A Rational Response to Natural Disasters?

Explaining the global rise of regional disaster risk management

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AADMER	ASEAN Agreement on Disaster Management and Emergency Response
AEGDM	ASEAN Expert Group on Disaster Management
AHA centre	ASEAN Coordinating Centre for Humanitarian Assistance
ARPDM	ASEAN Regional Programme on Disaster Management
ASEAN	Association of Southeast Asian Nations
CARICOM	Caribbean Community
CDB	Caribbean Development Bank
CDEMA	Caribbean Disaster Emergency Management Agency
CDERA	Caribbean Disaster Emergency Response Agency
DIPECHO	Disaster Preparedness ECHO
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
ECHO	European Community Humanitarian Office
ECO	Economic Cooperation Council
ECOWAS	Economic Community of West African States
EEC	European Economic Community
fsQCA	Fuzzy-set Qualitative Comparative Analysis
GFDRR	Global Facility for Disaster Reduction and Recovery
HFA	Hyogo Framework for Action
ICRC	International Committee of the Red Cross
IDNDR	International Decade for Natural Disaster Reduction
IFRC	International Federation of Red Cross and Red Crescent Societies
IGAD	Intergovernmental Authority on Development
IRU	International Relief Union
LAS	League of Arab States
LRCS	League of Red Cross Societies
Mercosur	*Mercado Común del Sur* (Southern Common Market)
MIC	Monitoring and Information Centre
OAS	Organization of American States
OAU	Organization of African Unity
PAHO	Pan-American Health Organization
PIF	Pacific Islands Forum
RCD	Regional Cooperation for Development
SADC	Southern African Development Community
SADCC	Southern African Development Coordination Conference
SOPAC	Pacific Islands Applied Geoscience Commission
SPF	South Pacific Forum
UNDRM	United Nations Disaster Relief Organization
UNISDR	United Nations International Strategy for Disaster Reduction
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
VOICE	Voluntary Organizations in Cooperation in Emergencies
WFP	World Food Programme
§	Paragraph

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Summary

Natural disasters pervade the certainty of social life. In a globalized world this truism increasingly calls for transnational solutions to prevent, prepare, and respond to these deadly disruptions. Regional Disaster Risk Management (DRM) has recently emerged to meet this concern. However, a number of observations question the expected motivation that compels states to cooperate in this important issue area.

First, there has been only a moderate increase in the relative estimated economic costs from natural disasters in a majority of regional organizations, and the number of deaths related to natural disasters has consistently decreased. Second, after a tranquil period of cooperation from the mid 1970s, regional DRM rapidly developed and spread across the globe. This sudden rise in DRM cooperation seems difficult to explain if the costs from natural disasters have not considerably changed. Third, remarkable similarities appear in the goals and wording of regional DRM agreements despite the varied political, historical and cultural contexts that typify regional organizations. These empirical observations go against conventional expectations and question the core motivation of the state's protection of its citizens.

This thesis explains the emergence of regional Disaster Risk Management (DRM) globally. This is achieved by applying two alternative traditions of inquiry to ten regional organizations. The first is informed by a neopositive methodology and neoliberal institutional theory. It reveals that a combination of interdependence and asymmetrical risk are a sufficient explanation for the outcome. The second is informed through an analytical methodology and world society theory. It reveals that the UN and the international community are an adequate cause for motivating states through the mutual application of relational and cultural diffusion.

An additional aspect of this thesis assesses the extent to which these contending approaches can provide a more complete explanation. This is achieved through a conservative translation of their different modes of knowledge production: an exercise that encourages additional ideal types and hypotheses for the purpose of fostering a richer explanation according to the terms set by each tradition of inquiry.

This thesis contributes to the debate on the evolving function of the state in a globalized world. It provides an empirical contribution through a comprehensive comparison of 10 regional organizations; it delivers a theoretical contribution by *inter alia* questioning the scope conditions of neoliberal institutionalism; and it provides a metatheoretical contribution by offering an alternative avenue for thinking about stylized epistemological divides in the discipline of International Relations (IR).

1. Introduction

Natural disasters reveal the fragility inherent in cohesive societies. In these moments survival takes precedence over custom, law and belief (Thucydides [1874] 1997, p. 104). This time-honoured maxim constitutes a central element of the modern state apparatus based on the protection of the citizen. Yet, the transboundary effects from natural disasters tend increasingly to limit the state's ability to uphold this responsibility without recourse to transnational solutions (Boin, Ekengren and Rhinard 2006). Regional cooperation on Disaster Risk Management (DRM) has presumably emerged in the wake of this cognizance. Beginning with a small number of declarative statements in the mid 1970s, regional DRM policies rapidly developed and spread across the globe. By the mid 2000s over 95 per cent of all states had agreed to cooperate on regional DRM (Annex 6.1).

The general increase in the number and intensity of natural disasters due to global climate change (Stern 2006, p. 77-8, Field *et al.* 2012), and the social and economic costs that this places on the state, is a common explanation for the emergence of regional DRM. Indeed, many regional DRM agreements legitimize collective cooperation on this basis (cf. ASEAN 2005a, PIF 2005, Art. 1, European Council 2007b, (3), LAS 2011, p. 9) and often quote the general rise in economic damages incurred through natural disasters (OAS 2005c, SADC 2009, p. 13, Georgieva 2010a). Yet, since the 1970s the average financial costs, adjusted for inflation, have only moderately increased by 1 to 4 per cent for most regional organizations (Annex 6.2.1). The costs in the Southern Common Market (Mercosur) and the Pacific Islands Forum (PIF) have even decreased (Ibid). The average number of deaths caused by natural disasters has also consistently decreased worldwide (Appendix 8.2). If collective cooperation on DRM is based on a cost-benefit calculus in an interdependent environment, why have established regional organizations, such as the European Union (EU) and the League of Arab States (LAS), only begun to cooperate on DRM in the last decade? Why did the PIF, for example, not cooperate on DRM when the perceived costs were high, and only begin to cooperate in earnest when the perceived costs were low (PIF 2005)?

The majority of regional agreements on DRM did not just emerge within a short period of time but are also remarkably similar, reflecting a standardized set of con-

cepts, goals, and values. Clear similarities and even identical phrasing of DRM goals can be observed, such as between the Southern African Development Community (SADC) and LAS DRM agreements (SADC 2006, LAS 2011). This is difficult to explain considering the diverse threat perceptions, institutional design, capacities, and social and economic vulnerabilities that typify regional organizations. If states are embedded in a unique local context that emanates particular functional demands, why would they produce highly standardized agreements that would presumably decouple expectations and practice?

This dissertation aims to make sense of the global emergence of regional DRM by inquiring into *what motivated states to begin cooperation on regional disaster risk management in the period 1975-2011*. By motivation I mean reasons for action as justified in official regional agreements on DRM (cf. Davidson 2001, Finlay and Schroeder 2008). Cooperation is defined as when 'actors adjust their behaviour to the actual or anticipated preferences of others, through a process of policy coordination' (Keohane 1984, p. 51). The research question is applied to 10 regional organizations: the EU; Association of Southeast Asian Nations (ASEAN); SADC; PIF; Mercosur; the Caribbean Community (CARICOM); LAS; the African Union (AU); the Organization of American States (OAS); and the Economic Cooperation Organization (ECO).

Explanations for why states choose to cooperate through regional organizations tend to coalesce around two broad epistemological approaches in regional studies literature. The first concerns agency, where states are understood as rational utility maximizers in a self-help system. A common explanation based on this approach, and derived from theories that take international institutions seriously, would stress the important role of interdependence in fostering the benefits of collective cooperation between states (cf. Keohane and Nye 1974, Keohane 1984, 1989, Milner 1992, Baldwin 1993, Moravcsik 1998). Regional cooperation on DRM would reduce the economic and social costs of the state apparatus and help to ensure that the state can protect its citizens.

The second approach emphasizes the structural dimension of norms on state behaviour that sets the boundaries of appropriate action. A common explanation based on this 'cultural' approach would emphasize the importance states place on gaining legitimacy and status in relation to other states (Finnemore 1993, Meyer *et al.* [1997] 2009, Hettne and Söderbaum 2000, Börzel and Risse 2009). State cooperation on regional DRM would thus be seen as an appropriate form of action.

In this thesis I argue that the emergence of regional DRM can be explained by both of these epistemological currents. First, according to the expectation derived from

neoliberal institutionalism – the representative theory for the 'rational' approach used in this thesis – I argue that its emphasis on interdependence and asymmetrical risk provide a sufficient configurational explanation for the outcome. It is also revealed that despite theoretical expectations, the theory's emphasis on power distribution and cost-benefit logic is not a necessary or a sufficient condition to explain why states are motivated to cooperate on regional DRM. Second, according to the expectations derived from world society theory – the representative theory for the 'cultural' approach used in this thesis – I argue that states are motivated through a particular set of global DRM norms that are reified by regional organizations. It is argued that the UN and DRM organizations provide an adequate causal configuration for the relational and cultural diffusion of these norms.

It is furthermore argued that the ambiguity created through these alternative outcomes can provide important theoretical heuristics for a more complete explanation. Even if the representative theories of the two epistemological approaches used in this thesis – neoliberal institutionalism and world society theory – are encased in two alternative methodologies, this ought not to imply that they are two incommensurable traditions of inquiry (cf. Hollis and Smith 1990).[1] Instead, it is posited that they can reciprocally provide a richer explanation of the research question. This is not achieved by a wholesale exchange of substantive concepts into a unique and eclectic explanation (cf. Sill and Katzenstein 2010). Rather, a conservative translation of causal conditions is made by a process of forming useful theoretical heuristics. These heuristics are designed to complement an existing tradition of inquiry by suggesting the validation of additional substantive concepts on its own terms. The outcome thus helps to illustrate how state decisions on security are not only conditioned by immediate functional concerns but also by global norms.

This thesis is foremost a problem-driven inquiry that focuses on explaining a theoretically interesting and puzzling empirical phenomenon. Explaining regional DRM globally is also understood to contribute to a wider field of research on global security cooperation (Buzan 1991, Beck 1999, Buzan and Weaver 2003, Bailes and Cottey 2006, Hough 2008). In particular, it is seen as a part of an emerging phenomenon where certain issue areas have become highly standardized across regional organizations. This can include, but is not limited to, international courts (Alter 2012), dispute settlement mechanisms (Lenz 2012), regional building (Börzel and Risse 2009), and

[1] Note that 'methodological' is not defined as the application of certain techniques for gathering and analysing data but 'the principles underlying a practice of knowledge' (Gunnell 2010, p. 15).

monetary policies (Börzel 2012b). Of these and other policy fields, DRM stands out because: (1) it is an empirically neglected field; (2) it is theoretically significant due to its close connection to state sovereignty and, by extension, the evolving 'state of the state' in a globalized era; (3) it can help to further one's insight into how the state attempts to retain its set of principle responsibilities in a transnational environment; and (4) it encroaches upon important moral, social and economic questions relevant to the individual, state and regional organizational development.

This chapter begins with an outline of the main argument of this dissertation, which then proceeds to a definition of regional DRM. This is followed by a literature review on regional studies with a particular focus on what explanations are offered for why states choose to cooperate through regional organizations. The implications from this analysis are then translated into the main aims of this dissertation. The final section paraphrases these aims in the chapter outline.

1.1. The argument

The main argument of this thesis is clarified in the following paragraphs and is paraphrased in the following points, beginning with an empirical observation:

1. *Empirical phenomenon*. The rapid emergence, spread and standardization of regional DRM activity across the globe presents a puzzling phenomenon according to a common sense view of reality.

2. *Theoretical explanation*. In order to provide an answer to the research question premised on a puzzling observation, two theories are employed. This is based on the observation that the current literature on regional studies is generally divided between two epistemological positions, and is influenced by the assumption that theoretical pluralism provides greater insight into a particular social phenomenon.[2]

3. *Methodological pluralism*. According to a neopositive methodology, there is a marked inconsistency in the selection of an agency- and a structure-based theory in light of the empirical question. Analyticism is consequently included as an additional methodology.

[2] The theories and methodologies have been chosen based on empirical observation. See Chapter 2, p. 24, for further discussion on theory selection.

4. *Translation*. It is possible to achieve a more complete explanation by translating appropriate causal conditions into hypotheses or ideal types. These can then be applied by each methodology based on its own terms of warranting truth claims.

Empirical phenomenon. According to a common sense or rational view of the world, the emergence of regional DRM presents itself as an interesting or puzzling empirical phenomenon: why would states defined by historical, institutional, cultural, and political differences form remarkably similar forms of cooperation in a small period of time around an issue area that constitutes a part of state sovereignty?

Theoretical explanation. This thesis explains this empirical anomaly by applying two theories that are broadly representative of the two main epistemological streams in regional studies. The reason for applying an agency and a structural approach is to provide a more complete explanation for why states are motivated to cooperate on DRM through regional organizations. As further clarified in the literature review, these theories – neoliberal institutionalism and world society theory – are anticipated to provide either a rational explanation based on material incentives or a cultural explanation based on global norms. Neoliberal institutionalism is furthermore set within a neopositive methodology and world society theory is set within an analytical methodology. The former is based on a deductive-nomological (D-N) model that is concerned with confirming and refuting law-like generalizations about the social world. The latter aims at specifying – rather than generalizing – causal properties of a unique and contingent event through the construction of ideal types.

Methodological pluralism. The main reason for employing two different methodologies, or practices of knowledge production (Gunnell 2010, p. 15), is due to an inconsistency that emerges when couching the two theories in neopositivism. According to neopositivism, neoliberal institutionalism is selected because its theoretical expectations go against empirical observation; it expects particular outcomes according to rational demand. This creates a 'hard test' that can expand or retract the scope conditions of the theory that, in turn, contributes to establishing generalizations via falsification (George and Bennett 2005, pp. 115-19). Conversely, the theoretical expectations from world society theory largely agree with empirical observation. It expects similar outcomes according to the supply of global norms. Why explain an empirical question that meets theoretical expectation? As an alternative methodology, analyticism is chosen because it provides a better 'fit' in terms of its selection criteria for world society theory vis à vis the empirical question. Instead of verifying covering

laws by selecting hard cases, an analytical methodology produces knowledge through abstracting empirical observations into ideal types. These ideal types are then reapplied to the empirical world with the aim of producing ambiguity between the ideal type and empirical data. The ambiguity produced is then used to create causal explanations through a counterfactual analysis. An appropriate theory would thus be one that closely aligns with the empirics.[3]

Translation. Each methodology provides a unique explanation of the research question based on a different set of ontological assumptions that affect the epistemological, theoretical and techniques of data collection. By including more than one methodology, different explanatory 'paths' can be revealed that begin with the same question but take divergent routes to an answer. This does not mean that they are asking different questions as both methodologies are associated with theories that aim to produce knowledge through a problem-driven inquiry. I argue that these disparate answers can be usefully compared, whereby heuristics emerge.[4] These heuristics are tentatively translated as hypotheses or ideal types, which can then be assessed according to the existing traditions of warranting truth claims by each methodology. This can help to provide a richer and legitimate explanation that does not produce conceptual overstretch, yet provides an accurate description that explains more than the application of a single theory.

