post-it on the page, and of course they were all Japanese products. While Finland has been accused of supporting Finnish industry and Vaisala, when compared to the money Finland has used, it is not the same what Japan and nowadays China, are doing. For them, it is 100 percent their own

industrial products, and there has been money used for other purposes [in these projects] than merely Vaisala products, for a long time now.

What makes public–private partnerships unique in the context of the projects is that Vaisala acts in these countries both alone and in cooperation with the Ministry and the FMI. Overall, the complex relationship between the public and private sectors needs to be more openly discussed. During the interviews, it seemed that this was a difficult issue and not everyone wanted to elaborate on their perspectives regarding the relationship, indicating that the complexity is well understood. It is interesting to see how over time this topic has become more and more problematic. The field of meteorology will be under great pressure in the coming years due to climate change and the increased number of meteorological extreme phenomena. For the sake of global safety, it is important to ensure that public and private sector actors are able to come together and not separate even further and end up competing with each other. What is needed is increased cooperation among current partners, but also the introduction of new partners, non-governmental organizations and the representation of local communities.

8.6 CHAPTER SUMMARY – THE POLITICS OF COOPERATION

The research question set for this chapter was what kinds of experiences have the experts had with the political aspects of cooperation and what the central political challenges are. From the point of view of theory, the role of politics and politicians reflects the approach these stakeholders have, which then can be analyzed trough applying the concept of governmentality.

The experiences of the experts reflect various things about the mentality of governance. As Foucault explained it, governmentality is the attempt to shape human conduct through calculated means. In the context of development cooperation, the MFA makes decisions based on the content of development policy, and allows for the meteorology experts to influence things through official channels, open occasionally for the experts to voice their opinion. The "calculated means" have been set by the global community of donors. The Ministry sets a tight structure for the projects and the meteorologists execute within this framework. Very little flexibility is built into the system, making it difficult to make changes along the way if something unusual or unexpected occurs. Various tools are provided for the experts to do their work, but the usefulness of these tools has been questioned as well as the relevance of goals set for cooperation. Additionally, the absence of the MFA officials in practice reveals that there isn't much interaction between the Ministry and the meteorology experts, whose role in a way has been limited to the technical aspects. It appears that the mentality is that the good development outcomes will naturally follow if projects fulfill the demands set in the planning phase, but this approach doesn't take into consideration the fact that the meteorologists may steer the projects in their desired direction. Additionally, the fulfillment of the development-oriented goals needs more constant supervision than review of mid-point and final reports by the MFA officials.

It is suffice to say that there is a variety of political challenges, which demand attention and even sensitivity in some cases. The juxtapositions between science and politics, and public and private sectors are the underlying influencing issues, which need to be more openly addressed in order to decrease the political challenges these projects face. The political challenges on the local level are another important issue. Actively promoting the values of good governance and democracy in these projects would help ease the situation, but do the meteorology experts have expertise to do

this? The main issue that applies to all political challenges, is that all the experts interviewed for this study considered these matters difficult. It is no wonder why many "hide behind their expertise" and have adopted a strategy of non-involvement. However, this only postpones the solution of the problem. Clear guidelines and open discussion would help and clarify the roles, defining what exactly is and is not allowed. Currently, there seems to be some confusion over this issue.

Earlier, I quoted Ferguson (1994), who has stated that reducing poverty to a technical problem and promising technical solutions to the suffering of the powerless is the principal means through which the question of poverty is depoliticized in the world. He has also argued that interventions such as these projects are organized based on the structure of knowledge. (Ferguson, 1994) The depoliticization phenomenon observed by Ferguson applies in this study as well, perhaps not as directly as in his fieldwork site in Lesotho, but overall, it is clear meteorology experts depoliticize problems by adopting an approach of not getting too involved and distancing themselves from the political aspects of cooperation. This has happened in the past more than in the current era, and there are differences between individuals. Experts in management positions are more engaged with political aspects of cooperation.

Mosse (2011) examined the role of knowledge in development cooperation settings, focusing on issues such as whose knowledge matters and what are the transmission mechanisms of expert knowledge, policy ideas and the analytical forms of expert ideas (Mosse, 2011:8-13). In the context of meteorology, the technical aspect of cooperation is especially difficult because there is a clear need for technical elements in these projects, but it is not the only need. Currently, there is more representation actively involved with cooperation from the "meteorology" and "private sector" knowledge-systems, than there is from the "development cooperation" system. The technical aspects are emphasized over other matters. The complexity stemming from the interaction between these knowledge-systems requires more flexibility because there are higher chances for unexpected problems. At the moment, the structure of the aid system does not allow for such flexibility. Additionally, the role of the meteorology experts should be actively expanded to include the development-oriented aspects of aid through training and extended periods of time spent in the field.

9 BELOW THE SURFACE OF AID

This chapter explores the reasons behind the previously explained events, practices and issues with developing meteorological capacity in developing countries. The chapter begins with a comparison of how different donor groups conceptualize the aid system. Then, the results of the content analysis regarding the overall approach are presented. Here, the perspectives of donors are compared on four continuums: 1) the traditional vs. modern aspects of aid, 2) straightforward vs. complex development thinking, 3) donor vs. recipient ownership, and finally 4) the reactive vs. proactive approach to politics. The third section of this chapter presents an analysis of the proposed juxtapositions through the theoretical concepts of governmentality and relevant power theories. The fourth section provides a summary and overview of the obstacles to sustainability.

The question to be answered in this chapter is: What types of differences are there between the stakeholders in terms of conceptualizations and approach, and what role do power and the structure of the aid system play in cooperation?

Chapters 5, 6, 7 and 8 have reflected the external pressures which have affected the sustainability of Finnish aid, both in terms of practice and policy. This chapter focuses more on the power and internal dynamics within the development aid system. My argument is that the internal dynamics are more influential than the external dynamics, on the grounds that if there would be less problems with internal dynamics, then the stakeholders would be better at tackling the external pressures, as a "united front". Overcoming the challenges in internal dynamics is the first step, before being able to overcome the external pressures.

9.1 THE PERSPECTIVES OF DONOR STAKEHOLDERS TO THE STRUCTURE OF AID

In this section, I will present differences in the approaches of the donor-side stakeholders towards the structure of aid.

9.1.1 THE PERSPECTIVES OF METEOROLOGICAL EXPERTS

> The Ministry has created this, if I use a metaphor, this type of structure applicable to nuclear power plants, where everything is scrutinized in detail, and papers are moved through various systems before the project can begin. We are not a criminal organization, where all our moves need to be questioned and secured many times over.
>
> –Meteorology expert

Meteorological experts in general view the aid system as too bureaucratic and slow. Project management and planning take up a lot of time, which is often directly deprived from the actual execution of the projects. Many experts described how the project proposals or project reports are too focused on constructing the right kind of language and incorporating specific policy issues into projects, even in cases where they are not considered the most relevant topics. Experts have accepted the fact that

the cross-cutting themes of development cooperation need to be included in the projects, but often they are more visible in project documents than in actual practices. The real purpose of the cross-cutting themes of course is that they would be included closely in the actual implementation. There is perhaps valid concern over the applicability of the cross-cutting themes to this project type. According to many experts, some of the themes felt forced and superficial. Many hoped that meteorology projects could simply focus just on meteorology, which they thought often needed much attention in itself. Bringing in cross-cutting objectives has its benefits in the sense that it makes the links to society more clear, but it also brings new demands in terms of the needed expertise and overall project design. As noted earlier, meteorological experts often expressed their preference to remain distant from the political aspects of the projects.

Regarding the starting phase of projects and the actual planning process, most experts identified this by far as the heaviest part of the projects in terms of bureaucracy. Fulfilling the Ministry's requirements regarding paper work was considered difficult and laborious. Drafting sentences in a specific manner and learning to speak "development jargon" was considered to be outside their core competence. As mentioned, many struggled with incorporating cross-cutting themes. A FMI expert working on projects in South America described the planning process to include an absurd amount of bureaucracy:

> I think that there is too much of this writing and modifying text involved, crafting the sentences, about things that are very clear, but someone demands that we write these flourished sentences, and all your resources go to the production of these texts, and the main thing, the actual situation of the recipient country and fulfilling their needs, is forgotten.

Drafting and writing the documents was seen as excessive, especially in shorter projects which last two to three years. As stated by the same expert, one must keep the facts in mind and realize that it takes a year to get to know the needs of the local partner, and then you might be able to execute the plans, and by then the projects already come to their end. Another expert mentioned that since she is essentially a "number person", the writing of these documents is a difficult task for her, one that she daunts every time, and hopes that the project documentation was made lighter. Additionally, one expert working on a project in Asia stated that the "actual content of the project does not take a long time to draft. What takes time is how to write the other stuff involved", referring mainly to the Ministry's requirements of what to include in the project plan. Another problem mentioned by an expert working on a project in Nepal, was that the planning process can take up to 1.5–2 years, and the local situation has usually changed during this time. Therefore, once the document is finished, there is often little use to make out of it. It seems that project documentation practices overall could serve the needs of the projects in a more efficient manner.

Being unfamiliar with the bureaucratic processes of development cooperation projects and having to get involved with these aspects seems to be a miserable task for most experts. However, most of them seem to accept it and come to terms with it as a natural part of the projects. One expert working on a project in Sudan brought up the benefits of bureaucracy as a good tool "which helps to administer, govern and get results, even though it is heavy. It might seem cold and boring, but once you get into it, you see your own benefit. Without bureaucracy there would be a mess and things might not be as organized.". Therefore, there is understanding for the system as well.

Regarding the issue of cross-cutting themes, there was critique given towards how the system approaches the impact of these projects and how the cross-cutting themes relate to the projects in practice. One expert discussed what types of issues the cross-

cutting themes had caused and explained "if you think about these projects from a wider perspective, all of them relate to the cross-cutting themes, but only indirectly to some of them. And in some projects, it is hoped that a direct link already exists." For example, if the project is about developing weather warning systems, some part of the budget should still be allocated to issues like gender equality, which "in my opinion cannot be right", described the interviewed expert. The perspective was that the project evaluated on the basis of its own goals — how to achieve the goals in the best possible way — and only then think how that contributes to cross-cutting themes, and not the other way around. This was seen as a challenge, but one that did not apply to all projects equally.

The issue with cross-cutting themes seems to be problematic in this context because the field of meteorology is so unique and differently connected to the society than development cooperation projects in other fields, such as education or health. Meteorological experts might feel that cross-cutting goals take time and effort away from reaching the meteorology goals. The Ministry officials might look at this from an opposite view, thinking that the projects should be better linked to other societal issues. Both Ministry and FMI staff agree that the general goals of development policy, for example poverty reduction and sustainable development, are important, but that there are differences in how stakeholders from different institutes would prioritize these issues. In the above quotation, the expert actually separates the "project goals" from the general development cooperation goals. This reflects the fact that the goals set by the "aid structure" are perhaps not considered as a natural part of these projects. Another expert discussed the same problem by stating that:

> They [referring to the Ministry] often want these projects to produce something visible, but the fact is that it is often the invisible that needs to be fixed. The kind you notice only when it does not exist or is not working. And in this project, there are concrete goals I know will not happen.

The perspective refers to a mismatch between higher level goals and local realities. The goals set by the Ministry might be considered ill-fitting to the local realities, or such that they are not attainable within the time frame of the project or with the available expertise. Another option is that the local problems that require fixing are the kind one is not able to officially report about them. For example, in the project the expert was referring to in the above quotation, there was a problem in the local institute with separate departments not communicating with each other. Changing that made a significant difference in the daily practices of the organization, but it would have been an embarrassment for the local institute for the donor-side experts to write about the problems in the project report. This reflects the difference between the official and non-official aspects of the projects. Not everything can be reported and some things which are reported are not actually "real". For example, in this case, it is known in advance that some of the official project goals will not be reached, but they still are not removed from project documents.