1.2. Regional disaster risk management

Regional DRM is inter-state cooperation within a multi-dimensional regional organization for the prevention, preparedness, response to, and recovery from, natural transboundary disasters. This highly compact definition is unpacked in the following description.

Regional organizations are defined as 'non-sovereign governance systems with (partial) statehood properties' that intersect the national and global level (De Lom-

[3] See chapter 2, p. 23, for a more detailed account of why two methodologies have been chosen.

[4] A consequence of employing more than one methodology serves to make explicit how each methodology 'hangs together', thereby providing a more comprehensive understanding of each methodology, which can add legitimacy to how each perspective views social reality. While it could be argued that this allows one to more readily and convincingly 'take on' each explanation and thus attain a wider understanding of a phenomenon, it also means that one would have to maintain an eclectic and somewhat confused vision of valid truth claims. An alternative approach used in this thesis is via the creation and translation of ideal types to hypotheses and vice versa.

baerde *et al.* 2010, p. 740).[5] In alliance with the research question, this definition is further confined to an association of states; a refinement that purposefully emphasizes the intergovernmenality of a regional organization. These organizations are furthermore multidimensional (Hettne and Södermalm 2000) and are usually united by at least one commonality, such as: community (Deutsch *et al.* 1957); cultural homogeneity (Russet 1967); territory (Hettne and Södermalm 2000); mutual interdependence (Nye 1965); and common ideas (Katzenstein 1996).[6] To be sure, regionalism – the general phenomenon of regional organizations or 'ideology of regionalism' (Hettne and Söderbaum 2000, p. 457) – is not the principle unit of analysis. It rather constructs the scope conditions between which DRM is analysed. This study is thus more interested in regionalization: an empirical 'process that leads to patterns of cooperation, integration, complementarity and convergence within a particular cross-national geographical space' (Ibid, p. 457-8).

A disaster is defined as a negatively 'perceived disruption' from the normal functioning of society (Boin 2005a, p. 163) and a *natural* disaster is when these disruptions are caused by astronomical, geophysical, hydrological, meteorological, climatological, and biological events.[7] These can include, for example, earthquakes, volcano eruptions, epidemics, insect infestations, drought, wildfire, floods, and (solar) storms. When a natural disaster disrupts a number of critical infrastructures (trans-functional crisis) and/or when it crosses political boundaries (trans-geographical crisis) it is, furthermore, classified as a transboundary disaster (Boin and Rhinard 2008, p. 4, cf. Haas, Keohane and Levy 1993). These definitions are designed to be as neutral as possible.[8]

Risk is defined by the vulnerability of a social system to natural hazards. Vulnerability thus brings to light the human side of natural disasters: a trans-geographic flood occurring in multiple riparian countries is not a disaster if it does not affect any social system or individual. It is only when humans get in the way of a natural hazard that is becomes a disaster. Vulnerability is thus defined as: '*the characteristics of a person or group and their situation that influence their capacity to anticipate, cope*

[5] On the different concepts of a region, regionalization or regionalism see: Deutsch *et al.* (1957); Russett (1967); Hurrell (1995, 1995a); Gamble and Payne (1996); Fawcett (2005); Katzenstein (2005); Breslin and Higgott (2010); De Lombaerde *et al.* (2010); Karns and Mingst (2010); and Mansfield and Solingen (2010).
[6] For a similar review on these definitions see Börzel (2012a).
[7] This definition is related to Boin's classification of disaster as a subset of 'crisis' with the purpose of combining objective and subjective elements (2005a, 2005b, Stallings 2005, Boin and t' Hart 2007, Boin and Rhinard 2008).
[8] For useful overviews on the use and definition of this highly contested concept see Quarantelli (1998), Perry and Quarantelli (2005) and Perry (2007).

with, resist and recover from the impact of a natural hazard (an extreme natural event of process)' (Wisner *et al.* 2004, p. 11 original emphasis, cf. Kasperson *et al.* 2003). Risk can thus be understood as a social construction (Beck 1992, 1999) that is influenced by a number of social institutions such as governments, science, law and mass media (Mythen 2004, 54).

The connection risk has to vulnerability ushers in, and gives meaning to, the term *management*. The more effective an association of states is in preparing, preventing and responding to, and recovering from, natural disasters, the less vulnerable it will be in the future. These four categories of risk management are commonly known as the 'disaster cycle' (Jaques 2007). Preparedness is concerned with mitigating harmful effects from natural disasters through planning, training and the use of manuals. Prevention is concerned with reducing the probability of a natural disaster through establishing early warning mechanisms, identifying risks, and understanding their potential impact. Response entails *inter alia* activating operational units, strategy selection, media response, and damage mitigation. Recovery includes but is not limited to operational recovery, market retention, share-price protection, judicial inquiries, litigation, and management assessment (Jaques 2007, cf. Crondstedt 2002).

Regional DRM is thus the *process by which an association of states agrees to cooperate on reducing the vulnerability of its regional community from natural hazards*. This can include, for example, the creation of new, or the adjustment of current, national disaster risk systems, the establishment of regional hubs for the facilitation of transboundary disasters, and the instigation of building standards for vulnerable cities.

1.3. State of the art

Regional studies can generally be divided into two main epistemological streams. The first stream is united by a common assumption of rational agency in the international system. This includes classical and contemporary European integration literature which is connected to strong theoretical fields in IR, such as (neo)realism and neoliberal institutionalism. The second stream tends to emphasize how state actors are constructed by global or local norms. This includes a large part of New Regional studies, a relatively smaller part of European integration theory, and is connected to the broad theoretical field of social constructivism in IR theory. Few studies have attempted to direct both streams towards a single research question.

The dominant empirical foci within both of these streams have tended to neglect security integration in favour of economic and societal issue areas. Despite the important definitional role security has for state sovereignty, it is surprising that this has not been given greater attention in comparative regional studies. As an important issue area within the broad spectrum of security, and despite its clear connection to the responsibility of the state to protect its citizens, it is even more surprising that very few comprehensive comparative studies on regional DRM have been made.

Regional studies also suffer from a conceptual gap, where few large-n or medium-n comparative studies have been made. To be sure, the various 'waves' of regional organizations have been well documented; however, very few studies have systematically compared particular policy spaces across more than two or three regional organizations. As most of these studies are interested in forming generalizations about regional processes and outcomes, it is surprising that the number of cases has been so low. Of course, careful case selection can reveal highly useful and important results. However, this means that complexity is commonly given precedence over generalizability.

This dissertation aims to address these epistemological, empirical and conceptual gaps in regional studies. The following literature review expands on these important issues.

1.3.1. An epistemological divide

As two sub-sets of IR theory, new regionalism and European integration theory, have maintained two distinct epistemological positions that are generally categorized as rational agency and constructivism. The following sub-section illustrates how these two features define the current blueprint of regional studies.

1.3.1.1. Rational agency

Explanations for why states are motivated to cooperate through regional organizations are largely based on utilitarian assumptions about the state. Ernst Haas believed, for example, that the 'primordial force of nationalism…[would] be trumped by the utilitarian-instrumental human desire to better oneself in life, materially and in terms of status' (Haas [1958] 2004, p. xv). This leitmotif represents a core assumption that is built into a majority of rational-based theories on regional integration that range from (neo)functionalism (Mitrany 1943, Haas 1958) and neorealism (Waltz 1979, Mattli 1999, cf. Jong Choi and Caporaso 2000, Pollack 2000) to the variety of

institutional*isms* (Keohane 1984, 1989, March and Olson 1989, Sandholtz and Stone Sweet 1998, Tsebelis 1999, Mahoney and Thelen 2010). While united by a strong epistemological base, these theories diverge in the various conditions they emphasize for what motivates states to cooperate via regional organizations.

Neorealists, for example, emphasize the relative distribution of power vis à vis (potential) hegemonic powers (Cawthra 2008, Fawcett 2008b) as an important motivating factor for states to cooperate through regional organizations. Many neorealists, for example, emphasize how larger states will act as 'regional paymasters' by binding smaller states for economic and strategic purposes (Mattli 1999, cf. Haas and Whiting 1956, p. 507-8). Alternatively, Joseph Grieco argues that smaller states may also attempt to bind larger and more powerful states to international institutions in an effort to gain more influence (Jong Choi and Caporaso, 2000, p. 487, Pollack 2000, p. 3).[9] Underlying both of these commentaries on regional integration is a strategic neomercantilist competition for resources (Hurrell 1995, p. 47) by rational actors.

Solving collective action problems that arise from increased levels of interdependence is another important condition that can motivate states to cooperate through regional organizations (Olson 1965, Keohane and Nye 1974, Ostrom 1990).[10] By acting as a 'third party', regional organizations can *inter alia*: promote transparency; monitor defection; reduce transaction costs; and provide material incentives (Hurrell 1995, p. 62; Rueschemeyer 2009, p. 168; Karns and Mingst 2010, p. 35-38).[11] The extent to which states will cooperate within these regional structures is not only determined by the institutional mechanisms, however, but also the domestic preference structure (Moravscik 1998). Here, state preferences are defined by societal and economic interests, which are then consolidated through an intergovernmental bargaining process. The outcome, which is usually struck between larger states who offer

[9] The emergence of ASEAN is, thus, explained by the desire to gain greater power and resources vis-à-vis China, contain Indonesia as a potential hegemon in the Asia Pacific region, and guard against the spectre of communism. The Gulf Cooperation Council (GCC) can be explained through a shared threat perception of Iran and Iraq; the Southern African Development Community Council (SADCC) can be explained through its relation to Apartheid Africa; and the European Coal and Steel Community (ECSC) can be explained through the Franco-German rapprochement.

[10] A number of important theoretical fields have developed from this agenda, which *inter alia* include: new institutionalism (March and Olson 1989, Sandholtz and Stone Sweet 1998), which proposes a legal theory of European integration; a Principle-Agent approach with some similarities to neofunctionalism (Jönsson and Tallberg 2008); rational institutional studies where the institution determines state decisions (Tsebelis 1999); and historical institutionalism that emphasises path dependencies, unintended consequences and 'joint-decision-traps' to express how once created, institutions tend to exist beyond the functional logic allowed by rational-choice institutionalists (Mahoney and Thelen 2010).

[11] Perceiving regional cooperation based on an iterated prisoner's dilemma also allows for cooperation (Axelrod 1997).

side-payments to smaller states, are then locked-in by institutions that monitor the agreements (Ibid, p. 3, Pollack 2000).

Transnational policy networks have also been emphasized as an important condition on state cooperation in regional organizations (Kaiser 1971, Sundelius 1977, Raustiala 2002, Nye and Keohane 2004, Slaughter 2004). Instead of only focusing on domestic preferences or institutional structures, a body of literature emerging out of the 'governance-turn' (Kohler-Koch and Eising 1999, Jachtenfuchs 2001, 2002, Kohler-Koch and Rittberger 2007, Scharpf 2009) stresses the importance of including multiple levels of governance, such as the supranational, regional, national and local levels of governance (Bache and Flinders 2004, p. 3, cf. Marks *et al*. 1996).

While there is now a host of different theories and fashionable conceptual models that contributes to regional studies, there is also a feature that unites many of these approaches. Whether the focus is laid on relative power distribution or maximizing economic gains, the state is regarded as a rational actor. This represents one dominant stream in regional studies. The second takes 'actors' seriously by focusing on the structural conditions that frame state action.

1.3.1.2. Constructivism

The second epistemological stream in regional studies defines institutions more broadly to include informal norms and intersubjective understandings that constitute actors' preferences (Hopf 1998, Checkel 1999a, 1999b, Christiansen, Jørgensen and Wiener 1999, Acharya 2004, 2005, Checkel and Katzenstein 2009).[12] Here, the 'constitutive effects of norms' or the logic of appropriateness explains actor behaviour not by the goal of maximizing interests, but by doing the right thing in a particular social setting (Risse 2008, p. 163).[13] The motivation to cooperate on regional DRM would thus be constituted through an inter-relational process that informs states of the most appropriate type of behaviour. This can be achieved through one or more of the following processes: persuasion and argumentative rationality (Risse 2000); socialization (Deutsch [1957] 2006, Risse, Ropp and Sikkink 1999, Checkel 2001); practice (Adler and Pouliot 2011); diffusion (Goldman 2006, Börzel and Risse 2009); emula-

[12] Norms are defined as: 'a broad class of prescriptive statements – rules, standards, principles, and so forth – both procedural and substantive' that are 'prescriptions for action in situations of choice, carrying a sense of obligation, a sense that they ought to be followed' (Chayes and Chayes 1994 cited in Hurrell 2002, p. 143).

[13] Rationalists also include norms, however they interpret norms as an exogenous factor that determine available choices (Jong Choi and Caporaso 2000, p. 489) rather than endogenous factors that determine the behaviour, interests and identities of actors.

tion (Katsumata 2009); isomorphism (DiMaggio and Powell 1983; Wendling 2010); and speech acts and discursive practices (Buzan 1983, Buzan and Weaver 2003, Haacke and Williams 2008b). The processes are applied to economic, political and cultural fields and include (non)state actors (Hettne and Söderbaum 2000).

Attention is often focused on how global norms are not only transmitted through these processes but how they are modified to local settings. Various filters are thus emphasized such as state structure and domestic policies (Risse-Kappen 1994) 'cultural match' (Berger 1996, Checkel 1999a, Acharya 2004) and cultural tolerance (Goldstone 2006, cited in Goldman 2006, p. 74). Conversely, another group of scholars emphasize the similarities across diverse state structures, arguing that states will adopt global norms in their entirety which, in turn, produces endemic decoupling between state practices and local realities (Meyer *et al.* [1997] 2009; Meyer 2010). An attempt to address the scope conditions of norm diffusion has recently begun to emerge that aims to strike the middle ground between these two points of reference (Börzel and Risse 2012).

1.3.2. Regional security

Although some early contributions saw peace as the main goal of integration (Mitrany 1943, Deutsch 1957), state security was generally left outside the remit of European integration theory (Mattli 2007, p. 118; Risse 2007, p. 85). Defence and security policy was the sole responsibility of the state. This has been increasingly challenged by a body of literature focusing on regional security arrangements primarily in the EU (Kydd 2001, Howorth 2003, Bailes and Cottey 2006, Ojanen 2006, Williams 2006, Fawcett 2008a, Haacke and Williams 2008a, 2008b, 2009, Hwang 2007, Solingen 2008, Tow and Taylor 2010).[14] The main area of analysis has focused on a widening set of security issues, such as peacekeeping, dispute settlement, arms control, foreign policy coordination, security dialogues, and security sector reform (Carlsneas 2004, Fawcett 2008, Smith 2009; Mansfield and Solingen 2010, Striebinger 2012, Ekengren and Simons 2012).

This literature is complemented by a growing body of work dedicated to explaining the emerging policy space of crisis management in the EU (Boin, Ekengren and Rhi-

[14] Also see: Mbuende (2001); Allison (2004); Ngoma (2004); Sirota (2004); Nathan (2006); Acharya and Johnston (2007); Likoti (2007); Beukel (2008); Cawthra (2008); Chung (2008); Fawcett (2008a; 2008b); UNU-CRIS (2008); Aning and Atuobi (2009); Emmers (2009); Peffer (2009); Tavares (2010).

nard 2006, 2007, 2010, 2012). These and other studies have focused on *inter alia*: the developing capacities on civil protection at the community level (Boin, Ekengren and Rhinard 2008); the responsibility the EU ought to have in this domain (Boin and Ekengren 2009); the effect of transgovernmental networks (Hollis 2010b) and institutional design features (Ekengren 2006) on civil protection development; specific responses to crises (Matzen, Missiroli and Rhinard 2006); the limits of state cooperation (Hallencreutz 2011, Rhinard, Hollis and Boin 2012); and transatlantic comparisons on regional capacities and international disaster relief (Brattberg and Sundelius 2010, Rhinard and Brattberg 2011, Brattberg and Rhinard 2012). A range of theories have been used to explain these processes and general phenomena, which include: new institutionalism (Boin, Ekengren and Rhinard 2008); neoliberal institutionalism (Hollis 2010b); public goods theory (Rhinard and Bassong 2012); public administration and organization theory (Boin *et al.* 2010); and security community theory (Ekengren 2007a). Except for the more recent contributions that include the US, this informative body of literature has remained highly Eurocentric.

1.3.3. Comparative regional studies

Except for a brief flurry of comparative studies in the mid 1960s (Haas and Schmitter 1964, Etzioni 1965, Nye 1965, Dell 1966, Schmitter 1970) European integration theory has remained largely Eurocentric. Indeed, by cashing out the *sui generis* character of the EU the possibility to engage in comparative studies has significantly diminished (Börzel 2012a, cf. Caporaso 1997, Marks 1997, Moravscik 1997, Pollack 1997). In an effort to rectify this shortfall, New Regionalism emerged in the late 1990s, which placed a premium on comparative regional studies and stressed the importance of non-state actors in a globalized world.[15] More recently, attempts to bridge European integration theory and New Regionalism have developed (Warleigh-Lack 2006, Warleigh-Lack and Van Langenhove 2010, Warleigh-Lack, Robinson and Rosamond 2011), which has produced a resurgence of comparative studies within European in-

[15] New regionalism began in the late 1980s in conjunction with the major structural power shifts occurring at the end of the Cold War. It perceives regionalism as a worldwide event and a significant feature of globalization. It is also committed to comparative studies (De Lombaerde *et al.* 2010), it tends to be less state-centric than the 'old regionalism', and it emphasises the plurality in different approaches to regionalism and regionalisation (Hettne and Söderbaum 2000, p. 458, cf. Fawcett and Hurrell 1995, Katzenstein 1996, Boås, Marchand and Shaw 1999, Hettne, Inotai and Sunkel 1999). By 'old regionalism' new regionalists mean the pioneering period of regional studies from the mid 1950s to 1970 (Hettne and Söderbaum 2000, 457).

tegration (Katsumata 2009, Jetschke 2010, Börzel 2012a, Börzel 2012b, Börzel and Risse 2012).

These positive inroads have produced new and important insights; yet, they tend to suffer from an important conceptual gap. The number of regional organizations selected for comparison rarely extends past two or three cases. While this produces increased complexity and important results, it does not provide strong generalizations about broader regional processes.

1.3.4. Summary

Despite a plethora of approaches, there is considerable overlap in the core assumptions found in many of the explanations offered above for why states are motivated to cooperate through regional organizations. The first and largest group of theories would agree that social action is conducted through agency but disagree about where to locate this agency: whether in the state, international organizations, technocratic networks, or other societal actors. The second group of theories assumes that these agents are constructed by internal or external norms. These theories include: transactionalism; new and historical institutionalism; constructivism and its various approaches, such as regional complex theory, security communities, and new regional theory. This basic analytical distinction effectively presents two different 'stories' (Hollis and Smith 1990) based on either a rational instrumentalist or a cultural and norm-based approach. The former typically views regional institutions as an extension of the state and, thus, views the process of regionalism as endogenous (Hettne 2002) where a premium is placed on agency. On the other hand, the latter views regional institutions as constructed from an inter-relational process between states, regions and international organizations. The process of regionalism is thus viewed as exogenous and places a premium on structure.

The empirical content of a majority of these studies tends to shy away from security-related fields. While the last two decades have seen a cottage industry on EU security and defence policy studies, as well as an emerging body of literature on DRM within the EU, this has been largely a Eurocentric affair. To be sure, New Regionalism has provided a rich contribution through comparative regional studies that also includes bridge-building projects with European integration theory. Yet, the general field of regional studies nevertheless suffers from (1) a lack of medium-n or large-n comparative studies; (2) a lack of comparative studies on security-related issue areas; (3) a lack of comparative regional studies on DRM; and (4) a propensity to apply ei-

ther a rational agency-based or a constructivist epistemology to regional studies, rather than using both perspective to produce a greater explanation.

1.4. Towards a rational and structural research design

In light of the main epistemological, conceptual, and empirical gaps illustrated in the literature review, this dissertation aims to achieve the following goals. First, it includes both epistemological streams found in regional studies and applies them to a single research question. Two theories are consequently selected that are representative of this division. Neoliberal institutionalism is selected as a highly suitable representation of rational agency. It is based on core functional arguments that are directly relevant for, and help to explain, why states cooperate through regional organizations. World society theory is selected as a highly suitable representative theory of the global structure. Unlike many constructivist approaches, this theory stands out because it takes a clear stand on structure over agency rather than their mutual constitution. This will also attend to the lack of attention in regional studies on the EU as a receiver of norms.

Second, in order to begin to fill the conceptual and empirical gaps in the regional literature, a medium-n sized comparative study on regional DRM is conducted. This provides for a more generalized depiction of why states choose to cooperate on regional security, and it provides new and rich empirical evidence on regional DRM in 10 regional organizations. This study also contributes to the ongoing debate about the state of the state in today's 'risk society'. Considering DRM's direct relevance to the protection of peoples and citizens, and its strong connection to state sovereignty, it is surprising that it has not received more attention.

In summary, this dissertation: (1) addresses an empirical gap in regional security studies that rarely focus on disaster risk management outside the EU; (2) contributes to a conceptual gap by producing a comparative analysis of 10 regional organizations; and (3) provides a methodological pluralist framework that is rarely applied to regional studies.

1.5. Chapter outline

This dissertation foremost provides an answer to an interesting empirical phenomenon. It offers an empirical contribution through an extensive description of 10 regional organizations' activity in the area of DRM as well as the material and norma-

tive conditions that made this type of cooperation possible. It offers a theoretical contribution by questioning the scope conditions of neoliberal institutional theory, and provides a modification and elaboration of world society theory set within an analytical methodology. Finally, it offers a metatheoretical contribution by questioning the incommensurability of 'explaining' and 'understanding' approaches (cf. Hollis and Smith 1990) in IR theory.

The following dissertation is divided into four additional chapters. The second chapter outlines the conceptual parameters of this study. It provides further reasons for, and elaborates on, the research design by outlining the different assumptions and processes attached to each theory. It begins with a defence of the research question and presents an argument for why it is highly applicable for two alternative methodologies. This is followed by a description of how each methodology interprets the concept of causality and why neoliberal institutionalism and world society theory are chosen from among a series of other candidates. The rest of the chapter is then dedicated to expanding on the separate research designs according to each methodology. Here, more attention is given to ontological and epistemological matters, while the method and techniques of data collection are reserved for the following empirical chapters.

The third chapter presents a rational explanation for why states cooperate on regional DRM. It begins by outlining and applying a fuzzy-set Qualitative Comparative Analysis (fsQCA) method to test the hypotheses derived from neoliberal institutionalism. This is administered through 'set-theory' that measures the set-relation between a causal condition and the outcome; a process that helps to specify the necessity or sufficiency of a causal condition. The hypotheses include the level of interdependence, expectations, asymmetrical risk, and power distribution. The results reveal that it is only a combination of interdependence and asymmetrical risk that is sufficient for the outcome.

The fourth chapter presents a cultural explanation, which proposes that a set of global norms influence states to cooperate on regional DRM. This is achieved by forming three ideal types that help to reveal a particular aspect of how these norms affect state behaviour. The first ideal type identifies the highly standardized features of regional DRM that can be explained by external norms. The second ideal type reveals the process that produces and reifies these norms through an on-going relational exchange between regional organizations and the UN. The third ideal type reveals (1) the rapid rise and geographical spread of regional DRM from the late 1970s through a quantitative analysis; (2) this is complemented by a qualitative analysis

that reveals a wider understanding of the relational and cultural mechanism of diffusion administered not only by the UN but also by the international community and the EU.

The concluding chapter describes the contribution this thesis makes to the wider field of regional studies and IR theory. It first outlines the main empirical findings from the two conceptual approaches applied to the research question. It then discusses the extent to which these explanations can help to form useful heuristics to further improve the explanation of each approach on its own terms. This is complemented by a final review on the state of the state in a globalized world of risk.

2. Method of inquiry

The aim of this chapter is to explicate the research design of this thesis for the purpose of explaining what motivated states to cooperate on regional DRM in the period 1975-2011. Unlike a majority of studies that choose a single methodology to answer an empirical question, this study employs two. The reason for selecting more than one methodology – defined as the 'principles underlying a practice of knowledge' (Gunnell 2010, 15) – is based on the following inconsistency: the epistemological assumptions that define the selected theories are incompatible if they both subsume a neopositive methodology.[16]

If interesting and important results are to emerge from a research design embedded within neopositivism, the empirical case ought to portray evidence that appears contrary to established theoretical expectations (George and Bennett 2005, pp. 115-19).[17] In terms of the empirical question laid out in this thesis, most theories informed through rational agency represent such a case; however, this mode of knowledge production is less suited to theories that assume a structural epistemology.[18] Why explain an empirical question that matches theoretical postulates?

An alternative methodology that provides a better 'fit' with a structural theory is analayticism. Instead of verifying covering laws through the principle of falsification, analyticism is interested in explaining a contingent event. This single causal analysis is not produced by selecting hard cases but through ideal typification: a process by which observations are abstracted into ideal types that are then reapplied to the empirical data. The ambiguity produced through this re-application is then subject to counterfactual analysis resulting in causal statements. An appropriate theory would consequently be one that contains a set of substantive assumptions, informed through observation, which closely aligns to empirical observation.

Applying two methodologies to a single research question raises some important questions concerning knowledge compatibility. Is it possible to answer a single re-

[16] These theories, as illustrated in the state of the art, attempt to close a gap in the literature on regional studies that is characterized by an epistemological division between agency and structure. See chapter 1, p. 8.
[17] Theory is defined by 'determinate relations' between a set of substantive assumptions (Schutz 1954, p. 260, Doty and Glick 1994, p. 233, Rueschemeyer 2009, p. 6).
[18] Epistemology is defined as the 'philosophy of knowledge of how we come to know' (Wight 2002, p. 42).

search question with two methodologies? If they ask different questions, how can their answers be reconciled? This thesis builds on the insights offered by methodological pluralism to construct a research agenda that can credibly apply both methodologies to a single empirical question.

These methodological insights are developed in the first section of this chapter, which elaborates on why neoliberal institutionalism and world society theory are chosen. This discussion sets the foundation for the establishment and operationalization of two research agendas that offer a 'rational' and a 'cultural' explanation for why states are motivated to cooperate on regional DRM.[19] An elaboration of these two designs informs the second section of this chapter, which includes the formulation of hypotheses and ideal types, as well as an introduction to the main research techniques used by each research design. It should be noted that the research techniques are only precised in this chapter. For more comprehensive accounts please refer to chapters 3 and 4.

2.1. Research strategy: a pluralistic approach

This section elaborates on the broad research strategy that is largely constituted by methodological pluralism. This is an approach that engages and learns from other methodologies and theories within the field of IR through a comparative process that is designed to yield useful results.[20] It defines the contours of this dissertation and affects the way the research question is answered.

The reason for adopting a pluralist approach is foremost based on pragmatic grounds. The expressed aim of adopting two representative theories of agency and structure is incompatible with neopositive principles on what constitutes an appropriate empirical question for creating knowledge. As briefly illustrated in the introductory chapter, there are a number of empirical anomalies that appear resistant to common sense, such as: (1) a highly standardized form of DRM cooperation across highly diverse regional organizations, and (2) the timing of the establishment of re-

[19] A 'rational' approach is used as shorthand in this thesis for neoliberal institutional theory embedded in a neopositive methodology. A 'cultural' approach is shorthand for world society theory embedded in an analytical methodology. The reason for selecting these methodologies and theories are elaborated in more detail in the following pages.

[20] The term 'useful' is purposefully applied to demonstrate the connection of the general research strategy to a wide philosophical account of pragmatism, defined as the *practical outcome of a proposition* (Hookway 2008). Emphasis is thus concentrated on what type of knowledge is produced from different methodological traditions, an endeavour that not only enriches explanation and description but can also lead to a refinement of the applied methodologies.

gional DRM when the relative costs to the state has generally receded over the past 40 years. These observations are highly puzzling for theories that assume rational agency, such as realism, neoliberal and rational-choice institutionalism. According to a neopositive methodology, the translation of these observations into a research question is legitimate precisely because the empirics do not match theoretical expectations. The main logic for selecting a 'hard' or puzzling case for a theory is necessary in order to validate possible covering laws through the principle of falsification or testing a theory's scope conditions (George and Bennett 2005, pp. 115-19). However, if the same standard were applied to other theories whose theoretical expectations did match empirical observation, such as world society theory, the research question would become less puzzling: why explain an event that a theory can easily elucidate by emphasising the constitutive nature of norms and ideas? This means that an agency-based and a structural-based theory – which is part of the selection criteria according to the state of the art (cf. Chapter 1, p. 8) – cannot be legitimately applied to only one methodology (neopositivism) in view of the empirical question.