If it is a common practice for project reports to not fully reflect project realities, developing the system of aid becomes much more difficult as there is no easy way to find out which parts reflect the truth, and which do not. There is also the question of incentives. If you wish to continue doing projects and hope to get financing from the Ministry for future projects, this will influence your willingness to report difficulties. This apparent conflict hampers the system of aid from developing and changing. If there is a chance that you may end up being punished for reporting problems or serious issues, it is highly likely that problems will be undermined or swept under the carpet whenever possible.

Meteorological experts hoped that more responsibility, trust and flexibility would be built into the system, as was stated in the first quote of the section where the

interviewee compared the structure of aid to that of nuclear power plants. Since the control of public funds is detail-oriented, the level of bureaucracy and management is high. Too high for most experts, but something many of them have become accustomed to. Experts consider the bureaucracy to take up too much time from the actual project content. There are no incentives to report problems, but rather actual harm can come from doing so, and the overall structure gives the impression of a "lack of trust" to the partner organizations. The distance between politics and the meteorological experts is an additional issue of serious concern. It is clear that this is a problem for some more than for others, but still something to be aware of.

9.1.2 THE PERSPECTIVES OF PRIVATE SECTOR EXPERTS

Private sector representatives see the aid system as being old-fashioned, and often distant from the real-life practices, which they consider to have true economic relevance. Private sector representatives have learned to work the system for their own advantage and to take part in the "aid game" actively through collaboration and interaction with political stakeholders. Interestingly, it seems there are occasions when the private sector representatives are more actively engaged with political actors at the local level than what the FMI experts are. Of course, this differs from project to project and between countries, but the private sector experts focus their interactions with the people who make decisions, and mainly those are politicians, or politically influential people.

Regarding the process of getting their own project going, one private sector expert described that cooperation projects in developing countries can take several years. The time period between the client recognizing the need for a project and the project actually materializing, is typically very long.

> First you have to think how to specify the project, who does that, and then who pays for it, and you take the plan to budgeting, the state planning organization and then they whether they are giving money for this year, and if not, then you get back to it the next year, and so forth. And typically you just have to stay present, and sometimes things "click" and move forward to the next phase, to more specific itemization, and so forth. The bureaucracy involved especially with bigger projects was described as huge.

The private sector experts heavily criticized the bureaucracy involved and continuously look for ways to "escape" it. One expert stated that they "...want to actively get out of those processes and would prefer that MFA or someone could help with pre-project documentation and even maybe finance them, get consultants to do them. But it is difficult with the Finnish instruments as project preparation takes so much time." The preferred way would be one where the private sector experts could focus on their core competence, and leave project documentation to someone else.

For the private sector experts, spending time on project documentation was viewed from the perspective of efficiency. In the private sector, time is a limited commodity and losing time means losing money. Since it is easier to cut corners in private sector practices than in public sector projects, it is natural that the experts feel frustrated with the slow pace of development cooperation project bureaucracy. Private sector representatives seem to have a profound understanding of and familiarity with the aid system — how things function and proceed. Perhaps the necessity to make a profit has driven many of them to learn and actively seek out ways to collaborate, and of course also to find ways to make money in the process. Since private sector experts are not limited to working solely inside the "aid system", they

are more knowledgeable of the ways of doing business with these countries without the official development cooperation structure. In many ways, this is a benefit to all parties, since it leaves out the hierarchical set-up which often pre-defines roles and actions in development cooperation projects.

9.1.3 THE PERSPECTIVES OF MINISTRY OFFICIALS

MFA officials interviewed for the study engaged in rather thorough and deep analysis regarding the purpose of the aid system and how well Finland as a country has organized aid practices. They all had a deep understanding regarding the system and its main operations. Ministry officials clearly identified the complexity of the aid system, but also had a different, profound level of understanding of it, because they are aware of what the complexity and strictness is based on. They value the structure the system gives to the projects, and aim to see beyond the paper work. The Ministry officials had a tremendous amount of experience from development cooperation in its various forms, and the ability to view their own practices with criticism:

> I think if would be wise to look at the whole sum of one billion used for development cooperation — where does it go, what kinds of processes do we have on the multilateral side, and what kinds of processes do we have on the bilateral side, and are we really achieving results?

It was noted that the system does not matter so much, but what matters is that the poor in developing countries benefit. The expert continues by stating that we are still doing this for the cause of the poor, and have been since the 1960s, "you have to think about whether development cooperation enriches the rich people in developing countries, or are we really doing this for the poor?" Thinking about aid and the structure of global trade and international relations — their influence on development opportunities should be the focus of analysis.

Regarding actual project experiences, Ministry officials also discussed problems with bureaucracy. For example:

> Often the projects we governed were such that the payments were always late, and they were lagging behind, which meant that money was left unused, and then towards the end of the year it was always dumped for various causes, which was bad central governance. We should think about the kind of solution that the money is used in a way, that they are always used for development purposes, that the causes make sense.

When continued with a follow-up question regarding the way development aid works and does it in fact support development, the interviewee continued by stating that you always need to think about it, "if you say that it does not support it in the correct way, then you have to think, what would be the other option? And because there are no other options, since the other option would be even worse."

MFA officials also discussed the structure of aid from the perspective of how the Ministry has organized its development cooperation practices. The current system received criticism mainly because the outcome has emphasized politics over development policy, which is an important issue to take into consideration. Concerning a fairly recent change at the Ministry, it was stated that:

> When these regional desks were formed[67], Latin America, Africa and Asia, they were in some way distanced from development governance and development policy. The development policy department was formed, and it tries to function as a department according to the principles of development policy. But the action in the bilateral projects is still practical and aimed at advancing development processes and such. So, my opinion is that this system is not an improvement of the previous, where we had the development policy department and three functions under it: infrastructure, social development, and agriculture and forestry.

It was described that in the previous system, development cooperation governance functioned well because everyone knew what was going on. Of course, the solution to change to this regional action brought development politics to the fore, with an emphasis on politics, but not necessarily the issues of development cooperation.

It was also explained that currently the knowledge on development policy has been fragmented to three regional departments: Asia and Africa, or Asia, Latin America and Middle East and in some ways also Europe has been included.

> I have to say that when the professionals of development cooperation are shifted to these substance areas, after that political cooperation is emphasized, and these countries are looked at as political executors, and not so much as development policy executors. And of course it all comes down to the people, but because the staff changes all the time, this structure does not allow for us to have a clear policy, clearly profiled development cooperation.

Additionally, the expert continues by stating that Finnish development policy does not profile itself in any other way than in cooperation with the partner countries and claims that substance know-how has not developed in the development cooperation entity. According to the expert, this applies to both the governance and consultancy sides, because consultants have been bought by other Europeans. Regarding the use of consultancy companies and the procurement system, it was stated that "According to the European Union rules, anyone can be involved with doing these projects. As long as you offer the cheapest, give the cheapest bid in the tender, that is what goes through." The expert continues on by describing how difficult it is in the current system to ensure continuation and sustain true enthusiasm in the projects. The current system is given strong critique on the grounds that it encourages action, which is based on one project outline, one executor going in and out. Development cooperation goals are hard to achieve without true, long and meaningful cooperative relationships and continuing interaction.

Regarding project evaluation, Ministry officials had experienced some difficulties in the Ministry with presenting critique. Working for the evaluation team was considered challenging, because many colleagues saw giving critique as "dirtying our own nest". However, some understood that critical analysis is the only way that leads to a better outcome. Outsiders do the evaluations and there is reason to keep this independence. "But of course, the evaluator is not a nice guy, if he continues to make analyses that tell you that there is a problem here. Everyone much rather published these annual reports on fancy paper, stating what great achievements we have accomplished." Regarding the use of aid as a political tool and the reasoning behind

[67] The Ministry underwent organizational restructuring after Finland became a member of the EU. The EU membership meant that Finland had to focus more on regions and countries which had not received much attention before. One outcome was the establishment of regional desks in 2003. (Himanen et al. 2007:7)

aid structure, one expert stated that the one billion euros Finland annually uses for aid (at the time of the interview) is extremely fragmented.

> There is a great amount of different needs, and we have not had the courage to make the structural change, that we would look at what we are really financing, with volunteer money within the system, what really needs to be there? --- The system should be made clearer — look at the practices, and act only where Finland has knowledge and expertise, and not be everywhere. --- It is not a matter of running for the UN's Security Council, or some other council, it is a question of how to use this one billion correctly, and then we have to talk about both, bilateral and multilateral aid. And with bilateral aid, the fragmentation is quite wild, and it has become even wilder with these small project funds, and it has also been appraised and evaluated, and it is this sort of PR money that is given for various purposes.

The issue brought up here is reflected well in meteorology projects, which have been scattered all around the world. Recently, smaller amounts of aid have been allocated to more countries than previously, when more aid was allocated to a smaller number of aid recipients. Aid in this field has been given to many countries which have not been traditional recipients of Finnish aid. This has led to discussions regarding the campaign for example for the UN's Security Council. Aid to the small-island states in the Pacific was allocated during the time of the campaign. One additional issue relating to the UN was brought up as a problem, and that was the competition between UN organizations:

> There was this Habitat UN conference, in 1995, where the goals included improvement of the infrastructure in slums, and they could utilize all the meteorological information available, but it is just that the UN organizations, they work, at least my experience is, that they are in these sort of silos, and they are always a bit suspicious, that someone else will take a project that they could get funding for. Competing over financing is one issue that is a sort of a hindrance. And then everyone is afraid of the decision-making, that the project goes to someone other than themselves.

The competition between different stakeholders is a hard problem to solve. As long as the aid system functions the way it is set-up currently, different actors are bound to compete with each other.

It can be argued that there are clear differences in terms of the perspectives of experts into the structural aspects of aid. In general, the meteorological experts from the FMI view the projects from the point of view of (meteorological) content. Their approach is mainly apolitical. Even though importance of politics is acknowledged, understood and even called for, at the level of practice, it is seemingly left untouched for the most part. But here it should be brought up that the meteorological experts interviewed for this study included those holding management positions, but majority of the experts interviewed were working in these projects as experts. The people representing the management level gave a more active understanding of the current involvement of the meteorology experts in the political aspects of cooperation, than the other experts did. This may be because either the experts didn't think to elaborate on the topic or bring forward its relevance, or that the managers consider the involvement more relevant than the experts themselves. In my analysis In my analysis, I have aimed to portray the content of the interviews and most common perspectives as fairly and openly as possible.

Private sector experts perceive the aid system as old-fashioned and bureaucratic, but have tackled the difficult political aspects head on through active engagement with political decision-makers. Since politicians make most important decisions regarding the purchasing of meteorological equipment, it is sensible to directly and actively engage with them.

Ministry officials, on the other hand, are (unsurprisingly) focused on the political aspects and the impact of the projects. They know the system of aid thoroughly, and thus have a profound understanding of it. Ministry employees know the benefits as well as the pitfalls of the system, and are able to give constructive criticism regarding it. They acknowledge that the system is not perfect, but also that changing it is very challenging. Some of them even had cynical opinions regarding the system, which can stems from continuous negative experiences. These are expected, considering that Ministry employees work under stress with only limited resources and ambitious goals along with public pressure.

The pattern of behavior observable in past and current projects is that meteorological experts, Ministry representatives and private sector staff have clearly different approaches towards the system and that they remain in their own corners. This separateness has been created by the structure of the aid system, where there is not much naturally occurring interaction. This applies especially to the Ministry, which remains quite distant from both the FMI and Vaisala. In part, this is because Ministry officials simply do not have enough time to actively engage in the projects. Nevertheless, it is important to acknowledge that ultimately this is a matter of policy choice and that things could be done differently.

9.2 DEFINING DIFFERENCES IN APPROACHES

In the first chapter of this thesis, I cite Andrzejczak (2014), who has defined three approaches to development cooperation: traditional, socially responsible and horizontal. He has used this division for donor countries, but in the context of this study, they may also be applied to stakeholders within one donor country. In many ways, the FMI represents the traditional, the MFA the socially responsible, and Vaisala the horizontal approach.