An alternative methodology that can incorporate a structural-based theory in light of the research question is anlayticism. This method of knowledge production begins by making explicit the value judgements of the researcher when he or she makes an empirical observation. The contextual environment within which each researcher is embedded ought to be made clear. In this case, a similar reaction to the neoliberal institutionalists is made: one is generally struck by the odd behaviour of states that do not appear to be acting rationally. However, instead of selecting a theory that has difficulty explaining an empirical phenomenon, anlayticism forms abstractions from observations (ideal typification) and then re-applies these abstractions through a single causal analysis. Thus, in contrast to neopositivism, a theory that can best explain the research question is selected and necessarily adjusted to the specific and unique case. To be clear, the most appropriate and 'proper' standard would be to construct ideal-types from pure observation without the application of another theory, which to a certain extent presupposes generalizations over different cases. This dissertation takes an alternative path by adjusting a theory to a given contextual environment. Put differently, world society theory postulates are used as a conceptual shortcut in forming ideal types.

These two modes of knowledge production are clearly built on different ontological assumptions that appear incommensurable.[21] However, it is argued that by applying more than one methodology it is possible to provide a richer and more complete account of what motivates states to cooperate on regional DRM.

A practical outcome of adopting more than one methodology is informed by the idea that, by clashing divergent views against each other, the implicit assumptions and categories that make up the composition of a research discipline become more explicit (Manheim 1936, p. 81). The clarity produced then provides for greater flexibility within a discipline to adopt different methods, sets of hypotheses, or substantive assumptions, which were previously barred by unquestioned norms and scholarly practices.[22] A similar logic appears in a general argument put forward for the development of the natural sciences:

> science becomes more certain in its progression if it has the benefits of a wide array of methods and information. Science is not improved by subtracting but by adding methods. But science also progresses only when those methods are set against one another, letting the light from each reduce the shadows of uncertainty left by the others.
>
> Sechrest *et al.* (1993, p. 230)

The application of such methodological contrast means that the development of a single methodology can only expand when positioned alongside another. This arrangement thus bars any explicit attempt to synthesize more than one methodology. Instead, a conservative comparison is emphasized, which is defined as the compositional contrast of one methodology against another for heuristic purposes. This allows for internal clarity and potential theoretical development.[23] The value of a methodological comparison thus helps to: (1) increase the legitimacy of each methodology by explicating its internal composition, and (2) provide useful heuristics for theoretical development. To be sure, this approach is not new, but builds on earlier methodological pluralist insights that consider truth in the social sciences 'not [as] an attribute of any one tradition but of the dialogue between them' (Wight 1991, cited in Booth and Smith 1995, p. 13, cf. Manheim 1936, p. 81, Sechrest *et al.* 1993, p. 230).[24] The extent

[21] The term 'ontology' is defined as a particular world-view or *Weltanschauung* that is based on one or more philosophical wagers. For a greater description on 'philosophical ontology' see Jackson (2011).
[22] Methods are understood as the specific qualitative or quantitative (or both) techniques of data collection.
[23] By 'internal' I mean treating the methodology on its own terms.
[24] To reiterate, this is not the main aim of the dissertation but a consequence of selecting more than one methodology.

to which a useful comparison can be made is discussed and elaborated upon in the concluding chapter in light of the empirical results. It is argued that a comparison of the methodologies allows for a credible translation between hypotheses and ideal types through which a more complete explanation can emerge, while respecting the research traditions of each approach.

2.1.1. The validity of the research question

If two methodologies with disparate ontological preferences are applied to a single research question, can they legitimately answer the same research question? A clear strength of neopositive studies is that the validity of a research question is clear: a theoretical puzzle must be produced and answered. It ought to identify gaps in the current body of knowledge, it ought to take note of contradictory theories, and it ought to highlight the lack of evidence to support a particular theory (George and Bennett 2005, p. 74). This process will often result in testing empirical anomalies that do not appear to fit a theory's description with the view of reducing or extending its scope conditions. Puzzles are also important for analyticism although they are based on a different set of assumptions.

The construction of an ideal type begins with a clarification of the researcher's value judgements which are informed from his or her contextual environment.[25] This means that analysts may also talk of puzzles as this is often interpreted as the appropriate and normative term for giving legitimacy to scholarly interest. However, there are two interconnected differences. First, this 'interest' could be otherwise if situated in a different context, time, and space. That is, it does not exclude the possibility for alternative framing. Second, the 'interest' cannot be informed from an empirical anomaly that does not match a given theoretical description. Instead, research puzzles emerge when an empirical observation is resistant to a common-sense understanding of how actors or institutions ought to function in a particular context. In this way neopositivism reifies, and analyticism is reactive to, common sense. World society theorists, for example, frame a discussion of state policies in anti-rational and anti-functional terms – and therefore create a puzzle – such as education reforms that produce extreme forms of decoupling (Meyer *et al.* [1997] 2009, p. 182). This would also be a legitimate question for neoliberal institutionalists who would find the lack of cooperation puzzling. World society theory, thus, establishes its own existence as a

[25] The contextual position the researcher is placed within is also referred to as the 'value relevance' or *Wertbeziehung* of the researcher (Coser 1977, pp. 219-20).

theory by questioning the principal concept that neoliberal institutional theory hinges on, namely rationality. In this sense, world society theory falls into the ranks of the common hermeneutic scholar who aims to make explicit the implicit social structure that gives meaning to action. Despite these important differences, both approaches can take on a problem-driven research agenda.

Are there common ties between the neopositive and analytical puzzle? As the former is situated in the same social and cultural milieu that the latter attempts to explicate, legitimate research questions can be formulated that are useful for both methodologies. While the different epistemological and ontological assumptions of each methodology inevitably produce different outcomes from the same research question, there is no reason why the same research question will not be as legitimate for neopositivism as for analyticism. The neopositive approach establishes a research question based on an empirical anomaly that does not fit the predictions of neoliberal institutionalism, while the latter will choose a question that aims to reveal an implicit piece of the social fabric – that is understood to be highly rationalistic – that gives meaning to action. They can be *asked* the same puzzling question, but the two approaches do not *ask* the same question. Consequently they are predetermined to give different answers. Despite these fundamental differences, the puzzle presented in this dissertation, and the research question that emanates from this puzzle, is a fully compatible and legitimate question for both methodologies.

2.1.2. Methodology selection

If more than one methodology ought to be incorporated into this research design, and if this is possible by adhering to the pluralist argument mentioned above, then why and how have neopositive and analytic methodologies been chosen? First, the field of methodology selection is confined to Patrick Jackson's analytical demarcation of the IR discipline into neopositivism, critical realism, analyticism, and reflexivity (2011, p. 37). All of these methodologies can in principle be applied to the research question, each of which would provide a unique answer. Second, based on the logic of *lex parsimoniae,*[26] or the 'path of less resistance', the two methodologies that most closely match the ontological assumptions embedded in the selected theories are conse-

[26] *Lex parsimoniae* is the law of parsimony that posits that the simplest path ought to be chosen over the more complicated: '*Entia non sunt multiplicanda, praeter necessitate'* (Thorburn 1918).

quently chosen.[27] The selection of theory is thus turned to, which then reconnects to methodology in the subsequent section.

2.1.3. Theory selection

If the essence of theory is to highlight particular empirical features and processes over others, it follows that some theories will provide more precise tools of explanation than others. Theory is defined here as 'the explicit formulation of determinate relations between a set of variables in terms of which a fairly extensive class of empirically ascertainable regularities can be explained' (Schutz 1954, p. 260). The principal condition for selecting two appropriate theories is based on their ability to answer the research question. Through a process of elimination, three criteria are accordingly constructed from the definition of theory to locate the most appropriate theories: (1) the general field of inquiry; (2) the determinate logic of action; and (3) substantive assumptions of the selected theory.

The first criterion – the general field of inquiry – limits the selection of theory to those that can reasonably incorporate an analysis of international relations (IR) and that includes the state as the principal unit of analysis, institutional cooperation and transnational security cooperation. These substantive fields are important because they define the content of the research question. While any good theory ought to be flexible enough to incorporate new fields of inquiry, the essential scope condition to which this criterion refers is limited to theories that specialize in state-related activity in regional organizations.

The second criterion – the determinate logic of action – is largely influenced by the state of the art, which illustrates a general divide between agentic and structural approaches in regional studies. As one of the aims of this thesis is to address this gap, a representative theory from each of these epistemological streams is chosen. This means that out of the various logics of action represented in IR – all of which can arguably be applied to the research question – rational choice and structural-based behaviour are prioritized.[28]

[27] These are each defined by two philosophical ontological wagers. Neopositivism is defined by a mind-world dualism and phenomenalism, critical realism is defined my mind-world dualism and transfactualism, analyticism is defined by mind-world monism and phenomenalism, and reflexivity is defined by mind-world monism and transfactualism (Jackson 2011, p. 37).

[28] Another logic of action, for example, that is possible but not used in this thesis is the logic of argumentation, deliberation, and persuasion (Risse 2000).

The third criterion – substantive assumptions – requires that the selected theories view the state as a legitimate actor in world politics and that these states seriously include the possibility of cooperative security endeavours through regional organizations. Neorealist theories that assume the former, but reject the latter, are consequently demoted, for example. A further scope condition is based on another aim of this thesis, which is to address the lack of medium-n sized comparative regional studies. This means that only theories that provide core material or structural based arguments for state motivation in regional organizations are prioritized.[29]

According to these criteria, and taking into account the incompatibility of applying an agent and structural-based theory within a neopositive methodology vis-à-vis the empirical question, two theories present themselves as the most appropriate explanatory devices for this study. First, neoliberal institutionalism is chosen and embedded within a neopositive methodology. Second, world society theory is chosen and embedded within an analytical methodology. These two approaches are described in greater detail below.

2.1.4. Neopositivism and neoliberal institutionalism

Neopositivism can be defined as the application of hypothesized covariations in a world where empirical reality is conditioned by observed experiences in an effort to gain, at least, a sense of 'high probability'. Building on the logical positivist concern for empirical truth by replicating the natural sciences, neopositivists derive explanation through inferences based on repeated experiences of an observed object.[30] Acting under the principle of falsification – rather than the logical positivist emphasis on verificationism – these repeated experiences can evolve into theoretical generalizations or 'covering laws' that offer some prediction and causal certainty (Hempel and Oppenheim 1948, p. 138).[31] While objective reality may still be out of reach, the gap

[29] Investigating diplomatic exchange using practice theory, for example, would be particularly difficult to achieve when investigating ten regional organizations based on the pragmatic and technical capacity of the researcher.

[30] The grounding of knowledge not just on basic sensory impressions (empiricism) but also on experience reflects the central idea of phenomenalism – an important philosophical commitment embedded in neopositivism – which emphasizes the phenomenon or object of investigation rather than pre-theorizing (Overgaard and Zahavi 2009, p. 111). This includes the study of invisible or social objects that can be observed and experienced via appropriate conceptual devices (Wight 2006, cited in Jackson 2011, p. 62).

[31] Achieving 'high probability' through the idea that logical statements could be proven by observation (verificationism) was difficult in practice because even a nonsensical statement could be formulated into a verifiable experiment (Jackson 2011, p. 51). Karl Popper's principle of falsification rectified this shortfall and, thus, brought in the 'neo' to neo-positivism. This

between the subject and object – a central motif of positivism based on Cartesian doubt – is reduced through this Deductive-Nomological (D-N) model.[32] The empiricist or (neo)positivist thus largely adheres to a Humean conception of causality that is defined as the 'constant conjunction of events', and entails patterns of observables and regularities that are deterministic in nature (Moore 2009, p. 3, Kurki 2006, p. 192).[33] For neopositivists, the purpose and definition of theory is thus 'the testable explanations of observed behaviour' (Dessler 1989, p. 445, cf. Hindmoor 2010, p. 45). The outcome of these tests can be further unpacked into two different correlational properties of 'sufficient' and 'necessary' conditions, which fine-tune the broader concept of 'high probability'.[34] This informs the epistemological grounding of the Qualitative Comparative Analysis (QCA) techniques used in the 'rational' research design of this dissertation.

Neoliberal institutionalism provides a rational explanation of events. The *explanatory* side of this 'rational explanation' is based on an 'outside' perspective where the researcher establishes causes based on, or influenced by, methods from the natural sciences (Hollis and Smith 1990, p. 3). As expressed above, these methods are generally characterized by covering laws that emerge from the researcher's observations of repeated occurrences in similar environments (Ibid).

The *rational* side of 'rational explanation' introduces a specific view of the world that places a calculative, conscious, and self-interested individual as the main unit of analysis.[35] Explaining causes and their effects via the rational individual also extends to macro processes. This methodological individualism cuts to the heart of rational choice and economic theory, and constitutes a significant part of neoliberal institutionalism. More precisely, neoliberal institutionalism gives the individual priority in

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constructed a theoretical 'edifice' on the subjective side of the mind-world gap that could then be evaluated through the constant testing of empirics (Ibid, p. 68).

[32] Put differently, this scientific mode of knowledge production is based on the premises of locating, confirming, or refuting law-like generalizations about the social world.

[33] The irony in this search for causal certainty is that it will always be out of reach vis-à-vis an ontological commitment to mind-world dualism, a condition that will continue to motivate valiant efforts to breach the unreachable. As Carl Hempel and Paul Oppenheim note, this effort is best administered through establishing theoretical generalizations based on repeated experiences. These generalizations establish covering laws that provide for, at least, a momentary sense of causal stability through claims of 'high probability' that come about through the testing of hypotheses. Combined with a statement of antecedent conditions, this produces the *explanans*, which, through a process of logical deduction, informs the *explanandum*: a 'description of the empirical phenomenon to be explained' (Hempel and Oppenheim 1948, p. 138, cf. George and Bennett 2005, pp. 131-5).

[34] These can also be extended to SUIN and INUS conditions (Mahoney *et al.* 2009).

[35] For an overview of the history and development of the 'economic man' see Persky (1995).

defining or explaining social phenomena (Udehn 2002).[36] Such a model of rational human action, that paradoxically finds its routes in Max Weber's *Verstehende* tradition, is conventionally understood as an ideal type based on the notion that only individuals have intentional states (Heath 2011, §9). Through the profound influence of Karl Popper in the social sciences, the interpretive tradition – which uses the rational action model for evaluation purposes – was transformed into a covering law, or generalized claim, that could generate falsifiable hypotheses (Ibid, §21). The notion of reducing complicated events to individual explanation, combined with the assumption of a rational and calculative actor, forms the basis for explaining micro-to-macro processes through the constant testing of empirics. Informed by these principles, neoliberal institutionalism attaches the rationality and self-interest of the individual to the state as the principal actor in the international system.[37]

This brief overview of the links between neopositivism and neoliberal institutionalism substantiates the choice of adopting a neopositive methodology according to *lex parsimoniae*. The selection of neoliberal institutionalism is also substantiated by two further reasons. First, it confirms to the above-mentioned criteria on theory selection. This inter alia includes a mid-level theory that provides core explanations for state-based decisions and is also highly representative of rational agency as depicted in its firm adherence to methodological individualism. Secondly, viewed through the lens of neoliberal institutionalism, the empirical question is also highly puzzling. Instead of rejecting this theory because it does not appear to explain an empirical observation (cf. Börzel 2012a), it is selected precisely because of this difficulty.