To summarize the relevance of the differences in stakeholder approach, four juxtapositions are presented in this section. The continuums presented here, have been inspired by the theoretical discussions regarding aid, as well as the various approaches one may have towards development cooperation. The issues brought up rise from the interview data.

The first juxtaposition is one between "the straightforward and complex approach" to aid, which stems from the different organizational tasks of the FMI, Vaisala and the MFA. Here the inspiration for the continuum comes from the complexity theory applied to aid. This juxtaposition was reflected in the way experts described their own and their employer organization's roles.

The second juxtaposition, between traditional and modern aspects to cooperation, came about when experts discussed the cooperation format and the relationship between them and the recipients of aid. The theoretical inspiration here lies in the different historical stages of capacity development.

The third juxtaposition, the donor versus recipient ownership aspect, also emerged mainly from discussions relating to project practices and leadership role in projects. Theoretical insight for this continuum stems from different conceptualizations of development (being transferred by outsiders versus being driven by aid recipients themselves, for example).

Finally, the fourth juxtaposition between the reactive and proactive political approach, was reflected in the ways the experts discussed the political aspects of

meteorology. For this continuum, there was a theoretical link to the work of Ferguson (1994), and it is directly linked with the issues discussed in Chapter 8, where the political aspects of cooperation were presented. The four juxtapositions summarize the underlying factors influencing cooperation between the donor-side experts.

9.2.1 THE STRAIGHTFORWARD VS. COMPLEX APPROACH

The straightforward and complex approach to aid was selected as one continuum because it relates to the different organizational tasks of the FMI, Vaisala and the MFA. During the interviews, experts were asked about their organization's role in development cooperation projects. These aspects were compared and relevant differences were discovered. The approach towards meteorology in developing countries and its development is different for a company aimed at selling meteorological equipment, compared to an organization aiming to improve local capacity, and compared to a Ministry making funding decisions for projects aimed at poverty reduction. The level of complexity is the lowest for the company, mediocre for the FMI and highest for the Ministry. The company expert is happy when sales are good, the FMI expert is happy when meteorological capacity improves, but the Ministry expert is not happy until the projects produce something sustainable; contribute to poverty reduction, the cross-cutting goals set for development cooperation and other policy initiatives. Thus, the organizational role allows for the Vaisala expert to approach cooperation in a simpler manner, medium complexity is "available" for the FMI experts and high complexity for the Ministry officials. It should be stated that the time period for satisfaction also varies, as the Vaisala expert may produce good results perhaps as quickly as within a few months of starting cooperation, while for the FMI experts it takes perhaps a few years to see actual capacity improvement, and for the Ministry officials it can take several years before they can be sure that projects have actually been successful.

9.2.2 THE TRADITIONAL VS. MODERN APPROACH

The traditional and modern aspects to aid was a difficult topic, because there were some differences also between the experts within different organizations. As a generalization, it can be said that the traditional approach was seen mostly in the FMI, and the modern approach mostly in the MFA and Vaisala. However, there were individual differences, mainly depending on the length of the time the individual had spent in the field and depending on the age of the interviewee, as older experts often represented the more traditional perspective. The traditional aspect to development refers here to an understanding that development cooperation is a hierarchical process, where knowledge is transferred from a more developed country to a less developed one. Chapter three included a description of the characteristics of early capacity development projects, which reflect the approach of "traditional aid". The modern aspect of development cooperation is built around the concept of equal partnership between the donor and the recipient of aid, in which the gap in knowledge and expertise is not used as a dividing force. The traditional approach reflecting hierarchy appeared in the discussion for example when interviewees described the process in the projects as a "transfer of development" or the Finnish experts as acting in the role of a teacher or someone giving guidance, or how "a little help from us may mean great leap forward for them".

> When we try to transfer knowledge there, it does not just happen with one training, you have to repeat. Once you go there to train, you have to come back and then go again, and every time you achieve a slightly better level.

And,

> This involves all of these, all operations relating to making observations, how to manage data, how to maybe use the forecast models better, and make a little bit better weather products or forecasts, and improve their confidence, give them a little support and also to the director and the entire organization. Show them how one can do this job. Maybe in a different manner, bring in the means of taking care of things, so that it is not so stiff and bureaucratic necessarily. Disassemble the barriers between the units to make them more flexible. And when you support them with this work, they get more confidence, know that things are on the right tracks, they are taking it forward, and then also the directors, everyone gets better self-confidence.

In some discussions, the gap between the level of knowledge was brought up in a manner, which mirrored the teacher–student approach or the authority role of the Finnish experts:

> Well, goal-orientation is a thing we try to focus on in every project, that there would be a strategy and concept, why these countries are doing what they are doing. Because most often it is missing. Being goal-oriented, it usually relates to them doing something because the Minister has said so, or that they produce data for a folder that is then placed somewhere.

And,

> In these cases, it comes down to, that we have understanding of how the issue works actually. For example, a quality system, we know that when you install one, you can make sure, we know what the benefits are and we know why you have to do it. However, they do not necessarily know why they need it, because it has come from the outside, the requirement that you should have this. But in my opinion, success comes from the fact that our experts can take the message there, using these various, what we have, workshops and such. They can tell from their own perspective, why something needs to be done. What the benefits are, and why this is done and why it should be done in the future.

In a strongly knowledge-based field that is focused on expertise, the teacher–student set-up is truly hard to change into a cooperative and equal partnership, in which the voice of the aid recipient would also be heard. One expert described how they rarely have any major problems with these organizations:

> I think that it is because we are a meteorological institute, and our partners are also meteorological institutes, so we have a common understanding. And then, trust, we have trust between us and they trust that we do what is smart and makes sense for them. That we do not have... That they do not doubt our motives, or expertise, or relevance. That helps a lot.

Regarding the level of expertise, it was stated by one expert the level of education in developing countries different than in developed countries, and thus the competence of the people is not at the same level, and if there are very competent people there, but often they move abroad.

Modern aspects to cooperation were brought up by showing trust towards the aid recipients' decisions, ways of working and by emphasizing their active role in cooperation. For example, one Vaisala expert discussed their practices:

> If we discuss these projects where we are supplying something, a larger investment project, a more traditional investment project, whether it would be a weather station network, or lightning detection network, or weather radar or something like that, or a combination of them. Typically, we go there to present our selection, and through that they get information, they might also have their own requirement estimations about what they need, and when they have their requirement estimations done, they need to get the project accepted and budgeted with their own government. For that we are not necessarily the best to tell how that happens, but they need to get it accepted and a secured budget for it.

And,

> Well, they probably think in a different way, but it does not change the fact that many of them are, they have gotten a fairly good meteorological training and in that way they are competent experts. If we talk about the highest level, of course a person always is a sum of it all, culture and the environment, and other factors, and all so that of course influences. But overall it would be an understatement to say that they would not know what they really need. They are smart, understanding people. Nevertheless, of course there are fewer possibilities.

It seemed that experts who had been present at the local level for longer periods of time, shared a more profound understanding regarding the local context and the expertise of local experts. Traditional views were more frequent with senior experts, who have been doing these projects since the early days of cooperation, when the approach was directly technical. Modern aspects, on the other hand, were shared among those who had been present at the local level for long time periods, or had extensive experience from development cooperation.

9.2.3 DONOR VS. RECIPIENT OWNERSHIP

The donor ownership perspective is one where the expert views that the ownership of development cooperation should reside with the donor. Local ownership, on the other hand, refers to a perspective where aid recipients own the projects from the beginning to the end. It became apparent during the interviews that there is some confusion over the question of ownership, in how experts understand it, and in how they view the relationship between the donor and recipient.

Ministry officials clearly represented the recipient ownership approach. Vaisala experts also mainly emphasized recipient responsibility in project success. The FMI experts mainly emphasized donor ownership. The donor ownership approach is not a wrong approach as such, but the key is that there are differences in how ownership is conceptualized. Since FMI experts report on the projects and manage them in practice, it is logical for them to think that they hold ownership over the projects. Ministry officials, on the other hand, conceptualized the process in a way that the projects are done with the locals for them, and that the idea that this is our thing, resides in the partner country: "But the ownership, the idea that this is our thing, in a good project — it has to reside in the partner country."

Vaisala's approach comes from their different role. In their own cooperation projects, where they sell equipment to the local met-offices, the locals are more active agents than in the type of cooperation FMI is usually engaged with. Also, FMI experts are in interaction with met-offices that have very poor capacity. Countries in the position to directly purchase Vaisala products usually have a good level of know-how and expertise.

Emphasizing local ownership also included viewing the locals as active agents of development. One expert explained that "These organizations need to internalize their own needs and meanings, and get the administration to believe that what they are doing is important work", and "It is the situation with the egg and the hen, they should tell more and bring forward what they are able to do and what kinds of services they are able to provide", and that "The most important thing is that it is driven by the recipient country."

In the following quotation, a private sector expert describes the process of development as one where the recipient organization is the one bringing in the expertise (as opposed to the donor doing this):

> They are able to do the basic tasks themselves, but to be able to improve their practices significantly, if it is not a prerequisite, at least it makes the progress faster if they are able to see how things have been done elsewhere, and through that they are able to bring in the capacity to the organization.

And additionally, on how projects are essentially about cooperation and doing things together (as opposed to doing things based on what has been asked):

> Take for example an African meteorological institute, whichever one, that we have a good relationship with, they trust us, and we might make some deals with them. They trust us and they can start planning this investment project with us, and together we are able to define what kind of technology they should get.

The question of ownership is directly interlinked with the question of power. Ownership is often confused with power, which makes things complicated. If recipients of aid hold the main ownership of the project, it does not mean that they also hold all the power. It means that they are active agents involved with all aspects of the projects, and that project outcomes serve their needs. The process of reaching this goal can be different.

9.2.4 THE REACTIVE VS. PROACTIVE APPROACH TO POLITICS

The political aspects of cooperation were discussed in Chapter eight, where the differing approaches to politics were presented for each stakeholder group. This issue is revisited here, where the reactive versus proactive approach to politics is discussed.

The reactive approach to politics describes the strategy adopted by many FMI experts who tend to not get too involved with the political aspects of cooperation. The reasons included mainly that the political aspects were considered complex, difficult and delicate issues. The approach has been named "reactive" because all experts had the ability to analyze and describe the political aspects regarding these projects and are well capable of engaging in the discourse, if needed. However, many of them prefer to not get involved unless necessary. At the other end of the continuum is the proactive approach. Experts representing the proactive approach engage actively with the political aspects of the projects. The proactive approach has been adopted mainly by Ministry officials, but also private sector actors. The key difference between the

two groups is that their opportunities to engage in the discussions are very different. Ministry officials are welcome to discuss politics, take stands and debate hot topics. However, when private sector actors enter the discussion, different rules and rights to participate apply. It is always expected that the private sector acts out of the hope to "get a deal". The motives behind the actions of the Ministry officials are more complicated because their role is more contradictory. As presented in the introduction chapter, the Ministry promotes Finland's commercial and economic interests. The Ministry has a role in promoting Finland's interest, but it is also responsible for development cooperation. The proactive political approach adopted by a Ministry expert is different than one adopted by a private sector expert, but the "proactive attitude" is nevertheless shared. Since many of the FMI experts have adopted the reactive approach, but are the ones who are leading the projects, it can be argued that there is need to unify the approaches in terms of the political aspects of the projects. In the next section, the highly important roles of control and power are further explored.

9.3 STAKEHOLDER DYNAMICS – CONTROL AND POWER IN COOPERATION

In this section, the stakeholder dynamics are explored in more detail by applying the theoretical concepts from Chapter three. The following sections include the most important findings of this study from a more theoretical approach.

9.3.1 THE LOGIC OF THE AID STRUCTURE AND WAYS OF CONTROL

The logic of the aid structure refers to the way development cooperation and aid is and has been organized by the government. In this section, I will summarize observations made during this study and approach the issue through the concept of governmentality, as interpreted by Dean as the analytics of government. As explained in Chapter three, Dean approaches the issues in terms of visibility, regimes of knowledge, techniques and forms of subjectification, including the ways in which power relations are designed and implemented in order to conduct people's conduct in certain ways. Dean's analytics of government framework included (i) characteristic forms of visibility, ways of seeing and perceiving, (ii) distinctive ways of thinking and questioning, relying on definite vocabularies and procedures for the production of truth, (iii) specific ways of acting, intervening, and directing, made up of particular types of practical rationality ("expertise" and "know-how") and relying upon definite mechanisms, techniques and technologies, and (iv) characteristic ways of forming subjects, selves, persons, actors or agents. (Dean, 2010:33) Certain practices are repeated, and certain actions seem to follow from them. These observations have been made based on the experiences of the experts from meteorology projects but they may also be useful in other fields of development cooperation as well. Table 14. summarizes the observed behavior of the MFA analyzed with the analytics of government framework.

In the case of development cooperation, the focus is not on the people as the public, but the experts working in these projects. Based on the interviews, the Ministry is seen as an authority, with power over most, if not all, things. The Ministry is the financer and its experts approve project documentation and reports. They can

interfere if projects are not going as expected. The Ministry functions under constant public pressure and development aid is one of the sectors where public interest is focused on, because aid is financed through tax funds. Overall, officially it seems that the Ministry has a lot of control. However, the extent of this power becomes questioned due to a lack of presence on the level of practice. The aid system has been structured in a way that the Ministry does not have a role in the practical aspects of the projects. Typically, this is not a problem, but in projects where the executors are not experts of development cooperation, the situation is different. Ministry officials seem to be very busy and in some cases even overworked. Their responsibilities include numerous projects and practically very little, if any, time spent in the field. As one expert from the FMI brought up, it might be that they do not see MFA officials face-to-face at all during project execution.

Table 14. Observed behavior of MFA analyzed with the analytics of government framework.

Analytics of government framework	Observed behavior of MFA
Forms of visibility	MFA is a visible actor before the beginning of the projects, but transforms into mainly an invisible actor once projects begin, the actor is accessible but not present in daily work.
Ways of thinking and questioning	Actions are based on the content of Finnish development policy and norms of the aid industry, the presumption is that funding is given when stakeholders commit to the pre-set goals for cooperation and are able to provide a feasible project plan. The project structure does not allow for much flexibility, and it is planned in a manner that prevents misuse of aid funds and secures accountability for the public.
Ways of acting, intervening and directing	Influences from a distance, comments on mid-point review reports and final reports (if needed), intervenes in case of severe problems, direction is based on distant observation and focus is on macro level practices.
Ways of forming subjects, actors and agents	The forming of subjects, actors and agents occurs in project documentation, which defines roles, tasks and expectations for each stakeholder.

One Ministry expert explained that if all goes as planned, they only receive reports and they are not as needed for anything else, since much of ICI-project follow-up has been outsourced to FCG. Because of continuous haste and hurry present in the work of the Ministry officials, it is possible to lose touch with the practicalities of the projects. As stated by one expert, often the invisible needs fixing. It was also mentioned that project plans and reality are two different things and although the goal is to draft project plans to suit the reality as accurately as possible, there are always surprises and unexpected things coming up.

Overall, the Ministry has adopted quite an invisible way of operating. Most of the correspondence is handled over email and through official reports, and not much communication is done in person after the project has started, though there were

differences between projects[68]. The guidelines are fairly strict and clear for project design and content, including the ways cross-cutting objectives are to be included in projects. If the plans are lacking some elements or need overall improving or additions, the Ministry officials will ask for modifications before acceptance. Once projects get started, the Ministry will receive reports, usually these include a mid-point review and final report.

During the interviews, both FMI and Vaisala staff described the overall processes of the projects as overly bureaucratic, slow and non-flexible. In many ways, the current system was described by using either directly or indirectly the characteristics of the critical approach to aid, outlined by Hinton and Groves (2004). In the critical approach to aid, the overall development approach was gift-giving, benevolent welfare given to those in need. The development process is understood as technical, and the core value is "doing good". The primary stakeholders are seen as beneficiaries, and procedures include bureaucratic conformity, and the overall philosophy is deterministic and that of a closed system. In the opposing, dynamic approach to aid, development is based on rights and empowerment. The development methodology is transformative, and it is essentially about the political process. The core values include people's rights, and the primary stakeholders are seen as citizens. The procedures include a negotiated process, including innovation and flexibility, and it is based on socio-cultural sensitivity and knowledge. The overall approach is complex, non-deterministic and based on an open system. (Hinton and Groves, 2004:7)

Much of recent aid research calls for more understanding of the complexity of aid, and argues against the continuous use of the same project structure for different contexts. In many meteorology projects it seems that same overall goal to improve local capacity is repeated and the complexity of the local context and its influence on the projects is not completely revealed to the experts until the project proceeds to the level of practice. One expert explained her frustration regarding the planning process, and not being able to do it as extensively as she wanted to because it was considered too time-consuming. As a result, the initial plan changed during the project, which led to delays in execution. The lesson to be learned is that forcing a too short time table for planning does not lead to a good plan done quickly, but to a poor-quality plan, most likely to lead to delays and changes later on. However, the more serious issue of concern is that the FMI and Vaisala experts did not think it was possible to influence or change aid practices. It was understood that the outlines for projects come from the Ministry, they proceed top-down and that there is not much flexibility or room for negotiations regarding project structure. In many of the interviews, the impression was that if the FMI would be given the opportunity to exercise complete freedom, many things would change. It seems like a waste of expertise to not consult the FMI experts regarding the development of the structure of aid.

The logic behind the structure of aid therefore seems to be top-down and hierarchical in a sense that the Ministry holds the power over project design and funding — from the beginning to the end. The Ministry does this work in a fairly invisible way through project bureaucracy, mainly via the means of email. Since Ministry officials are not present at the level of practice, their ability to know what goes on is mainly dependent on what the FMI experts tell them. The FMI experts, on the other hand, do not have many incentives to report serious problems since this could in theory result in the termination of project funding or the discontinuation of future funding and cooperation. It was also brought up that FMI experts felt that not everything could be written about in the reports. As a result, the reports do not entirely reflect reality. The extent of this contradiction of course varies from project to project, but the point is that the system allows for this to happen. Ministry officials

[68] For example, in large regional projects, the Ministry had representation in meetings.

are of course aware that not everything necessarily goes as planned, but because of the risks involved in terms of future project financing and the desire of the meteorological experts to keep their job and ensure their source of livelihood, there is a built-in incentive to downplay problems. Of course, this applies to other areas of development cooperation as well, not only projects in the field of meteorology. This issue is one reason why it is so difficult to change and develop aid as a system; there are no clear incentives to give information that would help to develop the system. This work has been left for researchers, but their criticism is easily dismissed.

Regimes of knowledge refer to sets of actors, organizations, and institutions that produce and disseminate policy ideas that affect how policy-making and production regimes are organized and how they operate in the first place (Campbell and Pedersen, 2008). The regimes of knowledge, supported by the current structure of aid focus on the experiences of donor experts since they are the ones writing and submitting project reports. This includes their interpretations of the perspectives of recipient-side experts. It is important to acknowledge that the recipients of aid also have an incentive to not give criticism on development cooperation because of the risk of losing partnerships altogether. Nevertheless, in order to know how the project is actually working at the local level, the focus should be on the direct experiences of aid recipients. The main issue here is that overall there is a clear path from top-down, from the level of the Ministry to the level of the individuals working in these projects, but an unsure path from bottom-up.

9.3.2 THE EXTENT OF POWER ANALYSIS (EPA) MODEL

The key interest regarding power lies with the availability of different forms of power in practice. Since empowerment has been in a key role in global development efforts and the participation and ownership of local actors have been promoted on the level of policy, the availability of different powers is used here as a "measurement" of one type of ability to influence and make a difference. The formulated model is called the Extent of Power Analysis (EPA), which aims to describe the possibilities of each actor to influence cooperation. The EPA-model is of course a simplification of the actual situation, but it aims to help understand what concrete possibilities each stakeholder have to influence the content, practices and also goals of development cooperation projects.

Since 2005, Finnish development cooperation has shifted towards a more coherent approach, where the concept of empowerment and the goal of empowering people has become important. Empowerment as such is a difficult concept, because empowering people is dependent on their personality traits and past experiences, as well as opportunities, and not just the practices within cooperation. Nevertheless, it is easier to talk about empowerment and write about it in project documents than it is to actually achieve it. So, instead of looking at the concept of empowerment, here the focus is put on the extent of influence through the forms of power each stakeholder has access to. If the focus is put solely on the extent of influence, what they are able to do with their power, it is possible to get a more realistic view of the situation in practice.

Lukes' (1974), three dimensional power theory brought up that power can essentially be exercised in three ways: decision-making power, non-decision-making power and ideological power. The later formulated two types of power (2005) theory included the capacity to impact the surrounding world, and the capacity to dominate other beings. When the main stakeholders are compared regarding the three dimensional power approach, the Ministry, the FMI, Vaisala and the recipient organizations, it is clear that the only stakeholder holding all three types of power is

the Ministry. The FMI, Vaisala and the recipient organizations hold very little power over the political agenda, practices, project design, funding and so on.

Table 15. The power of stakeholders in various stages of the projects.

Project phase	MFA	FMI	Vaisala	Recipient of aid
Before project	Defines project structure, tools and outline, makes funding decisions.	May propose cooperation projects and apply for funding.	-	Can make a request for project.
Planning phase	Approves plans.	Makes plans.	Can comment plans.	Can comment plans.
Project execution	Approves all changes and reports.	In charge of execution, reports to the MFA.	In charge of supplying technology for the project.	In charge of local level actions and practices.
Project evaluation (if done)	Orders evaluation from consultants.	Gives information.	Gives information.	Gives information.
After project	-	-	-	Sustaining capacity at the local level.

They may try to influence the Ministry by voicing their point of view, but overall, there is very little guarantee of any true impact. The Ministry decides on the funding, project plans and future partners. The Ministry functions under great public pressure and is accountable to the Finnish taxpayers. When analyzing the two types of power of Lukes' more recent theory, the Ministry has the capacity to influence the surrounding world through various ways, as well as dominate other stakeholders. The FMI and Vaisala also have the capacity to impact the surrounding world, but less so than the Ministry, and they do not have the capacity to dominate others. The situation of the recipients depends on their capacity level. They are not, as such, able to dominate others. Some met-offices are able to influence the outside world in some ways, but the organizations with the lowest capacity and the least resources do not have even this type of power available to them.

French and Raven's six forms of power included coercive (power used to do something against one's will), reward (ability to give people what they want and expect favors in return), legitimate (power based on role or position), referent (power from another person who wants to be like you), expert (power that comes from knowledge and skill), and informational power (that comes from having relevant knowledge). When these forms of power are compared, it can be argued that once again, the Ministry holds the most types of power. They have the option to use coercive, reward, expert and informational power in the projects, in addition to having legitimate power, which comes from their role and position as an expert organization of politics and development cooperation. What makes them

exceptionally powerful is that they have access to politically sensitive and classified information. The FMI as an expert organization holds expert power and informational power especially regarding technical options and solutions, but also referent power over the experts working in developing countries. Vaisala experts also hold expert power and informational power in regards to technology, but also referent power over the recipient-side experts. The recipient-side experts hold merely some informational power over the donor experts regarding the local context, for example the cultural, societal and political context, but not necessarily that either, depending on the role of the specific expert in their own organization. Overall, FMI, Vaisala and recipient experts only hold expert power and informational power over the Ministry regarding the topic of meteorology and the local context based on their practical experiences. This makes the Ministry far superior in terms of the division of power. Table 16. summarizes the power of each stakeholder in various stages of the project cycle.

Table 16. Different types of power available for use.