2.1.5. Anlayticism and world society theory

An analytic methodology, like neopositivism, claims that knowledge is derived from our experience of the world. However, this experience is not based on a connection between sensory impressions and an object, but via an intersubjective field that gives meaning through doing.[38] This means that the mind cannot be considered separate from the world – from the outside looking in – but is part of the knowledge one gains

[36] Lars Udehn outlines an 'individualistic research tradition' that categorizes different versions of methodological individualism (2002, p. 499).
[37] For a critique on the anthropomorphism of the state see Wight (2004).
[38] Unlike neopositivism, the impetus of knowledge production for analyticism is derived not from doubt but through interaction. Indeed, informed through a 'mind-world monism' (Jackson 2011) analyticism rejects the very notion of doubt as an 'exercise in self-deception…we possess a variety of certainties which "it does not occur to us *can* be questioned"' (Peirce 1992 and 1999, cited in Hookway 2008).

through practical participation within, and of, the world. In order to make sense of an experienced situation, or 'life-world', observations are abstracted to make general claims (Jackson 2011, p. 113, cf. Weber [1949] 2011, Deutsch 1968, Waltz 1979, Overgaard and Zahavi 2009).[39] Importantly, this ordering of facts through ideal types is produced for the purpose of specification and not for generalization. The critical distinction between singular causal analysis (analyticism) and general causal analysis (neopositivism) is not the acceptance or even use of general laws but whether singular causal statements are *reduced* to causal laws (Moore 2009, p. 4).[40]

If generating analytical constructs is a strategy for reducing reality to a biased set of value commitments in order to provide insight into a particular phenomenon (Weber [1949] 2011, p. 90), then the value commitments of the researcher must be explicated as the first step of ideal typification.[41] This means that the scientific researcher must make explicit the norms and values in which he or she is embedded: 'values motivate the search for knowledge and make some of its results more salient to us than others' (Deutsch 1968, p. vi).[42] Combined with empirical observations, these norms are then formalized into analytical constructs. Once produced, these ideal types can be contrasted against an empirical case to produce ambiguity (Jackson 2011, pp. 144-5).[43] The ambiguity created from ideal typification is then subject to counterfactual analysis with the purpose of strengthening the probability of a causal statement. This counterfactual analysis is achieved through a mental experiment: when an outcome cannot be imagined without a causal property derived from an ideal type, it is considered 'adequately causal' and 'coincidentally causal' when the same process is made by a causal property derived outside of the ideal type. All other instances count as 'inci-

[39] The term 'life-world' comes from Alfred Husserl, which is similar to what Martin Heidegger calls *Dasein* or 'being-in-the-world' (Overgaard and Zahavi 2009, pp. 94-5).

[40] As Moore notes, singular causal analysis is best conceived to exist on an axis between those that accept that causal laws can exist in the presence of singular causal relations, and those that do not accept this (2009, p. 4). Thus, an analysis of contiguous events can produce general statements but these generalizations are not explicated into a covering law (Ibid, p. 13). Instead, the generalizations create ideal types for a particular category of events.

[41] The classic definition of an ideal type come from Max Weber, who states that 'An ideal type is formed through a one-sided *accentuation* of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present, and occasionally absent *concrete individual* phenomena, which are arranged according to those one-sidedly emphasized viewpoints into a unified *analytical* construct *(Gedankenbild)*. In its conceptual purity, this mental construct *(Gedankenbild)* cannot be found anywhere in reality. It is a *utopia*.' ([1949] 2011, p. 90).

[42] This does not imply a critique of the researcher's values because there cannot be any correct values according to Weber (Jackson 2011, p. 230). Instead, it is important to evaluate how a researcher's values have been idealized into an analytical construct (Ibid, p. 146).

[43] Importantly, this procedure is only relevant for the 'unique and individual character' of 'concrete genetic sets of relations' (Kedar 2007, p. 330; Weber 2008, p. 12).

dental' (Jackson 2011, pp. 150-1).[44] Evaluating what classify as essential causes is based on the experience of the researcher.[45]

World society theory provides a 'cultural' explanation of events: 'institutionalized cultural rules define the meaning and identity of the individual and the patterns of appropriate economic, political, and cultural activity engaged in by those individuals' (Meyer, Boli and Thomas [1987] 2009, p. 67]. These rules are further defined as 'classifications built into society as reciprocated typifications' (Meyer and Rowan [1977] 2009, p. 90). This cultural account has strong links to analyticism, which is expressed by Alfred Schutz, who argues that previous experience sourced from others, and the subjective, generate a pre-fabricated knowledge of 'types' that are used to interpret the environment within which all individuals are embedded. This principal conception of knowledge based on phenomenalism is informed by an assumption that others have similar 'systems of relevancies' that are analogous to one's own: what Schutz calls the 'thesis of the reciprocity of perspectives' (Overgaard and Zahavi 2009, p. 104). If expectations and the actions of individuals are informed by types in an intersubjective space, society must conform to, and be representative of, what is normal. If this thesis is applied to IR it would be expected that pre-fabricated knowledge of 'types' that states, institutions and individuals use to interpret the global society would also produce similar 'systems of relevancies'. This is an essential argument put forward by the world society theorists: '[o]rganizations exist, proliferate, and have the form they do not because they are efficient but because they are externally legitimated by the global cultural environment' (Finnemore 1996, p. 329).

The external system that provides this form of legitimacy is made up of knowledge and culture rather than placing the individual at the foundations of society (Ibid; Jepperson 2001, p. 3). This lack of agency is a principal critique and underlying

[44] It could be objected that the results gained through ideal typification may lead to the adjustments of the original ideal-types or the production of new ones that, in turn, leads to greater specification *ad infinitum*. This proposal, however, misses the essence of the analytical stance: analysts are only interested in the *utility* of an ideal type as a tool to provide an explanation, or ethical statement, of an observed 'fact'.

[45] Counterfactual analysis requires a deep knowledge of the case in order to imagine alterative causal pathways (configurational). The validity of the causal statement is thus based on the unique properties of the case that ought to be made clear by the researcher. Thus, unlike neopositivism there are no clear rules or guidelines for the validity of causal statements other than practical sense (Jackson 2011, pp. 150-1). Furthermore, the value of employing a counterfactual analysis through ideal types is based on its perceived usefulness. As Karl Deutsch notes, a concept – understood as a tool used to group together different items of knowledge into a set – only fulfils its function if it (1) provides a continuing 'usefulness in dealing with problems familiar from the past' and (2) it provides for 'new questions, new insights, and new intellectual operation on problems that are becoming salient for the present and the future' (1968, p. 13).

source of contention in much of John Meyer's writings. Indeed, his claim of societal change via macro-to-macro processes (Jepperson and Meyer 2011) even raises difficulties that phenomenologists such as Edmund Husserl had with disentangling the belief that the individual was constituted by, and was the principal object of, society (Overgaard and Zahavi 2009, p. 102). In order to circumvent this problem, Meyer deliberately and strategically 'defocalizes' the actor in order to emphasize the influence of institutions and culture on the individual (Jepperson 2001, p. 3). In other words, world society theory is decidedly positioned on the structural side of the agent-structure debate (cf. Wendt 1987, Carlsnaes 1992, Wight 2006). This tactic is certainly legitimate within an analytical framework that seems to quietly accept the classical critique of transcendental solipsism (Best 1975, p. 136) as the price to pay for increased clarity.[46] By selecting the main phenomenological argument of transcendental subjectivity and rejecting methodological individualism, world society theory thus shares some fundamental assumptions with an analytical methodology. According to the logic of *lex parsimoniae*, these connections help to substantiate the reasoning behind the selection of world society theory and analyticism.

The above explanation of analyticism and its connection to world society theory is designed not only to usher in a structural-based research design but also legitimate the choice of the methodology and theory by making explicit their shared assumptions and the fit between the empirical question and analyticism's method of knowledge production.

Table 2.0 Methodological comparison and composition

	Methodology	
Categories of inquiry	Neopositivism	Analyticism
Ontology	Phenomenalism	Phenomenalism
	Mind-world dualism	Mind-world monism
Epistemology	D-N model	Singularist theory of causation
Theory	Neoliberal institutionalism	World society theory
Method	Qualitative Comparative Analysis	Quantitative and qualitative techniques

Source: The ontological compartmentalization is modified from Jackson (2011, p. 37)

Table 2.0 summarizes the two methodologies that are used to answer the research question. These are not designed to be entirely fixed categories but should help to identify the principal assumptions that logically fit the various levels of enquiry that include the ontological, epistemological, theoretical, and the application of methods. This means, for example, that the two 'philosophical wagers' that constitute neoposi-

[46] Transcendental solipsism is a condition by which the transcendental experience of the self is the only thing that exists.

tivism and anlayticism are informed by (1) a dualist and a monist conception of the world, respectively; and (2) a phenomenological standpoint, meaning that what is knowable is limited to what one can observe (Jackson 2011). These philosophical wagers are sequentially connected by two alternative epistemologies based on either generalization (D-N model) or specification (sigularist theory of causation), which is then linked to neoliberal institutionalism and world society theory. Finally, different methods have been selected according to the mandate set by the epistemologies that define neopositivism and analyticism.

This categorization represents the blueprint of the main research strategy defined by methodological pluralism and the 'rational' and 'cultural' research designs that are operationalized in the following section. Here, the theory and method are elaborated, including the construction of testable hypotheses and applicable ideal types.

2.2. A 'rational' research design

Neoliberal institutionalism asserts that rational actors will perform utility maximizing functions under conditions of interdependence (Keohane and Nye 1974). In a progressively interconnected and interdependent world, mutual interests among rational states increase. These interests often coalesce around finding solutions to collective problems that are too costly or too difficult to solve independently. The formation of international institutions provides not only a secure forum where these problems can be solved, but it also provides a mechanism that will mitigate conflict, enhance order and provide efficient solutions to problems of coordination through the provision of information and reducing transaction costs under certain constraints (Keohane 1984, Karns and Mingst 2010, pp. 38-40).[47] Based on this cost-benefit approach and informed through an explanatory logic of consequentialism (March and Olson 1990), neoliberal institutionalism claims that states – defined as rational goal-seeking actors – will cooperate through international institutions in order the maximize their gains under certain constraints vis-à-vis the envisioned outcome of no cooperation (reversion point).[48] Neoliberal institutionalism has thus been a forerunner in providing ex-

[47] A more liberal variant of this approach would underline that state interests are pluralistic and informed by domestic and transnational processes: security cooperation would consequently emerge through the convergence of national preferences (Müller 2002, pp. 376-7, Moravscik 1998).

[48] An institution is defined here as sets of rules that stipulate the ways in which states should cooperate and compete with each other' (Mearsheimer 1994/95, cited in Simmons and Martin 2002, p. 194). And rules mean: 'statements that forbid, require, or permit some action or outcome' (Ostrom 1990, p. 139).

planations for the emergence of international institutions (Kaiser 1971, Keohane and Nye 1974, Milner and Moravcsik 2009).

Cooperation through institutions is further explained by Keohane's concept of 'rational anticipation': where anticipated effects are explained by their causes (Keohane 1984, p. 82; Milner and Moravscik 2009). States will presumably cooperate on regional risk management, for example, when the expected benefits gained through the functional performance of institutional practices are realized. Cooperation is thus demand-driven: 'actors create institutions because they are useful' (Aggarwal 2009, p. 168). These expected outcomes are in turn based on self-interest, and material-based and power-maximizing goals. The crux of the theoretical approach, therefore, is to provide evidence that demonstrates a causal link between the functions an institution performs and the institution's existence: institutions either serve the functions they were designed for, or they deteriorate (Keohane 1984, p. 81).[49] A number of conditions must, therefore, be identified that are necessary if cooperation is to emerge.

2.2.1. Hypotheses

The following sub-section outlines the four main hypotheses that are derived from neoliberal institutionalism and that will be tested with a fuzzy-set Qualitative Comparative Analysis (fsQCA). These are:

H1. When regional interdependence is high, DRM cooperation will be highly developed
H2. When the expected costs of future natural disasters are high, DRM cooperation will be highly developed
H3. When the intra-regional diversity of natural disasters is high, DRM cooperation will be highly developed
H4. When intra-regional power disparities are high, DRM cooperation will be highly developed

2.2.1.1. H1. Interdependence

Interdependence is considered a vital precondition for regional cooperation because the increasingly high flow of goods, capital and people across national borders heightens the economic and political vulnerability of states (Moravcsik 2009, p. 245). If this flow is cut off by a major crisis with no or limited regional cooperation, damag-

[49] This also falls in line with Keohane's concept of constraint choice analysis, which emphasizes system-level changes in the international system as an important condition that determines whether states choose to create or join an international regime (1989, pp. 103-4).

es will quickly escalate and have far-reaching consequences, as the 2005 Hurricane in New Orleans and 2010 Earthquake in Haiti demonstrate. This logic is reflected in Keohane's notion of 'insurance regimes' where under conditions of interdependence and increasing vulnerabilities – where the 'environment cannot be controlled' – states will be more likely to create 'insurance regimes' to control or insure against 'catastrophic events' (Keohane 1989, p. 123). Neoliberal institutionalists would presumably agree that countries that are highly dependent upon intra-regional trade flows will be more likely to cooperate on DRM. However, shared interests based on the incentive for joint gains are a necessary yet insufficient condition: cooperation comes out of a 'mutual adjustment to conflict' and not a condition of harmony (Keohane 1989, p. 11). States must be first of all willing to cooperate, which will only arise if the costs are perceived to be less than the expected benefits. The first hypothesis based on interdependence is thus formulated as: *when regional interdependence is high, DRM cooperation will be highly developed.*

2.2.1.2. H2. Expectations

The expectation of future crises is an important variable in determining if states will cooperate on regional DRM. [50] If crises occur often and induce high expenses, the probability that states will reduce their sovereignty in exchange for assurance is high (Weber 1997, p. 330). It is expected that when these costs increase to a point where a state or region can no longer effectively manage the environment, states will choose to create insurance regimes (Keohane 1989, p. 123). If this is true, one should also expect that threat perceptions or the cost of crises will meet a threshold where cooperation becomes a necessity. The second hypothesis based on expectations is thus