Type of power	MFA	FMI	Vaisala	Recipient
Lukes				
Decision-making power	x			
Non-decision-making power	x			
Ideological power	x			
Capacity to impact surrounding world	x	x	x	
Capacity to dominate other beings	x			
French & Raven				
Coercive	x			
Reward	x			
Legitimate	x			
Referent		x	x	
Expert	x	x	x	
Informational	x	x	x	x
Clegg				
System-level	x			
Dispositional		x	x	
Episodic				x

The power majority of the Ministry becomes problematic when there is a clear need to shift responsibilities on the level of practice. Looking at the timeline of projects from the beginning planning phase to the end of the project, and the time period following it, and comparing the practical experiences of the experts involved, it can be argued that the responsibility for project success is shifted to FMI experts during execution and to local experts after the project ends, but no actual additional power comes with this shift in responsibility. Because the Ministry is mostly invisible at the level of practice, there is a void that comes from no one present having enough power to change things that would require changing. Therefore, the unequal division of power creates a dilemma, which contributes to the overall problem of project sustainability.

When the same set-up is approached through Clegg's Circuits of Power framework, it can be argued that the recipients of aid hold merely episodic power and the FMI and Vaisala have dispositional power, which is founded on their role and expertise. The Ministry is again in the most powerful position, having power that stems from fundamental societal structures. The forms of resistance apparent among FMI and Vaisala staff are episodic in nature, and as such not effective. Effective resistance is organized resistance and it is very rare. Episodic resistance generally manifests itself only against the use of power, and usually operates on the over circuit, and is conscious only on this circuit of power. Clegg argued that episodic resistance actually strengthens the stability of power and confirms its representational character.

Table 16. summarizes the main types of power available to each stakeholder. This model is of course a simplification of the actual situation, but can be used as a useful tool in understanding the differences regarding the forms of power available to each stakeholder. It is clear that the Ministry has the most types of power available, while the FMI and Vaisala appear as equals in relation to each other. However, the FMI is more powerful in the sense that its role is more essential to the projects overall and more permanent and secure compared to Vaisala. What is also clear is that the local aid recipients are in a weak role, showing that they only hold episodic and informational power. But especially the informational power they hold is in a key role. If the distribution of information fails, development cooperation projects are set for failure.

The aim of the Extent of Power Analysis model is to demonstrate, through the availability of power analysis, which stakeholders are able to influence exactly what in these projects. When this analysis is combined with what is known about the motives and values as well as the practical issues related to these projects, it can be argued that although the Ministry is powerful and its experts have the right types of goals in mind, it is unable to ensure that these goals are achieved in practice. Firstly, because its experts are not present in practice, and secondly because the meteorological experts distance themselves from the political aspects of cooperation and tend to stick to what they know best, which are issues related to the technical goals set for the projects. Returning to the principal-agent theory discussed earlier where the government outsources these practices to the agent, mainly the FMI in the context of these projects; it can be argued that through the practice of outsourcing, the system of aid produces apolitical outcomes in cases where the agent is mainly a non-political actor. Ferguson (1994), argued that it is not enough to note the development industry's failures but also that asking the question if development is a failure is in fact the wrong question. This is because it fails to recognize the importance of the instrumental effects of aid; what the projects actually do. His answer was that the effects of aid act as an anti-politics machine, where essentially political decisions are made, but they are masked as technical solutions to technical problems. Similar observations can be made in these projects as well. In the context of meteorology projects, the Ministry clearly emphasizes the importance of political aspects, but this is not reflected on the level of practice because the stakeholders have adopted mainly a non-political approach. This of course varies between experts and their role and has changed over time. While Ferguson's argument was that development projects act as an anti-politics machine, the argument here is that the anti-political outcome of the projects is a result of the way aid is structured. Because the aid system is built in a way which does not encourage feedback on project challenges, and political experts are not actively engaged in the practices, it might be that it is simply not known that this non-political approach actualizes. Relating to this, Jervis (1999) has argued that in a modern interconnected world, unintended and unpredictable consequences of actions are unavoidable, and that the sum of actions is not the total effect of the behavior. (Jervis, 1999) In the light of these arguments

presented in the framework of complexity theory, it can be argued that in the context of meteorology projects this actualization of the non-political aspects of cooperation are perhaps an unintended consequence arising from the interactions of the multiple stakeholders. Changing this may just require being more aware of the issue overall but in reality it would require that the Ministry would include the meteorological experts more actively in their processes as well.

9.3.3 THE SUSTAINABILITY PARADOX OF DEVELOPMENT AID

When analyzing how aid has been governed, as inspired by the concepts of governmentality, analytics of government and the power theories, one important contradiction regarding the sustainability aspect of aid becomes evident.

Because donors use public funds, the projects have been donor-led. Nevertheless, because projects have been donor-led, they have not been able to ensure sustainability. In order to be sustainable, meaning that the impact of the project remains in the local society after project end, the project cannot be fully donor-led. This contradiction, referred to here as *the sustainability paradox of development aid*, is a major challenge in the field of aid. In order to make projects more sustainable, the aid recipients should be given more power in terms of what happens and how it happens, as well as how funds are allocated and used. The local people cannot be given full control of these things, because as a result, the accountability of the donor to the general public lowers, corruption would be enabled, and there would be no way to ensure proper use of funds. Therefore, the end result is that the sustainability paradox cannot be solved without giving up power, and through that also accountability, both of which are highly important to all donors. It seems that there is no way to have a project, which is both sustainable and fully ensures accountability of the donor to the public. Overcoming this as a challenge would require re-structuring the aid system towards a more flexible system, based on trust. In order for this to happen, public opinion towards aid should be more positive, so that there would be support for this approach from the taxpayers themselves.

9.4 CHAPTER SUMMARY — OBSTACLES OF SUSTAINABILITY

This chapter has covered numerous aspects of cooperation. It began with an exploration into the perspectives of experts on the structural aspects of aid, and continued with a discussion on stakeholder dynamics and the role of power in cooperation. The question to be answered in this chapter was: What types of differences are there between the stakeholders in terms of conceptualizations and approaches, and what role does power and the aid system play in cooperation?

This chapter finds that FMI experts found the aid system overall to be bureaucratic and slow, and struggled with incorporating of the cross-cutting goals of development cooperation to the projects. There were also fears of giving critique and reporting problems due to the risks for future cooperation. Vaisala experts also found the aid system to be bureaucratic and slow, and struggled with the same bureaucratic processes. However, they had adopted a different approach to cooperation, and had learned to use the system of aid to serve their own benefits. Vaisala has the advantage of using a long-term cooperation approach in their work, which is not available to the FMI experts struggling with short-term projects. Ministry officials, on the other hand, had a deeper level of understanding of the aid system overall, they saw beyond the

paperwork and bureaucracy and acknowledged the complexities involved with all types of development cooperation projects.

As the analysis regarding power shows, the Ministry holds the most types of power in interaction, which creates a hierarchical set-up between the donor organizations. The MFA is in the position to use coercive, reward, expert and informational power over the other organizations. The FMI and Vaisala could use expert, information and referent power, and aid recipients had access to merely informational power. The MFA has power that is deeply rooted in societal structures, while the FMI and Vaisala had dispositional power, and local aid recipients only had access to episodic power. As an example of episodic power, one FMI expert explained that in Mozambique, the local meteorological institute utilized the risks proposed by a hurricane that struck the country in 2000, and managed to get funding for the only two weather radars located in Sub-Saharan Africa in addition to those in South Africa. The MFA overpowers all other stakeholders, but since it has mainly adopted a invisible form of operating in the projects, experts who are present can use power in practice. During project execution, responsibility for capacity development shifts from the Ministry to the FMI, and finally to local experts after the projects end. The unequal distribution of power contributes to the sustainability problems that projects have been dealing with in the past. Additionally, the idea of the sustainability paradox of development aid was described, and its relevance for the projects' success was explained.

Regarding the general approach of the stakeholder organizations, the FMI represents the traditional, the MFA the socially responsible, and Vaisala the horizontal approach. In regards the four continuums, FMI experts represented the traditional approach to development, while MFA and Vaisala experts mainly showed support for the modern approach. FMI and Vaisala experts represented straightforward development thinking, while MFA officials represented the complex approach. FMI experts mostly represented donor ownership, while MFA and Vaisala experts supported local ownership. MFA officials represented a proactive policy approach, and FMI and Vaisala experts represented a reactive policy approach.

10 CONCLUSIONS

> Finns have excellent expertise in the field of meteorology. We have everything we need, we can make the best technology, and we could solve major global problems. However, those problems are not solved by having meteorological organizations like state monopolies, where government officials say how things should be done. We need a meteorological ecosystem, which would include everyone, manufacturers of equipment, engineers and commercial companies, in order to create something. Global problems like climate change influence entire societies, and they are not merely problems of the natural sciences, but social and human sciences as well.
>
> -Meteorology expert

This study has examined Finnish development cooperation in the field of meteorology. The goal set for this study was to explore practices in this field, with an emphasis on the role of stakeholders and the structure of aid, and solve the problems behind sustainability challenges. Meteorology is a niche field in Finnish aid, but its practices have continued for nearly 50 years. During this time period, practices have grown, they have become more influential and they have given Finland the recognition it deserves as a country committed to improving the local meteorological capacities of developing countries. However, this path has not been without controversy. Problems have stemmed from various sources, and the number of challenges has increased as projects have become bigger and included more money and new partners. Cooperation between the public and private sector and between scientists and politicians has been found to be challenging due to differences in values, motives and incentives for action.

The main research question of the study was: *What have been the main practices, challenges, motives and incentives in Finnish development cooperation projects in the field of meteorology, and which elements of cooperation have contributed to the challenge of sustainability?*

The process of answering this question included a set of questions outlined for the content chapters. These included exploration into the history, practices and politics of meteorological cooperation and an analysis of the reasons behind these issues, as well as their relevance from the point of view of policy and poverty reduction. The propositional pattern for this exploratory case study was: *"Diversity in terms of the field of expertise can influence the perception of experts of the priorities of projects, which in turn influence the practical steps taken to achieve project goals."*.

Theoretically, this study explored stakeholder interaction through the lens of complexity theory in the context of aid in the field of meteorology. The theoretical analysis of the structure of aid and aid governance applied the concept of governmentality. Various power theories were used to analyze the dynamics and interaction between the central stakeholders. These inspired the Extent of Power Analysis (EPA) model, where the availability and forms of power were compared. The EPA model showed that the Ministry is clearly the most powerful stakeholder in this field, as it has access to the most profound and influential forms of power. The FMI and Vaisala are about equal in relation to each other; they both have access to dispositional power stemming from their position and role in this field. The aid recipients are in the worst position, as they have very limited power available to them, and no real opportunities to influence practices. As a result, it is clearly unrealistic to expect that aid recipients would be able to sustain achieved capacity after projects end, because they do not have access to any of the important forms of power during

or after the projects. Additionally, analysis was also conducted regarding the patterns of donor behavior, which showed that various donor-related issues hinder the achievement of project goals. Additionally, three of the four possible development traps actualize in the projects, which is an indication that the practices need to be further developed. In order to change the outcomes of the projects and ensure that future investments into the development of meteorological capacity in developing countries are more effective, a restructuring of the aid system is needed, especially in terms of the division of power between the stakeholders.

During the course of this study, the different elements of cooperation have been discussed: the perspectives of experts and the dynamics between them, as well as the existing power relations. Additionally, the conceptualizations of experts have been compared. The results of the analysis speak for the fact that the system of aid functions in a way that prevents its development. This study does not argue that meteorological aid is redundant or that technology is not important. On the contrary, developing meteorological capacity in developing countries is perhaps more important now than ever before. Getting better quality technology is also important — it is actually imperative. Climate change poses such grave threats to modern societies that projects aiming at local capacity improvement should be given a much stronger role, budget and appreciation. However, the way of doing cooperation needs to be changed, power needs to be distributed more evenly between the expert organizations and the links to local societies need to be stronger to ensure that the local societies can maintain their improved capacity. Table 17. summarizes the main challenges in the field of meteorological development cooperation.