[50] Transgovernmental networks also provide practitioners with information about their counterpart's actions, which can increase trust and the demand for institutions (Keohane 1989, p. 118). These networks and other 'communities of relevant experts', such as transnational networks and NGOs, are considered sources of 'instrumental beliefs' that have an impact on coalition forming and institutional change (Hall 2010, p. 208, Hollis 2010b). Moreover, the increase in knowledge that international organization and networks share can reduce transaction costs by providing a focal point for acceptable behaviour (Shihata 1965, cited in Simmons 1998, p. 81). While the influences from transnational actors is understood as an important causal condition for increasing knowledge between states, and thus influencing state behaviour, it is not prioritized in this thesis. Priority is instead focused on structural conditions that influence state behaviour: interdependence, expectations, asymmetries and power are thus considered apriori conditions that affect actors including states and transnational networks. Furthermore, as neoliberal institutionalism assumes that the state has the main role in creating or withholding institutional innovation – especially in intergovernmental regional organizations – the causal role of other international institutions, such as the UN or the Red Cross, are not prioritized as the main functional explanation ought to be based on the direct material interests of the state.

formulated as: *when the expected costs of future natural disasters are high, DRM cooperation will be highly developed.*

2.2.1.3. H3. Asymmetrical risk

As interdependencies are rarely symmetrical, the degree to which distribution costs exist also has an effect on the level of cooperation. It is claimed that in order for regional cooperation to emerge, the distribution of benefits must be high as this increases common interests. However, this does not mean that a high distribution of disasters must be prevalent. Indeed, neoliberal institutionalism assumes the opposite: insurance regimes will only emerge 'if the risks insured are specific to each member of the group…if the catastrophic events against which one wishes to insure are likely…to affect all members simultaneously and with equal severity, risk sharing will make little sense' (Keohane 1989, p. 123). The third hypothesis based on asymmetries is thus formulated as: *when the intra-regional diversity of natural crises is high, DRM cooperation will be highly developed.*

2.2.1.4. H4. Inter-regional power disparity

A common reason for the lack of international cooperation is informed through the disincentives that arise in providing a public good. Here, distrust that others will 'free-ride' or 'shirk' can prevent cooperation even if all members of a regional organization would profit from collective coordination on DRM (Samuelson 1954, Olsen 1971, Ostrom 1990, cf. Rhinard, Hollis and Boin 2012). Connecting this logic to material power distribution, Robert Keohane argues that only powerful states would be in a position to provide a public good because it would internalize enough benefits to outweigh the costs (Stone 2009, p. 33). This notion has also been popularized in regional studies by the concept of 'regional paymasters' that provide both the capacity and leadership for instigating cooperation. By transferring this proposition into the emergence of regional DRM, it is assumed that when material power is concentrated in a single member state, that also has a high incentive to cooperate regionally, then regional DRM cooperation will be more likely. The fourth hypothesis based on power disparity is thus formulated as: w*hen intra-regional power disparities are high, DRM cooperation will be highly developed.*

2.2.2. Research techniques

Comparative case analyses help neopositivists to isolate and control for selected causal factors that are geared towards the refutation or agreement of constructed hypotheses. Testing hypothesized covariations or empirical generalizations are often conducted through John Stewart Mill's method of difference or method of agreement. These foundational tools do not, however, free researchers from the possibility of equifinality: when there is more than one possible causal route to a single outcome (George and Bennett 2005, p. 161, Ragin 2000, p. 13).[51] Expanding upon Mill's methods, Qualitative Comparative Analysis (QCA) circumvents equifinality by allowing for 'multiple conjunctural causation' that anticipates that 'different constellations of factors may lead to the same result' (Berg-Schlosser *et al.* 2009, p. 8). The aim of QCA is not, however, to describe a complex arrangement of factors but to produce a parsimonious explanation through testing theoretically derived variables. In order to achieve this, a strong emphasis is placed on two regularities: sufficient and necessary combinations of conditions (Ibid, p. 10).[52] Reinserting the importance of these logics expands research potential by going beyond linear and additive formulations (Most and Starr 2003, p. 26) and increases the number of possible answers to a single research question. QCA is also concerned with systematic case comparisons by using formal tools based on set-theoretic or Boolean algebra (Berg-Schlosser *et al.* 2009, p. 6). Set-theoretical relationships – such as Christianity as a subset of Abrahamic faiths – are implicit in most social science research and provide an important link between 'ideas and evidence' or the interplay between theory and empirics (Ragin 2000, p. 4). This interrelation means that cases, for example, are selected according to theory, albeit, under the provision that typical and outlier cases are selected. Theoretical knowledge is also critical for identifying 'non-observed cases' and justifying the relevant solutions achieved once the analysis is complete (Berg-Schlosser *et al.* 2009, p. 7). This is also connected to the demand for transparency in terms of the researchers choices for case selection, variables, threshold levels, and the processing of, and the occasional intervening in, data (Ibid, p. 14).

[51] Other pitfalls or 'understanding what to avoid' include *inter alia* endogeneity (King, Keohane and Verba 1994, pp. 107-8) and omitted variable bias (Ibid, p. 168), which must also be controlled for.

[52] A sufficient but not necessary condition is when X (the antecedent) follows Y (the consequent) but Y could be replaced by another consequent. And a necessary but not sufficient condition is when Y is preceded by X but Y may not always occur when X does (Most and Starr 2003, p. 28).

Fuzzy-set theory is a branch of QCA that allows for partial membership in a set. By allowing for quantitative variation between two qualitative states, Ragin attempts to: (1) bring qualitative and quantitative methods together (2000, p. 8); (2) allow for increased diversity while maintaining a drive for generalization; and (3) dodges the problem of 'trying to force-fit cases into one of two categories' (2009, p. 88). Given the advantages of employing a fuzzy-set QCA method – such as transparency and the systematic procedure of assessing all possible combinations of selected variables – chapter 3 uses and expands on this technique in order to test the abovementioned hypotheses.

2.3. A 'structural' research design

World society theory asserts that there is an inherent interest for states to modify their identities in order to increase their status as 'proper' and well-perceived entities in the international system.[53] This 'status' is defined by the dominant norms within the international community, to which most countries wish to aspire in order to gain legitimacy, social recognition, and authority as purposive and rational agents (Meyer and Rowan 1977, pp. 348-9, Meyer *et al.* 1997, p. 153).[54] Importantly, this social benefit does not motivate state action. Rather than rational calculations of means and ends, or strategic considerations that cause states to adopt similar policies, it is argued that the modern cultural system *constructs* modern actors – the individual, the state, international organizations – as authorized and purposive agents (Meyer 2010). This macrosociological approach is decidedly global, where exogenous norms affect state action: 'It is not actors and their interests that constitute society (bottom up), but rather society, whose main cultural characteristics have become global over time, that constitutes actors in on-going processes of rationalization (top-down)' (Krücken and Drori 2009, pp. 21-2). As this global model is highly institutionalized and standardized, legitimacy consequently increases through the power of standardization.[55]

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[53] World society theory shares some similarities to the English School's notion of 'world society' based on universal (liberal) cosmopolitanism (Buzan 2001, pp. 475-6) and shares few similarities world-system theory or state-competition theory, which does not locate any 'causal significance' in culture (Meyer *et al.* 1997, p. 147).

[54] This is commonly referred to as actorhood, which is defined by Meyer as 'the enhanced standing of the entities involved and their empowered comprehension of the scientized and rationalized environment in which they act' (2010, p. 9). This also means that 'actor's interests have ontological priority to action' (Buhari-Gulmez 2010, p. 255) and that legitimacy is valued above efficiency.

[55] The expanding 'structuration' that eventuates from isomorphism often goes beyond any normal functional requirements. Examples include unrealistic five-year plans, highways lead-

As noted above, this modern cultural, or institutionalized, system is made up of 'knowledge and culture' (Jepperson 2001, p. 3) that includes a set of rules that are 'typifications of habitualized action' (Berger and Luckmann 1967, p. 54; Meyer and Rowan [1977] 2009, p. 90). The current expression of the cultural script is based on the principles of rationalization and liberal individualism, such as human rights, individual freedom, prosperity, and scientific progress.

2.3.1. Ideal types

The ideal types fashioned in this dissertation are based on the 'rationalizing reconstructions of a particular kind of behaviour' that is informed through the propositions made by world society theory (Coser 1977, pp. 223-4).[56] Thus, instead of constructing ideal types from my own value judgements, I temporarily substitute my own judgements by 'living within' and acting out of the principal features of world society theory. To be clear, I am not creating an ideal type from observation – such as a 'security community' based on an historical study (cf. Deutsch *et al.* 1957) – but I am using an established theory and empirical observation to guide the re-construction of ideal types. Two important assumptions also guide the following construction of ideal types. First, it is assumed that like the reification of the state, regional organizations are also created and maintained for purposes of legitimacy, reflecting what a state ought to do (cf. Börzel 2012). Second, it is proposed and expanded upon in Chapter 4 that regional DRM is a global model or a sub-set of regional policies that states ought to institutionalize. Keeping these qualifications in mind, three propositions are made that are informed through John Meyer's description of the main arguments that define world society theory (2009, pp. 48-51) as well as David Strand and John Meyer's elucidation of norm diffusion ([1993] 2009).[57] Three ideal types are consequently

ing nowhere as hyper-forms of development and impoverished countries creating universities with overqualified personnel (Meyer *et al.* 1997, p. 156). This phenomenon is closely associated with decoupling: a 'disjunction between preferred actor identities and the practical activities that are undertaken' (Meyer 2010, p. 13).

[56] Three different kinds of ideal types are distinguished by Max Weber: the first is based on 'historical particularities'; the second on 'abstract elements of social reality'; and the third on 'rationalizing reconstructions of a particular kind of behaviour' (Coser 1977, pp. 223-4). The latter form is used in this thesis.

[57] The main arguments are based on the following categories:(1) 'the rise of world models'; (2) 'the impact of global models on actors'; (3) 'models are decoupled from each other, from internal structure, and from activity'; (4) 'global models, independent of their adoption, impact internal structure and activity'; and (5) 'expanded modern actorhood creates expanded professionalism and consultancy' (Meyer 2009, pp. 48-51).

produced to aid in explaining regional DRM. These are displayed below and detailed in the following sub-sections.

IT1.	Regional DRM is *standardized* by a global set of norms
IT2.	Regional and international organizations *(re)produce* a global model of DRM
IT3.	The DRM model is *diffused* by international organizations

2.3.1.1. IT1. Standardization

The end of the Second World War brought forth new efforts for international peace and stability through collective cooperation, the apparent sincerity of which was embodied in a universal declaration on human rights. Within this context, professional and organizational structures have emerged to manage a new social order founded upon the global principles of rationality, progress, and liberal individualism (Meyer 2010, p. 6). Some examples include the Olympic Games (Lechner and Boli 2005), education (Meyer and Ramirez [2000] 2009), the environment (Frank *et al.* 1999, Hironaka 2002), and the state (Meyer *et al.* [1997] 2009). As this cultural environment or world culture is 'highly rationalized and universalistic', the individual becomes a rational and responsible actor (Meyer *et al.* [1997] 2009, p. 181). These models award legitimacy to the state and, thus, act as an incentive structure for state action (Finnemore 1993). If states 'routinely organize and legitimate themselves in terms of [these and other] universalistic (world) models' (Meyer *et al.* 1997, 148), it is assumed that just like citizenship, regional DRM is also a universal model that states enact in order to maintain, or gain, legitimacy on the world stage.[58]

Regional DRM can thus be understood as a fashionable expansion of the state apparatus.[59] The creation and solidification of the idea of citizen protection as an individual right would, in turn, produce organizational expansion to manage this new right, generate rationalized goals and goal-orientated action, and reconstitute the actor by providing purpose, meaning, identity and the appropriate patterns of action.

[58] Following a standard world society definition of institutionalization, a global disaster risk management model would be a 'set of cultural rules' on the preparedness, prevention, response and recovery to natural disasters 'that give[s] generalized meaning to social activity' for states, regional and international organizations 'and regulate[s] it in a patterned way… [it] involves processes that make such sets of rules seem natural and taken for granted while eliminating alternative interpretations and regulations' (Meyer, Boli and Thomas [1987] 2009, p. 85).

[59] This statement entails that state cooperation via regional organizations is also a particular global model that states enact (cf. Börzel 2012).

A typical consequence of this process of expansion is highly standardized procedures of action. Common standards will be applied in dissimilar environments. The first ideal type is consequently formulated as: *Regional disaster risk management is standardized by a global set of norms.*

2.3.1.2. IT2. The (re)production of the global DRM model

By conforming to the standardized cultural script state policies and procedures not only become isomorphic with the myths of the global cultural environment, but modern actors also ceremonially reproduce the global script by propagating particular normative models. These global models are produced and reproduced by professionalized 'others' who 'instruct and advise individuals and organizations on how to be better actors in light of general principles' (Meyer 2010, p. 7, cf. Meyer *et al.* 1997, p. 158).[60] These individuals, in turn, enact these values and can even adopt the role of the 'other' in teaching and supporting other organizations. The motivation for such action, the argument goes, is not driven by self-interested action but the sacrificial pursuit of selfless aims such as promoting human rights, the empowerment of women, liberal models of economic development, human security, and the responsibility to protect. The second ideal type is consequently formulated as: r*egional and international organizations (re)produce a global model of disaster risk management.*

2.3.1.3. IT3. The diffusion of the global model of DRM

The diffusion of professions and organizations consequently emit from these general principles and global models on a worldwide scale through cultural and relational mechanisms of diffusion. Cultural diffusion denotes a tie between individuals through a common social category (Strand and Meyer [1993] 2009, p. 139) and relational diffusion is defined by inter-subjective exchange through networks: as the quantity of networks increase so too do the number of rationalized myths (Meyer and Rowan

[60] 'Disinterested Others' or 'otherhood' is described as a process where an agent rises above the self to become an 'Other' (Otherhood) and is empowered by universal rights and scientific authority (Meyer 2010, p. 7). Agents that embody this universal script and become Others achieve the ultimate form of legitimacy by transcending self-interest and drawing on scientific authority. This is explained by Meyer as the 'sacralization of the modern individual in terms of the highest and most universal principles reflects this [religious] characteristic…and it tends to empower this individual (and the organizations and states derived from the individual) as an agent for the universal principles themselves' (2010, p. 7).

[1977] 2009, p. 95, cf. Boli and Thomas 1999).[61] The diffusion of global models thus emphasizes the relational character of global models and that states are awarded with legitimacy and status by not only adopting but also promoting global models. The third ideal type is consequently formulated as: *the disaster risk management model is diffused by international organizations.*

The three ideal types are understood to complement one another by providing insight on a particular aspect of how global norms influence the interests of states. They are also understood to collectively provide a narrative of global DRM norms. That is, through the cultural and relational diffusion of a regional DRM model (Ideal Type 3) states will attempt to maintain or increase their relational status by not only adopting a standardized global model of regional DRM (Ideal Type 1), but will also *reproduce* the model via an inter-organizational dialogue (Ideal Type 2).