The role of the Ministry in the context of the projects is problematic, essentially because the Ministry holds so many types of power. The Ministry controls the project design as a whole, which leads to the experts doing the practical work being unable to influence project content, duration and through that, the outcomes of the projects. The Ministry and individual ministers control the development agenda, which leads to experts being unable to freely design the project content to fit the local situation. Instead they have to fit the given agenda to local circumstances, which requires more work and time. The Ministry makes the funding decisions, which inhibits experts from reporting problems and giving critique because of fears of losing financing and cooperation altogether. This hinders the overall development of aid as a system. The Ministry holds the most power over what happens in the projects, but its officials do not have a lot of time to spend in the field. The disconnect between policy and practice leads to poor outcomes where unessential issues are included in the projects and important issues are left out. The role of the Ministry is imperative, but currently the voices of those who are influenced by their decisions, are perhaps not heard loud enough.

Overall, projects have repeated the same format and approach of developing local capacity. The context has become more complex during the 2000s, but essentially not many things have changed. No transformative, new approaches and innovative, experimental set-ups have been created due to, essentially, the limits set by the structure of aid. Minor shifts in the focus of development policy and the inclusion of fad terms are not enough to change the entire approach. The situation in the developing world requires measures that are more drastic, new ideas, transformative ideology and bold policy changes to have a true impact. In order to do this in practice, the practices need to become more political.

The challenges outlined in Table 17. show that donors and recipients of aid face different challenges in the projects. As a result, their approach and focus during the projects is a bit different from each other. Being aware of "others" and their approaches can help find common ground. Several donor-side experts mentioned that it usually takes a up to a year to understand the local context, the approach of the

locals, their culture and way of operating. For this reason alone, short-term projects are hard to justify, at least from the perspective of reducing global poverty. However, from the perspective of the donor, they include some beneficial elements.

In general, using the form of "a project" in development cooperation has both benefits and challenges. A project "operates" in a limited domain and a project plan includes a fairly limited set of goals, resources and accompanied schedule. The frame

Table 17. Summary of challenges in the field of meteorological development cooperation.

Challenge	Donor Perspective	Recipient Perspective
Meteorology	Different natural phenomena than what has been accustomed to.	Challenging meteorological phenomena as well as geography, how to set up systems in mountain areas, for example.
Technology	Different systems in use, manual systems still in existence, equipment broken, equipment malfunctions regular, problems with internet access.	Lack of technical equipment, lack of skilled staff to maintain and repair equipment, technical donations received from many donors from various manufacturers (how to make systems interact).
Staff resources	Strong differences in know-how between the staff of the donor and recipient organizations.	Not enough knowledgeable staff, not enough training, "brain drain" phenomena.
Finances	How to use project money efficiently.	Lack of money.
Society	Meteorology not respected enough, met-offices not known to locals, poor local infrastructure.	The local society does not support functions, communication is a challenge, weak presence in media, low level of respect.
Politics	High political hierarchy which makes cooperation more difficult, corruption.	Can be risky to get involved (risk of losing job), can also be risky to not get involved, difficulties in national coordination of practices (e.g. crises situations).
Cooperation	Language barriers, getting accustomed to different ways of working.	Language barriers, getting accustomed to different working cultures.
Culture	Lack of cultural knowledge or familiarity with local customs.	Strong cultural differences between locals and donors.
Structure of aid	Sets too strict limits.	Aid structure and limitations not always understood (what is allowed and what is not).
Project practices	Too short duration, high in bureaucracy, slow progress.	Overlapping projects with various donors, aid dependency (hard to sustain capacity without external support).

within which one operates is reasonably clear. However, often when conducting

development cooperation in a project form, one faces things that have not been planned. Then, one may aim to fix these problems by changing practices within the same time limit and with the same amount of resources. This creates a big challenge. After the project finishes, the experts in the recipient country are left to continue the practices on their own. The reason for using the project form in development cooperation is that it gives a clear structure for the practices. The clarity is beneficial for both the donor and recipient parties, and it makes it easy to present the project to outsiders. It also allows for creating a clear division of responsibilities among the parties. In terms of the challenges, it has been found that project form cooperation may start rather randomly. The ideas for cooperation may come from donor-side experts, and recipient countries may adjust their needs based on what kind of aid is available. In cases like this, creating true and sustainable local ownership is difficult. There is also the danger of doing cooperation that is very sporadic. Different organizations may end up simultaneously doing projects that are very similar or close to each other in terms of goals. (Takala, 1989:186-187)

The above-mentioned challenges for project form of cooperation were already outlined nearly three decades ago, in the late 1980s. Despite the fact that the challenges in using the project form have been known for a long time, projects are still common, and the challenges that were relevant then are still relevant today. The problems that the experts have outlined in this thesis are in some ways even more relevant today than they were in the 1980s, because the number of actors in the field has grown, which further aggravates many of the problems.

What then would be a better option? One option proposed by Takala already in the late 1980s was to organize the activities in larger entities, in terms of both recipients and time limits. This would allow for a wider scope in the assessment of problem areas and the development of more viable and sustainable solutions to the central challenges. In the case of meteorology, this would mean that meteorological aid would be included in country programs and that projects would give a more relevant role to societal factors and other relevant sectors, e.g. including agriculture and medicine as cooperative sectors. The clear paradox in meteorological development cooperation is the fact that meteorological experts criticize politicians for not understanding the role of meteorology, but do not include strong political elements in the projects. The reasons for continuing this separateness have to do with deeper divides present in the society, as discussed in previous chapters. Overcoming these divides would require a shift in thinking and a serious re-framing of project practices. Since the structure of aid is managed by the Ministry, changes would need to be initiated there.

10.1 MAIN FINDINGS

This study has brought forward three main issues. Firstly, development aid as a system is currently structured in a way that does not allow for it to develop and change though natural correction mechanisms, such as feedback. Heavy bureaucracy, which reflects both lack of trust and public pressure, hinders cooperation and the possibilities available for the projects and cooperation overall. Secondly, in order to lift developing countries out of poverty, in the context of the projects, meaningful forms of power should be "given" to the recipients of aid. Thirdly, development cooperation projects should always be planned around the local society, instead of being mainly driven by donors, who can lack knowledge of the local situation. This typically makes them more focused on what is shared between all projects, and that includes the technological aspects of cooperation.

The history of meteorology projects was presented in Chapter five. While Finnish expertise in the field has been successfully scattered all around the globe, some of the

work, efforts and pursuits have disappeared into thin air. This is common for development cooperation projects, but meteorological aid is more at risk of achieving a lower level of sustainability because of the significant role that technology plays in this field. The external issues influencing how the technology works are contingent on numerous societal factors outside the scope of the projects. There might be situations where everything in the context of the projects can be done "perfectly", and the end results might still be that the equipment is not functioning as it should be. This set-up leads to a path of questioning the whole system and way of operating.

At the end of Chapter three, different approaches to the study of the role of experts, expert knowledge and processes of policy-making were outlined along the line of Mosse (2011). These included the political economy of knowledge (whose knowledge matters) and its relation to institutional power and the maintenance of organizational legitimacy, the transmission mechanisms of expert knowledge, policy ideas themselves in mediating social and professional relationships and analytical forms of expert ideas themselves. The history of meteorological cooperation and the interviews with donor-side experts indicate that Western ideas and ideologies still dominate the field of meteorology. The transmission mechanisms of expert knowledge move mainly from leading countries in the field of meteorology in Europe and United States to the less-developed countries. As brought up by recipient experts, training opportunities in the Global South are scarce, and most experts travel to Europe or United States to receive training. Indigenous knowledge related to weather seems to stay within the small local communities that still apply them, and is at risk of slowly disappearing completely. Policy ideas are focused around technology and technical infrastructure and less on societal and cultural factors, which undeniably influence the sustainability of projects. Meteorology is a highly international field, which is networked well within the field itself, but not so well with other fields. Isolation from politics is one reason behind the low level of appreciation and understanding by political actors, such as governmental bodies, which results in poor resources and lacking capacity in meteorological organizations. The analytical forms of expert ideas are mainly technical and the field could benefit from added cooperation with social and behavioral sciences, such as sociology, anthropology, cultural studies and psychology.

In Chapter six, development policy documents were compared with project content and main goals, showing that during the 1960s, 1970s, 1980s and 1990s meteorology projects reflected the policies and practices of Finnish aid. This however changed during the 2000s when the context of aid became more complex, and aid was reframed as a comprehensive approach to development. Meteorology projects continued along the old path of capacity development, mainly because of the ICI-project tool, provided by the Ministry during the same time. It is odd that the Ministry created this tool at this time period, because in many ways the ICI-instrument contradicted many aspects of the new policy, for example the short duration of the projects and limited time periods spent in the field. Nevertheless, the ICI-instrument provided a way to bypass difficult procurement processes, which in many ways made it easier to continue cooperation in this field with the same partner organizations.

Chapter seven started with an overview of the practical challenges of development cooperation in the field of meteorology. The reasons for not having strong enough impact have been discussed before, but overall it can be said that if the goals set for development cooperation are to be achieved in this field, the projects need changes in several areas. Projects should to last longer and cooperation should to be truly committed to for many years, not just two, three or five years at a time. Being present and committing to long term cooperation is not a quick-fix solution, but it can be part of the solution. Project personnel should be more present on the local level in order to know what is happening and what the challenges and opportunities truly are. All projects should actively engage experts of development cooperation, not just experts

of meteorology. Projects should be society-led, instead of being technology-led, and in order to make this happen, projects should incorporate more active cooperation with local political stakeholders. The role of local communities should be enhanced, local communities and NGOs should be collaborated with in all projects. All actions of the local met-offices should be thought of from the perspective of the end-users. Overall, the approach of the projects should be widened to include more societal than technical components.

Chapter eight presented the political challenges of meteorology projects as well as the political context of the field. Experiences with the WMO were compared and the role of Vaisala as a company with political relevance was discussed. The chapter ended with a comparison of the relationship between science and politics, and public and private sector practices. It was discovered that different stakeholders have adopted different approaches towards the political aspects of aid. The juxtapositions between science and politics, and public and private sectors were found to be underlying influential issues, which need to be more openly addressed in order to decrease the political challenges of the projects. Political challenges in local societies are another important issue. Actively promoting the values of good governance and democracy in the projects would change things for the better, and support the local institutes in their aspirations for a more solid societal position. All experts acknowledged that the political aspects are highly challenging. It is unfortunate but understandable that many of the experts have adopted the strategy of not getting involved and "hiding behind their own expertise". What can be done in this issue is to openly discuss and clarify the roles, and what is and is not allowed. Currently there is too much mystery involved with the political aspects, which contribute to the sustainability aspect of the projects.

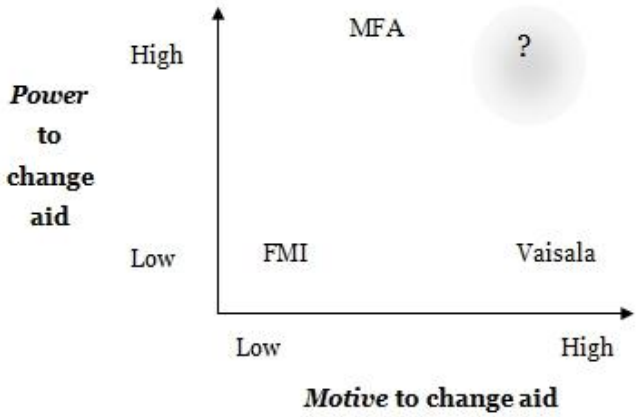
Chapter nine started with a comparison of the donor expert perspectives on the structure of aid. The perspectives of FMI, Vaisala and MFA officials were analyzed. Four main juxtapositions between the approaches of the donor-side stakeholders were defined and explained, those between the traditional and modern aspects to aid, the straightforward versus complex approach to aid, donor versus local ownership and the reactive versus proactive approach to politics. The argument regarding these four juxtapositions is that it is difficult to do development cooperation if and when there are disagreements over major issues regarding cooperation. Differences in the approaches of stakeholders, whether or not they are openly acknowledged, hinder cooperation. Regarding power, it was found that the donor and recipient organizations had strong differences in the types of power available to them. This asymmetry in power needs to be addressed; the narrow and limited powers available for the recipients of aid should especially to be corrected. The overpowering role of the Ministry should also be changed. It is understandable that the Ministry has a strong role in defining development policy and practices as well as in making funding decisions, but the system is not headed in the right direction if there is an atmosphere created where experts avoid reporting problems in fear of losing future funding. The current system seems to be built on a lack of trust, but it would yield more beneficial results if the system would embrace complexity, provide more flexibility and allow for the experts to utilize their know-how more freely. Currently, many experts consider their hands to be tied by the practices set by the aid system. It was also found that various donor traps occur in the projects. In development cooperation set-ups, it might be difficult to avoid donor traps entirely, but they should be put under focus and all possible efforts should be made to avoid them.

The propositional pattern for this study was that *"diversity in terms of the field of expertise can influence the perception of experts regarding project priorities, which in turn influence the practical steps taken to achieve project goals."* The analysis shows that the empirical pattern matches the propositional pattern. The background and field of expertise of the experts influence the ways which experts approach the

projects and view cooperation overall. Experts coming from the same organizations have common characteristics in their approaches, but there are differences between individuals and organizations. differences between the stakeholders stem from the roles of the organizations, their values and goals as well as the fields of education of the experts who work there.

When thinking about the struggle for the aid system to reform, the first thought is that it certainly is a struggle. The aid industry has grown into an enormous complex, with interacting components, actors, rules and regulations, and huge sums of money moving around the world. When looking at the aid system from the macro level, it seems to be impossible to change the good or bad aspects of it, at least without the strong, collective political will of most donor countries. However, when looking at the level of practice and grassroots activities, there is much that can be changed and improved. Flexibility, trust and openness would serve as good options for the current system, which is built upon mistrust, bureaucracy and control. The system should move from serving the government to serving the people in need, in the spirit of the original purpose of development aid.

Figure 14. A comparison of stakeholder power and motives to change the structure of aid.



As can be observed, donors and recipients are faced with numerous challenges in the context of the projects. Finding the type of structure for cooperation that would support overcoming these problems is a difficult task. Opportunities for better quality aid could be looked for through an increased level of flexibility in the structure of aid, longer time frames set for cooperation, increasing the level of political and societal project components as well as an increased level of face-to-face interaction.

Figure 14. **Figure 14. A comparison of stakeholder power and motives to change the structure of aid.**includes a comparison of the power and motives to change the structure of aid. Ministry officials have the power to change aid, but perhaps lack the motive, due to being content with the current, powerful position they hold. Private sector experts on the other hand have a very high motive to change aid, but do not have the power to do so. Private sector involvement in aid is overall very limited and includes only specific things, which are allowed. Meteorological experts on the other hand have both a low motive to change aid and also do not have the power to do so. Since they are in charge of the projects and Ministry officials remain distant, they are free to operate and maneuver the projects in their desired direction. Thus, the general finding here is that, at least in the context of meteorology projects, there is no single actor who is both highly motivated and high empowered to change

the structure of aid. This, combined with the sustainability paradox of development cooperation, shows that there are serious structural issues to be dealt with if changes to the system are to be made.

10.2 METEOROLOGICAL CAPACITY IN A WIDER PERSPECTIVE

Throughout this study, it has been argued that capacity development in this field has been based on a rather narrow view, one where the technical aspects of capacity play a major role. It is however evident that the reasons behind poor capacity are also political, and not only technical. The linkages with political, societal, environmental and cultural aspects have been given less attention in practice. To be able to make a lasting impact on the local level and achieve a higher level of sustainability, meteorological practices need to be linked more directly to other societal actors and take into consideration all sectors in society which are somehow connected to weather. Meteorology should also be approached from the perspective of the local citizens in need of higher quality weather services.

The Octangle presented by Gibson et al. (2005), discussed in Chapter three, noted how the linkages between the various actors of development cooperation can be used to explore whether the system creates positive incentives that counteract some of the negative incentives. (Gibson et al., 2005:64) The Octagon can be applied here to examine how meteorological capacity development has been organized and what options there are for the future. The Octagon included (1) the donor government; (2) the recipient government; (3) other donors; (4) the donor's international development agency; (5) sectoral ministries and agencies in the recipient government; (6) third-party implementing organizations; (7) organized interest groups and civil society actors in both donor and recipient governments; and (8) target beneficiaries (Gibson et al., 2005:61-63).

Currently, there is active cooperation between the contractor (the FMI), the donor government (Finland), the aid agency (the Ministry), the beneficiaries (local met-offices) and sectoral Ministry/agency actors on the local level. Improvements could be made in the linkages between the recipient government (politicians and policy makers) as well as other donors doing projects in these countries. The linkages to civil society organizations and other implementing agencies are either very weak or non-existing and should be heavily improved. The way "beneficiaries" are defined could also be widened to include not only the local met-office, but citizens as well. This would require more detailed inquiry into the local cultural aspects and long-term presence on the local level.

Increasing the linkages to other actors would allow for a more coherent approach, which would also be more compatible with current development policy. Improving the linkages would also help to reach the cross-cutting objectives set for development cooperation projects as well as improve the poverty reduction aspects of the projects. If capacity development is aimed at improving technical capacity, the links to poverty reduction will remain rather vague. However, if capacity development is widened to include the local people and civil society, for example, its impacts will spread to many new sectors of the society, making the projects more influential overall.

10.3 BETWEEN SCIENCE & POLITICS AND CULTURE & NATURE

In the beginning of this thesis, I contextualized meteorological projects as existing between two central divides present in most societies. These included the divide between science and politics and between culture and nature. These projects are unique in a sense that they exist in the middle of both divides and are as such linked to many relevant societal issues.

What is apparent in the context of these projects is that the divide between science and politics is more relevant, and it became even more apparent after analyzing the data collected for this study. However, when looked at from a wider perspective, the divide between culture and nature is a strong influence in the background and is reflected in the approach of the projects. In order to improve the capacity of local meteorological organizations, the cultural aspects of these phenomena should be better incorporated into the projects.

The debate concerning the concept of development and approaching the process of development either as a political or a technical process was presented in the first chapter of this thesis. Meteorological and technical experts focus on technical aspects, while Ministry officials have opted for a political focus. Developing the capacity of meteorological organizations in developing countries surely requires technical components. Without the right kind of technology, that actually works, not much can be done. Overall, it is clear that the reasons behind poor capacity are not technical, but essentially political. In addition, to be able to improve capacity, the political aspects of the projects need to be put at the center of all discussions and practices.

In practice, this could mean that local politicians would be more actively engaged in cooperation: the projects are presented to them, they are invited for visits several times during cooperation, they are given presentations regarding the importance of meteorology for society, and especially the good cost-benefit ratio of aid in the field of meteorology. The momentum regarding climate change should also be better taken advantage. These projects are great at improving the abilities of local societies to combat climate change. Emphasis should be put on improving practices aimed at improving the safety of citizens at times of extreme meteorological events. Meteorological experts could visit schools and local non-governmental organizations, to present their projects and the benefits these practices yield for the local society. Students could be invited to visit meteorological offices, and career opportunities in the field of meteorology should be presented to them, so that there will be next generation meteorologists which these countries so urgently need. Cooperation should be sought with local civil society actors, such as the Red Cross. This could include for example disaster simulations; to observe how well the local actors work together, how information is distributed to civilians and how emergency shelters are provided.

10.4 THE SOLUTIONS OF COMPLEXITY THEORY FOR IMPROVING AID PRACTICES

Complexity theory was applied in this study as an overarching framework. The challenges of multi-stakeholder interaction were observed through the lens of complexity in the context of aid in the field of meteorology. Much like in the study by Proches & Bodhanya (2015), the relationships between stakeholders were influenced by strong bureaucracy and tight control. Additionally, meteorological experts shared the feeling that the aid system is built on a lack of trust. Strong differences in available forms of power influence cooperation as well.

In Chapter three, I discussed the work of Jones (2011), who has written about the practical aspects of taking responsibility for complexity. Jones argued that firstly the capacities to tackle complex problems are often distributed among various actors, which applies to this study as well. Secondly, complex problems are difficult to predict. This applies as well, as meteorological experts stated that usually the problems occurring at the local level are unexpected and hard to predict in the planning phase. Thirdly, complex problems often include conflicting goals. In meteorology projects, there has been the conflict between developing local capacity and creating economic opportunities. Jones has also stated that different groups may approach the same issue from different starting points, and if communication is poor, there is no common understanding of what is happening. Both of these problems actualize in projects where the approach is different for each stakeholder and there is limited interaction and communication between them. Jones proposed collaboration, a facilitative approach, decentralized action and self-organization as solutions to overcome these issues. (Jones, 2011).

Ramalingam (2013), has also studied international cooperation from the perspective of complexity theory, and has argued that external interventions push local systems into chaos. He has proposed that complexity be approached through four lenses: systems, behaviors, dynamics and networks. (Ramalingam, 2013: xii-xviii) In this study, the system of aid, the behavior of donor experts and the dynamics between stakeholders were studied. Networks have also been included, for example through exploring the linkages to the WMO and ties between various met-offices. Regarding the issue of external intervention, it became clear from the interviews with local experts that development cooperation projects might also cause problems. This applies especially to countries where numerous donors act simultaneously and various companies make donations of equipment, which are then not compatible with each other. This is an extremely challenging problem to solve, because local met- need the benefits of collaboration, but usually one country is not able to provide everything. Economic interests also play a significant role in this problem because technical donations essentially tie recipients of aid to specific manufacturers. Perhaps the WMO could play a bigger role in solving this problem in the future.

10.5 AID CRITIQUE — SERVING THE NEEDS OF DEVELOPING OF DEVELOPED COUNTRIES?

The aid criticism presented in chapter three included the works of various theorists who had studied aid from different points of view and over a long time period. For example, development economist and critic Bauer has argued that the aid system actually held back development through various intervention mechanisms. (Bauer, 1971) Escobar has stated that development policies are mechanisms of control and that aid recipients have become objects of knowledge and targets of power utilized by "experts" (Escobar, 1995). Sachs (1992) has proposed that the whole idea of development has become outdated, the endless piles of technical reports have shown that development does not work and political studies have proven how development is unjust (Sachs, 1992). According to Dichter (2003) development organizations have created an illusion of effectiveness, and many practices have only created further dependency. (Dichter, 2003) Fforde has on the other hand argued how the aid industry and the dominant approaches of national economy and development studies fail to understand current realities. He has argued that development is not a predictable process, that in practice it is much more complicated than theories can explain. Fforde has also criticized the "one-size fits all" policy approach. (Fforde, 2009) Mosse (2005) has found that development actors devote their time to

maintaining coherent representations, regardless of what is actually happening. The actions of development professional were found to be shaped by the need to maintain relationships, rather than policy, and that development actors work to maintain their coherent representations of their actions as instances of policy (Mosse, 2005). In the first chapter of this thesis, Li (2007a) was also cited, as arguing that by focusing merely on technical problems, organizations involved in development did not recognize the structural conditions that had created the problems. The people responsible for development programs did not recognize their own practices as potentially being part of the problem of further marginalizing local people. (Li, 2007)

The criticism presented by the above-mentioned scholars resonates well with the findings of this study, especially the criticism presented by Escobar and Mosse. Regarding the issue of holding back development, projects in the field of meteorology are clearly designed to develop capacity and help local organizations move to the right direction. Nevertheless, there are also unintended consequences, which may result in situations where development in fact is held back. These include for example situations where multiple donors are conducting cooperation simultaneously in one country. As for the issue of power and control, it can be stated that the aid recipients in such a case have become objects of knowledge and targets of power in a sense that they are involved with the cooperation, but are given very little power to influence things. The situation truly seems unjust from this point of view. As for creating an illusion of effectiveness, it can be stated that this applies here as well. The issues contributing to this include the way project bureaucracy has been organized and the lack of incentives for giving feedback. Project documents might not reflect reality and criticism is avoided due to the harm it may cause in terms of future funding. As for the issue of creating dependency, it is clear that these projects are structured in a way, which causes aid recipients to be in need of further cooperation. Recently, projects have been short-term and low budget and therefore can make only small improvements. The one-size fits all policy approach is also problematic. It is clear that meteorology experts would hope for more flexibility and freedom. It was also brought up that cross-cutting goals are considered problematic.