2.3.2. Research techniques

The methods used to collect and interpret the empirical data are chosen according to their usefulness in providing a rich body of information that can be assessed through counterfactual analysis. The first ideal type consequently uses a content analysis to reveal the standardized character of the global DRM model, and the second ideal type uses a discourse analysis to emphasize regional identity construction through inter-relational processes. The third ideal type uses a mixture of quantitative analysis to illustrate the growth of international organizations involved with DRM; and a content and historical analysis to reveal the various diffusion practices employed by regional and international organizations. These research techniques are elaborated upon in the subsequent chapters.

2.4. Summary

The aim of this chapter is to provide the necessary conceptual tools to answer why states are motivated to cooperate on regional DRM. This generally begins with the application of a single methodology. However, a significant methodological inconsistency arises when the selected theories – which are representative of the epistemological divide in regional studies – are applied to this single research question. Ac-

[61] Rationalization is a central term used in world society theory that is defined as 'the structuring of everyday life within standardized impersonal rules that constitute social organization as a means to collective purpose' (Meyer, Boli and Thomas [1987] 2009, p. 76).

cording to neopositivism the empirical puzzle only presents a 'hard' case for a theoretical explanation that emphasizes agency and rational utility of the state. Accordingly, analyticism is selected as an alternative methodology that can encompass a structure-based theory that focuses on how state interests are influenced by global norms. In order to overcome the potential incommensurable impasse created by applying two methodologies, an argument based on methodological pluralism is proposed through a methodological comparison: the compositional contrast of one methodology against another for heuristic purposes that allows for internal clarity and potential methodological development.

Based on a number of scope conditions derived from the state of the art and acting through the logic of *lex parsimoniae*, a 'rational' research design is established that applies neoliberal institutional theory under the auspices of neopositivism. The second 'cultural' research design applies world society theory under the auspices of analyticism. As representative theories of either agency or structure, neoliberal institutionalism stands out due to its clear functional arguments based on methodological individualism and world society stands out due to its structural bias within the context of a majority of constructivist studies that applaud the mutual constitution of agency and structure.

The 'rational' research design subsequently outlines four main hypotheses that will be tested via a fuzzy-set Qualitative Comparative Analysis. These hypotheses are drawn from the core functional arguments of neoliberal institutionalism that focus on the necessary material-based features for cooperation to occur. They include: (1) interdependence; (2) expectations of future natural disasters based on previous economic losses; (3) the asymmetries of economic losses from natural disasters; and (4) the power disparities among member states of a regional organization.

The 'cultural' research design outlines three ideal types that will be applied to the empirical data with the aid of a number of qualitative and quantitative research techniques, such as content, discourse, and historical analysis. These ideal types are drawn from the main structural arguments found in world society theory that focus on how the global normative environment affects the motivations of states. They include: (1) the standardization of global models across dissimilar environments; (2) the (re)production of these models through an inter-relational process; and (3) the diffusion of these models. The two research designs are operationalized in the following two empirical chapters of this dissertation.

3. A Rational Explanation

Natural disasters have become a heightened global security issue in the last decade. Not only have the number of major incidents increased over the last 30 years, but a majority of them have occurred in developing countries (Perry 2009, p. 61) that are highly vulnerable to disruptions to critical infrastructures. The adverse effects from global warming (Stern 2006, pp. 77-8, Field *et al.* 2012) combined with local, regional and global interdependencies means that when a natural disaster strikes it is more likely to produce escalating affects, such as the 2011 earthquake in Japan. General economic costs are also likely to increase. Global estimated damages caused by natural disasters rose from approximately 195 billion USD in the 1970s to 896.1 billion USD in the 2000s (EM-DAT 2011b, cf. Appendix 8.1).[62] Responding to this globalized 'new normal' (UNISDR 2010a) reflects a new security agenda that has spread across the globe, infiltrating at least 26 regional organizations and a majority of states (Annex 6.1). Examples include the 2001 community mechanism for civil protection in the EU, the 2001 SADC disaster management mechanism, the 2005 ASEAN disaster management and emergency response agreement and the 2011 LAS Arab Strategy for Disaster Risk Reduction.[63]

[62] These figures can be retrieved through an advanced search on the EM-DAT website under the following selection pattern: 'all regions'; time period 1970-1979/2000-2009; 'natural' type of disasters; and estimated economic damages USD (EM-DAT 2012). Note that the 1970 result of 53.8 billion was adjusted to current prices in 2005 (Lawrence and Williamson 2011). For a more comprehensive overview of the regional costs from natural disasters see Annex 6.2).

[63] Examples of other regional DRM cooperation include: the 1988 Central American Integration System's (SICA) centre for the prevention of natural disaster in central America; NATO's 1998 Euro Atlantic Disaster Risk Coordination Centre; the 1999 Association of Caribbean States (ACS) agreement for Regional Cooperation on Natural Disasters; the 2002 Inter-Governmental Authority for Development (IGAD) regional programme for DRM; the 2004 Andean Community's strategy for Disaster Prevention and Relief; the 2005 African Union Programme of action for Disaster Risk Reduction; the 2005 South Asian Association for Regional Cooperation (SAARC) Disaster Management Framework; the 2005 Gulf Cooperation Council's regional disaster management centre of Excellence; and the 2006 Economic Community of West African States (ECOWAS) policy for disaster risk reduction (Annex 6.1). The decision not to include these and other regional organizations is based on the assumption that a representative selection of 10 regional organizations described in this chapter – which corresponds to approximately 84 per cent of all states – is sufficient for generating generalizations through a fuzzy-set Qualitative Comparative Analysis (fsQCA). For more on case selection see p. 48.

Despite the ever-existing threat of major natural disasters, cooperation on DRM at the regional level is a fairly recent phenomenon. The earliest known regional agreements emerged in Southeast Asia and the Pacific in the early 1970s. The European Economic Community (EEC), the Council of Europe (CoE), the Organization for African Union (OAU), and LAS soon followed suit in the following two decades. These agreements were chiefly declarations that acknowledged the need to cooperate in order to reduce the risks involved with future natural disasters. They placed little obligation on their member states and contained little precision in terms of how cooperation ought to be carried out. This nascent level of cooperation characterized most regional organizations that had officially acknowledged the importance of DRM cooperation up to the late 1990s. This general pattern of regional DRM cooperation changed significantly near the end of the 20th century. In the period 1997-2008 at least 17 regional organizations created specific strategies or framework agreements, 10 of which were produced within a five-year period: 2001-2006 (Annex 6.1). Many of these agreements include precise statements of how cooperation ought to develop as well as the provision for operational capacities, such as the establishment of disaster monitoring and research institutes.

The general increase in economic damages caused by the rising number of natural disasters is often referred to by states as the main reason to cooperate on regional DRM (cf. ASEAN 2005a, OAS 2005c, PIF 2005, Art. 1, European Council 2007b (3), AU 2010b). *Prima facie*, this seems like a legitimate motivation and a rational response by the state to reduce financial risk. However, a number of observations question this assumed rationality. First, while the general costs may have increased, the relative costs adjusted for inflation have only moderately increased by 1 to 4 per cent over a 40-year period, and have even decreased in some regional organizations (Annex 6.2.1).[64] If states are motivated via a cost-benefit calculation then why did regional organizations not cooperate earlier on DRM? Second, convention would anticipate that states are motivated to cooperate on regional DRM via local demand: DRM action would be motivated via domestic and transboundary risk assessments on particular vulnerabilities. If this is true, why would a majority of states choose to cooperate, or advance existing cooperation, only within the last decade when the previous functional demand was high or, in some cases, even higher? Third, the content of the regional agreements outlining the goals and purpose of DRM contain striking similar-

[64] One exception to this general pattern is CARICOM that has incurred a general increase of 26.82 per cent of estimated economic damages from natural disasters. It would thus be expected that CARICOM would form regional DRM cooperation to counter this appreciating tendency.

ities that are not easily explained considering the highly diverse set of political, cultural and institutional systems that constitute regional organizations across the world (cf. Tavares 2010, p. 15, Annex 6.8).[65]

The aim of this chapter is to answer the research question: *what motivated states to cooperate on regional disaster risk management in the period 1975-2011?* This 'rational' research design tracks the global evolution of regional DRM over a 36-year period with a particular emphasis on four explanatory conditions that are grounded on a key proposition from neoliberal institutionalism: that regional organizations will only cooperate on DRM when the benefits of cooperation outweigh the costs of non-cooperation. Designed to reflect the core material and functional basis of state cooperation, these systemic conditions are: interdependence; the expectations of future disasters; regional asymmetric risk; and the extent to which power is located in a minority of member states.[66] It is assumed that by tracing the level of regional DRM cooperation over time, and by comparing this to these underlying causal features, clear thresholds can be found that mark the point where regional cooperation is considered necessary. This ought to explain the odd timing and type of regional DRM cooperation. The explanatory conditions are applied to 10 regional organizations that represent approximately 84 per cent of the total number of states. These are: the EU, ASEAN, the SADC, the PIF, Mercosur, the Caribbean Community, the Arab League, the AU, the OAS, and the ECO.[67]

I propose three main arguments in this chapter. First, despite conventional expectations that all explanatory conditions should be present, I argue that it is only a combination of interdependence and asymmetrical risk that provides a sufficient explanation for the outcome. Notwithstanding this parsimonious finding, the specificity of the solution is questionable: the combination of the explanatory conditions can explain much but with only a moderate level of accuracy. Second, I argue that power disparities in regional organizations are neither a necessary condition nor a part of a configurational explanation for the outcome. However, if its scope conditions are ad-

[65] Also see the discussion on the standardization of regional DRM agreements in chapter 4, p. 137.

[66] As noted more extensively in the previous chapter, neoliberal institutionalism is selected because it *cannot* easily explain the empirical phenomenon. Neoliberal institutionalism is consequently applied to (1) explain what motivates states to cooperate on regional DRM cooperation by (2) testing neoliberal institutionalism through a re-assessment of its scope conditions.

[67] The percentage of 84 per cent was derived by dividing 164 states by an assumed total of 196 countries. Care was taken not to re-count those countries that appear in more than one regional organization and the number 196 was taken from the following reference (Rosenberg 2011).

justed to include a small number of states – a so-called 'risk coalition' – it can provide a complementary explanation in conjunction with the abovementioned causal configuration. Third, despite expectations that the relative economic costs from natural disasters as a percentage of GDP ought to have increased, it is revealed that the costs for a majority of the regional organizations decrease over the period of investigation, from 1970 to 2009.[68] This is perhaps the most surprising result. If states are motivated by a cost-benefit calculation, all other things being equal, cooperation ought to have emerged in the 1970s when the relative costs were much higher. Two alternative solutions are subsequently offered. First, the assumption of perfect information can be relaxed, which generally weakens the explanatory power of neoliberal institutionalism. Second, the results from the following chapter can provide useful theoretical heuristics to better explain this anomaly.

This chapter contributes to the general lack of medium-n sized comparative regional studies on a highly under-researched field of security, which is understood as a vital issue area that is connected to the heart of state sovereignty.[69] The following rational explanation is divided into two main sections. The first constructs the conceptual 'edifice' that includes a description of the main research technique, the dependent and independent variables, as well as an explanation of the case selection.[70] Within this section the outcome condition (dependent variable) is measured by analysing regional DRM agreements and official texts according to a codified value system that organizes regional cooperation between nascent and advanced levels according to the perceived costs of cooperation to the member states within a regional organization. This includes a survey of the 10 regional organizations. The explanatory conditions (independent variables) are then measured and analysed according to a variety of empirical indicators that *inter alia* consist of the EM-DAT, World Bank and UNU CRIS RISK databases. The second section tests the conceptual 'edifice' on the empirics. This includes an operationalization of fsQCA and a description of the results and their implications.

[68] One exception to this general pattern is CARICOM that has incurred an increase in general and relative costs from natural disasters. It would thus be expected that CARICOM would form regional DRM cooperation to counter this appreciating tendency.
[69] cf. 'State of the art' in Chapter 1, p. 16.
[70] This phraseology is borrowed from Jackson (2011).

3.1. Constructing the edifice

The following subsection constructs the edifice.[71] This includes a description of the method, the outcome (dependent) and the explanatory (independent) conditions and the theoretically derived hypotheses. Once this edifice is constructed, the second section of this study tests these assertions for the purpose of explaining what motivates states to cooperate on regional DRM.

3.1.1. Fuzzy sets and qualitative comparative methods

Qualitative Comparative Analysis (QCA) techniques are used as the principal method and its associated set theory is the main epistemology for explaining why states cooperate on regional DRM. The choice for using this specific approach is grounded on the following points. First, QCA fits neatly into the neo-positivistic methodology used for explaining the research question, as it seeks out theoretically-derived hypotheses that can be tested via Poppers principle of falsification. False hypotheses can then be eliminated in order to narrow down the field of analysis towards provisional truth statements. Second, an emphasis on the combination of sufficient and necessary 'conditions' (independent variables) based on 'multiple conjectural causation' allows for different combinations of variables, leading towards the same outcome (Rihoux and Ragin 2009, p. 8). This opens up the possibility that other combinations of causal conditions can lead to the same or different outcome and thus goes beyond typical quantitative studies, such as regression analysis and the assumption of additivity, that 'ignore specific, distinct patterns and "outliers"' (Ibid, p. 9). This means that equifinality – the situation where more than one combination of variables produces an outcome – can be brought to light. Third, the technique of applying a specific value to empirical data based on the degree to which it fits into a given set demands a high amount of transparency and a continual dialogue between theory and cases. This forces the researcher to make clear choices. Combined with the formal methods based on Boolean algebra and set theory, QCA methods can easily be replicated, which increases its validity (Rihoux and Ragin 2009, p. 14). Alternating from method to theory also bridges the gap between qualitative and quantitative methods by forcing the researcher to clearly relate empirics to a quantitative value system and vice versa.

[71] The term 'edifice' is borrowed from Jackson (2011) who uses the term to explain the system of beliefs or assumptions that constitute a theory that is then tested against empirical observation.

This not only provides a valuable tool that can utilise techniques from both methods, but also underlines a misconception of their incompatibility as methods.