It should be acknowledged at the level of policy that forging cooperation in all fields to the same structure may not lead to the most productive outcomes and alternative solutions should be proposed. As for the issue of donor behavior and Mosse's critique, it can be stated that in the context of these projects similar donor behavior issues can be observed. In practice, the priorities of experts include the need to maintain relationships rather than the policy aspects of cooperation. Finally, regarding the structural conditions discussed by Li, the experts involved with cooperation truly do focus mostly on the technical aspects of cooperation. This combined with the apolitical strategy, adopted by most experts, results in an unawareness of the underlying structural conditions, which maintain the problems causing poor capacity. In many ways, it would be too harsh to argue that the practices of the donor experts further marginalize the local people, because it is clear that if and when that occurs, it is due to the way aid is structured, not the decisions made by the experts involved in cooperation.

Whether or not the system serves the benefits of developing or developed countries, based on the findings of this study, it can be argued that in the context of aid in the field of meteorology, the system still essentially serves the benefits of the donors over the recipients of aid. The main reason is that the asymmetries of power are so substantial. The problem with this relates to the sustainability paradox of aid. In order to make the locals truly "own" these projects, they would require significant forms of power in the projects and through that the donors would lose some level of accountability, an undesired outcome the public would not approve.

It is also true that the cooperation done in this field has helped the various stakeholders gain different types of benefits, such as recognition, possibly also

political support of the countries which have received aid, as well as financial benefits through sales. It is difficult to answer where the ethical boundaries are or where they should be. In a way the legislation is one way to define it, but then again there may be practices that are legal, but maybe not ethical. The development aid system overall, on a global scale, benefits other donors as well. In the future, the main issue moving forward would be to discuss the benefits to various stakeholders in an open manner.

10.6 THE FUTURE OF AID AND COOPERATION IN THE FIELD OF METEOROLOGY

This study has provided an overview of projects in the field of meteorology. For almost 50 years now, cooperation has been done in more than a hundred countries, mainly with the same Finnish partners: the MFA, the FMI and Vaisala. When practices in this field were first started, these three organizations were the only ones available for this type of cooperation in Finland. Slowly, things have changed, new actors have emerged and the role of private companies has evolved as well. During the past five decades, the field of meteorology has also transformed. Measuring devices have become much more accurate and we are now able to do things with data that were unimaginable 50 years ago. Unfortunately, the great advances made in the field of meteorological science have not spread to all countries equally; developing nations are often living in a completely different times and do not enjoy the benefits offered by technology. Money, however, is not the only solution. Politics has played a major role in the past, and will continue to do so also in the future.

Vaisala's position in this field is certainly unique. Not many companies in Finland have had this kind of special relationship with the government, which in this case stems from the high level of knowledge and expertise that the government also wants to promote.

The different types of political controversies surrounding the FMI, Vaisala and the Ministry discussed earlier, are an indication of how difficult it is to find balance in development cooperation practices. The goals set for practices are highly ambitious, and truly hard to achieve. Experts and officials working in these organizations are performing under great pressures coming from various directions — supervisors, politicians and the public. The bureaucratic system structured around aid has been designed to protect public funds from being misused, but while its purpose has been good, it has made practices more limited and challenging.

The future of cooperation in this field seems bright since it is clear that there really is a need for these types of practices. Climate change is unarguable among the biggest challenges, if not the biggest challenge, modern societies are faced with. Improving meteorological capacities, promoting the political importance of met-offices, renewing technology, and increasing networks with decision-makers and other relevant actors are part of the work needed to be done in the coming years. Technological advances have provided great opportunities to save both lives and money. For instance, different types of mobile services designed to give out warnings can provide a way to protect livelihoods, infrastructure and civilians at times of crises.

The most important risks in this field come from the apparent differences between the stakeholders. Increased interaction and closer cooperation is one way to ensure that projects in this field are continued, that they are better linked to all sectors of society, and thus, have higher political significance and effects that are more lasting.

10.7 CHALLENGES, CRITIQUE AND SUGGESTIONS FOR FUTURE RESEARCH TOPICS

The main challenge in this study has been to manage and combine vast amount of both archive and interview data in a manner that makes sense to readers as well as brings forward new ideas and approaches to development cooperation. Since this study has also included discovering what has happened during the past nearly 50 years, it has been a challenge to provide currently relevant and interesting analysis regarding things that have happened during the past decades.

Unfortunately, due to restrictions on time and length of one doctoral thesis, important areas of inquiry have been only mentioned, or completely left out of the focus of this study. If there had not been any limitations regarding time and money, additional data collection could have been done with other meteorology organizations in other donor countries, in other companies supplying meteorological equipment and with experts working in the WMO.

Additionally, I am aware of the fact that this thesis partially suffers from the same problems as the meteorology projects. In this thesis, I am critical of the small role of the local aid recipients. Although this thesis included interviews with the local experts and time in the field, aid recipients could have been engaged more actively. Due to difficulties regarding travel funding and other issues, time spent in the field and with aid recipients was limited. In the end, this was fine considering the fact that the role of the donor-side stakeholders is key in development cooperation projects in terms of the success of the projects.

The findings and results of this study indicate that research in the field of development cooperation could focus on the concrete solutions proposed by the complexity theory approach to development cooperation. I would like to see pilot projects, where openness and flexibility is put to the test, to see how what kinds of results these experiments would yield, and not just in the field of meteorology.

The role of private sector practices in the field of development cooperation is also another relevant and interesting field of research. In this study and in previous research as well, it has become evident that private sector experts feel there are many hindrances and limits set by the government based on ethical concerns. Private sector actors hope for more support from the government in their practices, but the government has a difficult relationship with them. Finding a balance would be essential and research into the practical nature of this balance would be highly interesting. Additionally, external issues influencing private sector practices are also important and interesting to learn more about.

Additionally, as mentioned, the role of the local aid recipients could have been bigger in this study, and in the future, it would be interesting to focus on just one case. Observing one project from start to finish in the field from a researcher's perspective would provide additional insight into the complexities involved. The use of participatory research methods could also be interesting.

EPILOGUE

It has most certainly been a long and interesting road from the day when I read a newspaper article in Helsingin Sanomat one morning in the fall of 2010 and became interested in the topic of meteorological development cooperation for my dissertation. Little did I know that choosing this topic would allow me to meet so many interesting people from different parts of the world, travel to various parts of Finland and the world, and come across so many theoretical and practical insights into development cooperation and meteorological aid. Discussions regarding the vast practical effects of climate change on various societies, and the personal struggles of the recipient side experts of this study have made this journey humbling. I have been honored to do be able to do this research, and for this opportunity I will always be grateful to those who have participated, contributed, and overall helped make this study a reality.

It is suffice to argue that the experiences from meteorology projects are still far from the "ideal" promoted by the Ministry. The road towards the actual and true sustainability of these projects is long, and one that requires many changes to the current practices, as well as to the structure of aid. It is hard for developing countries achieve the ability to implement their own development through projects where there is no access to any real and influential forms of power. More active collaboration is required and the invisible walls between donor and recipient actors should be removed through active engagement in each other's activities. The hierarchical set-up in today's aid still is perhaps one of the main reasons why "aid suffers". Removing hierarchy is a key aspect to think about when considering the direction in which aid is developed now and in the future. This is difficult in meteorological aid because the hierarchy comes not only from the donor-recipient set-up, but also from the different levels of expertise, which are so apparent in cooperation. However, instead of focusing on the differences of know-how and level of education, the starting point should perhaps be somewhere else. By starting with the local people and developing participatory methods one might overcome this issue. When people engage with each other in daily interaction, barriers seem to disappear. If these "barriers" did not exist on paper and in the bureaucratic system, it would be hard to know they are there. I have seen this in practice in these projects. People are not the problem, but bureaucracy and policies get in the way of true development. Luckily, these are things that can be changed. Who will be the first to break the age-old traditions and try something new?

The people I have interviewed have all been kind and opened a door to their own world for the brief moment of the interview and allowed me to visit their organizations. I have been able to hear personal stories regarding working life in the field of meteorology. I have learned that people are not that different from each other, they all struggle to survive and make the best that can with what they have or are given. The apparent good will of the experts makes it difficult to give critique, because it is my genuine belief that no one is making these projects "not work" on purpose. They all cared about the success of these efforts, and hope to see societies improve in the near future. I also met too many experts who were tired of the system, and not happy with what is happening. Many of them were felt powerless and that their work did not have any clear meaning. It has been my goal in this research to give a voice to these people, who are working for a better world but face continuous challenges that hard to overcome within the current structure of aid. My hope is that this study has catered to the needs of these people and that the criticism presented in this study will be used for developing aid, not for abolishing it.

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Databases

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ANNEX I - TIMELINES

Table 18. Timeline of main events and milestones of Finnish history, development policy and development cooperation in the field of meteorology, 1930-1979.

Politics & Development policy	Year	Field of Meteorology
	1930s	
	1934	Radiosonde invented
	1936	Radiosonde produced and in regular use, Vilho Väisälä starts his company
World War II begins, Winter War between Finland and Soviet Union starts	1939	
	1940s	
Winter War ends	1940	
	1944	
World War II ends	1945	Finland joins IMO
	1950s	
	1950	WMO established
Finland joins the UN	1955	
	1956	Business relations established with South Africa's meteorological institute
	1958	First weather broadcast on TV in Finland
	1960s	
	1962	Vaisala opens first Finnish factory on African continent in Johannesburg
Office for Development Cooperation opens	1965	WMO's VAP programme established
	1967	First aid allocations in the field of meteorology
	1969	Vilho Väisälä dies
	1970s	
UN conference on the Human Environment	1972	
Conference on Desertification	1977	

Table 19. Timeline of main events and milestones of Finnish history, development policy and development cooperation projects in the field of meteorology (1980-2015).

Politics & Development Policy	Year	Field of Meteorology
	1980s	
Vienna Convention	1985	
Montreal Protocol	1987	SADC regional project starts
	1989	Cooperation with Sudan begins, CAI regional project preparations begin
	1990s	
Recession begins in Finland	1990	
The Earth Summit	1992	SADC regional program stopped
Strategy for Finnish Development Cooperation	1993	
Major cuts to development aid	1994	First project in Sudan ends
World Summit on Social Development, Finland joins the EU	1995	
Decision-in-Principle on development cooperation	1996	
	1997	CAI regional program ends
Finland's policy on relations with developing countries	1998	Hurricane Mitch
	2000s	
UN Millennium Summit, Millennium Development goals	2000	Project in Mozambique, Phase I
	2001	Mozambique phase I ends, project in the Caribbean starts
Development Policy 2004 – Government Resolution	2002 2004	
	2005	Mozambique phase II starts, project in Caribbean ends
Development Policy 2007 , Towards a Sustainable and Just World Community	2007	
	2008	ICI-instrument established
	2009	Regional project in the Pacific starts, SADC inception phase starts, first ICI-project in Peru starts
	2010	Regional program in the Caribbean starts, SADC inception phase ends
	2011	Regional program in Central Asia begins
Finnish Development Policy Programme	2012	Regional program in the Pacific ends
ICI Evaluation	2013	Regional Andean program started
Government report on development policy	2014	Regional program in Central Asia ends
Sustainable Development Goals	2015	Regional program in the Caribbean ends P. Taalas appointed as Secretary General of WMO for the term 2016-2020