As the name implies, qualitative *comparative* analysis is a case-orientated method that respects the diversity and complexity of each case while maintaining a holistic approach with the aim of comparison and formulating generalizations. Qualitative Comparative Analysis also moves beyond simple co-variations by employing the concept of set-variation. A set is defined as a 'collection of items of individuals…that can be distinguished from one another as individuals and that share some property' (Klir *et al.* 1997, p. 48). In crisp-set QCA, cases are thus arranged according to whether they are in or out of a theoretically determined set where 1 is equivalent to membership of a set and 0 is equivalent to non-membership. For example, a regional organization may be in or out of the set of asymmetric risk. Arranging empirics according to this system provides a useful tool for uncovering necessary and sufficient combinations of explanatory conditions, which provides for parsimonious formulations of causal properties.[72]

This study applies a fuzzy-set QCA (fsQCA) technique, which provides for a more nuanced depiction of collating and interpreting data. Fuzzy-set QCA extends the classical QCA analysis based on crisp sets – simple dichotomizing conditions between 0 and 1 – by allowing for variation in the distance between the two figures. This means that conditions are not forced into a particular category, but can be fully, mostly, or more or less in or out of a set (Ragin 2009).[73] In other words, fsQCA can allow for differences in the level of regional DRM cooperation and its corresponding explanatory conditions. For example, a regional organization can be totally out, partially in, more in than out or a full member of the set of asymmetrical risk. Instead of being either in or out of a set, partial membership is allowed that is represented by an interval scale between 0 (completely out of the set) to 1 (completely in the set) with 0.5 as the crossover point. In order to establish the extent to which a case has a high or low membership in a set is based on substantive and theoretical reasoning rather than a simple ordinal scale. The hypotheses developed in the previous section provide the main guidelines for establishing sets from which an individual condition can be measured in terms of how well it fits into the set. Establishing the qualitative anchors

[72] Note that for the rest of this chapter fsQCA terminology will be used. For those readers that are not used to correlational analysis the main differences, as expressed above in brackets, are 'outcome condition' for the dependent variable and 'condition' for the independent variable.
[73] More specifically, there are three 'qualitative breakpoints' that constitute a fuzzy set. The threshold for full membership is 0.95, the crossover point is 0.5 and full nonmembership is 0.05 (Ragin 2008b, p. 17).

that define the outcome of this study is now addressed, which is followed by the four explanatory conditions.

3.1.2. Regional DRM: an 'inside-out' perspective

The main unit of analysis and general phenomenon examined in this study is regional DRM cooperation. As noted in the introduction, regional DRM cooperation is the process by which a group of states agree to cooperate on reducing the vulnerability of their regional community from natural hazards.[74] Two further qualifications are added to this general definition. First, cooperation that focuses on single natural crises, such as droughts or food security, are not prioritized. Instead, cooperation with an 'all-hazard' approach that includes more than one natural disaster constitutes the main unit of analysis. Second, based on the methodological and theoretical tenets of this chapter, regional DRM is investigated as a local phenomenon. That is, cooperation on DRM in each regional organization is considered unique and specific to its local conditions. The explanation for state cooperation is consequently based on an 'inside-out' or demand-driven perspective (cf. Hettne 2002, Börzel 2012a).

3.1.2.1. Case selection

Following John Stuart Mill's method of difference, this study has selected cases that are highly different from each other in terms of *inter alia* political systems, threat perceptions, and social histories. However, they all have regional DRM cooperation as a common feature.[75] In line with QCA guidelines for case selection (cf. Rihoux and Ragin 2009, pp. 19-32), cases are selected on the dependent and the independent variable.[76] In regard to the outcome condition, cases have been purposefully chosen that provide variation from no to high levels of cooperation for the purpose of avoid-

[74] See Chapter 1, p. 6, for a more extensive definition of regional DRM.
[75] A case is defined as 'phenomenon for which we report and interpret only a single measure on any pertinent variable' (Eckstein 1992, p. 124). Other constants represented in the selection of the dependent variable include the minimum age of the regional organizations and its multi-dimensional attributes (that is, more than just a security community). These are included for the purposes of eliminating competing explanations.
[76] Selecting on the dependent and independent variables emphasizes a valuable contribution to a theory if the selected cases are purposefully chosen so that they are *not* easily explained by a given theory (Shively 2006, p. 346). This is similar to the common standard set by neopositive methodologies: that one ought not to select on the dependent variable (cf. King, Keohane and Verba 1994). It thus makes a nuanced conceptual and semantic alteration by consciously, and not randomly, selecting instances of a dependent variable that are not biased and that will aid in general knowledge production according to neopositivism.

ing selection bias. This approach reduces the possibility of ignoring cases that contradict the applied theory (George and Bennett 2005, p. 24). In the same manner, cases chosen on the independent variables vary in the degree of interdependence, expectations, asymmetric risk, and power. These cases also reflect a unique mix that can be contrasted against one another through a fuzzy-set calculus to provide an accurate test of the variables under all possible conditions. Based on these prescriptions, ASEAN, EU, CARICOM, LAS, PIF, SADC, Mercosur, AU, the OAS, and ECO are selected.

The scope conditions for selecting these regional organizations over others are based on the following criteria: (1) regional organizations ought to provide variation on the dependent variable that range from no cooperation to advanced cooperation; (2) they ought to represent a diverse geographical range; (3) all selected regional organizations should have existed for at least two decades, which allows for a detailed time-series analysis;[77] (4) all regional organizations should be multi-dimensional;[78] and (5) the number of cases should not be less than ten for a medium-n study that can produce reliable generalizations through fsQCA.[79]

The following description provides an introduction to the ten case studies with a focus on the outcome condition. The explanatory conditions are then addressed in relation to the case studies.

3.1.2.2. Measuring regional DRM

Regional cooperation on DRM is measured by assessing the institutional design features based on formal regional agreements, declarations, and framework strategies. An institution is defined as a 'complex of rules and procedures that governs a given set of human interaction' (Stone Sweet, Fligstein and Sandholtz 2001, p. 6, cf. Simmons and Martin 2002, p. 194). Rules are 'specific prescriptions or proscriptions' (Keohane 1974, p. 57) that 'forbid, require, or permit some action or outcome'

[77] If this were not the case, explaining the rise of regional DRM cooperation would be entangled with the emergence of regional organizations

[78] This criterion is based on the definition of regional DRM and is important for providing a fair comparison of all regional organizations.

[79] This number is based on the general output of fsQCA studies that usually have between 10-50 cases (Kent 2008). It would seem that a balance must be struck between more cases to increase reliability while maintaining an appropriate depth of information of each case in order to validate appropriate threshold indicators (Ibid). The number of cases also conform with the dictates of qualitative comparative analysis, which include more cases than independent variables – providing a positive degree of freedom (George and Bennett 2005, p. 28-30) – and enough cases for a robust comparative analysis.

(Ostrom 1990, p. 139).[80] The substantive content of these rules rather than the type of rules is the main focus of this study in determining the variation of DRM cooperation.[81] Emphasizing the content to rules helps to locate appropriate levels of cooperation based on in-depth case knowledge of regional DRM (cf. Ragin 2008a, Rihoux and Ragin 2009).

Figure 3.1 Qualitative anchors for determining the calibration of membership in the set of regional cooperation on DRM

Level of DRM cooperation	Nascent ←		*Threshold*	→	Advanced
Qualitative *anchors*	1 Awareness	2 Information	3 Operational capacity	4 Standardization	5 Asset-pooling
Fuzzy values	*0.0-0.2*	*0.2-0.4*	*0.4-0.6*	*0.6-0.8*	*0.8-1.0*

Relying on neoliberal institutional explanations for institutional cooperation as well as substantive knowledge of the issue area, five categories of cooperation are constructed that depict a range from nascent to advanced forms of regional DRM cooperation (Figure 3.1). It is assumed that an increase in the level of cooperation will incur greater costs to the state. These costs are principally financial, but may also be connected to the political costs of relieving a part of state sovereignty in a particular issue area. Based on this formula the following stages of cooperation (qualitative anchors) are briefly explained and expanded upon in the following pages. The first two levels (1-2) are based on the amount of information member states are willing to share (DeSombre 2009, p. 152). The next level (3) is defined through the proposed operational output stated in the agreement, which is understood to involve higher costs than sharing information. Finally, the last two indicators (4-5) reflect a push towards supranational capacity, where member states are required to standardize

[80] References to norms are purposively excluded from this definition for the following two reasons. First, norms focus on the intersubjective which lies at the fringes, or outside, of the ontological grounds of neopositivism (Duffield 2007, p. 8). Second, focusing only on rules helpfully skirts around an unnecessary discussion on how norms relate to institutions, which – regarded as 'standards of behaviour' – are essentially synonymous with rules (Keohane 1984, p. 57).

[81] An alternative option that could be used to assess the variation of cooperation is through the level of institutionalization. Borrowing from the works of Abott *et al.* (2000), Koremenos, Lipson and Snidal (2001), Haftel and Thompson (2006), Lipson (1991) and Stone Sweet, Fligstein and Sandholtz (2001), it is possible to set up a variety of indicators that roughly translate into the degree of formality, obligation and precision. These concepts are not directly used in this study as the design features of DRM are prioritized to draw more heavily on substantive knowledge of the cases, providing for a more unique and exact representation of the phenomenon under investigation.

procedures and practices. This can also include the establishment of operational assets at the regional level that can be used in the event of a major disaster. The qualitative anchors are depicted in Figure 3.1.

As most organizations have produced a series of official documents in DRM the above-mentioned indicators of cooperation are assessed across time, beginning with the first official statement of cooperation in the 1970s and ending with the current status of a regional organization's DRM activities in the year 2011. By using these indicators as a guide for determining the level of cooperation, a scale can be established that plots the selected regional organizations between the two ideal types of cooperation (Figure 1). This scale can then be used to establish the degree of membership in each case of regional DRM cooperation. The resulting values can then be compared to the explanatory conditions in order to test the hypotheses outlined in this chapter.[82] The following describes how these levels are distinguished and how different values can be given for each level.[83] The label 'nascent' is representative of any regional organization that is more out than in the set of regional DRM (<0.5). The label 'advanced' is representative of any regional organization that is more in than out of the set of regional DRM (>0.5).

3.1.2.3. Justifying the qualitative anchors

Beginning with the most important classification, regional commitment to operational capacity determines whether a regional organization crosses the threshold between being in, or out of, the set of regional DRM. In other words, when a regional organization collectively decides to facilitate, manage, or directly respond to future crises with a specified set of capacities, its membership crosses the threshold in the set of DRM cooperation. Regional organizations that hold a fuzzy value of more than 0.5 are considered to have established regional DRM as it is more advanced than nascent. The justification for using operational capacity as the main determinant for the threshold indicator is built on the following propositions. First, agreeing to cooperate on an operational basis means a significant deepening and widening of regional integration, an increase in collective responsibility, and

[82] See chapter 2, p. 32, on the construction, and reason for the selection, of the four hypotheses. Also see p. 85 of this chapter that additionally formulates an inclusive INUS hypothesis based on an fsQCA epistemology.
[83] It should be noted that while it is tacitly assumed that a regional organization ought to have a full value at the first level before going on to the next, this might not always be the case. There may be, for example, limited issue coverage at level 3, no operational mechanisms at level 4, and a commitment to standardize national programmes on DRM at level 5.

overall commitment to engage in cooperation. Operational activity, for example, can increase the possibility of unintended policy spillover effects: introducing more sophisticated coordination mechanisms in the area of flood response necessitates flood preparedness mechanisms in each country that can lead to structural changes in city planning and the harmonization of flood monitoring standards.[84] Furthermore, response will often entail the establishment of a coordination office that can facilitate requests for assistance, such as the EU's Monitoring and Information Centre (MIC) or the ASEAN coordinating centre for Humanitarian Assistance (AHA Centre). The establishment of such mechanisms ought to increase its visibility, and in turn, heighten member state commitment and responsibility to protect.

Second, the costs will also significantly increase with the response phase. This can include increased administrative, technical, and educational costs, as well as the cost of increased member state commitment as mentioned above. For example, the indicative 2012 budget set for tenders on civil protection modules and support teams in the EU amounts to 2.2 million Euros (European Commission 2012a). This creeps towards regional asset ownership and certainly requires an increase in financial and human capital. Third, agreeing to operational activity presupposes cooperation on preparedness, and this will often not exist without cooperation on prevention.[85] As the response phase of the generally accepted components of DRM– prevention, preparedness, response, and recovery (Atlay and Green 2006, p. 480) – also include these other features, it is consequently at a more advanced stage.

Locating operational capacity in regional DRM agreements is premised on the following indicators. In order to receive a value of 0.2 – the maximum value for a qualitative anchor – the strategy must not only make a reference to all four dimensions of DRM (prevention, preparedness, response, and recovery) but must also state specific provisions for the accomplishment of the task. This can include, for example: the establishment of simulation or desk-top exercises; a centre for research; or a hub for the management of transboundary crises that can include inter- and intra-regional requests for assistance. When there are only one or two low-cost provisions, a value of 0.15 is given and when there are no provisions but reference to the four dimensions of DRM a value of 0.10 is given. Note that when

[84] See for example recent proposals from the European Commission and Council in this area (cf. European Council 2007c, 2011a, FloodWise 2011).
[85] This logic is based on the generally accepted disaster management cycle that begins with prevention (Atlay and Green 2006).

the generally accepted components of DRM are not explicitly stated, yet operational mechanisms were clearly presented, a value of 0.2 is awarded.

The two qualitative anchors that determine the extent to which a regional organization is more out than in the set of regional DRM – and thus classified as more nascent than advanced – is the level of awareness and information.[86] To be sure, a value below 0.5 does not mean that cooperation is not taking place, as this would be indicated by a value of 0.0; it rather means that the level of cooperation requires relatively little costs to each member state of a regional organization. Thus, a value of 0.2 will be given to any regional organization that formally acknowledges the need to cooperate on DRM. A formal agreement is an official statement, agreement, or declaration that is signed at the executive level (heads of state). If an agreement is formulated below the executive level, a value of 0.1 is awarded. When these acknowledgments are complemented by specific instances of cooperating on the exchange of information a further value of 0.2 can be added. Examples of information sharing include the formation of a network of national emergency management practitioners (cf. European Council 1994), encouraging education initiatives from primary education to fostering expert exchanges across countries, regular DRM conferences, as well as commissioned studies, surveys, and risk mapping. If, on the other hand, only one or two initiatives are planned a value of 0.1 or 0.05 is awarded.

The two qualitative anchors that determine the extent to which a regional organization is more in than out of the set of regional DRM – and thus classified as more advanced than nascent – is the level of standardization and asset pooling.[87] The principal reason for standardizing DRM-related activity is to increase the effectiveness and efficiency of prevention, preparedness, response and recovery. However, standardizing information exchanges, national emergency management agencies, or catering for the inter-operability of collective operational projects, heaps more commitment and costs on each member state.[88] The value of harmonization is divided into two components according to the perceived level of costs to the member state. First, a value of 0.1 is awarded to regional organizations that address the need to harmonize information, such as creating common transboundary risk maps for flooding or workshops on harmonizing national emergency

[86] This statement only holds true if the threshold indicator and other more advanced indicators are missing.
[87] This statement only holds true if cooperation is already passed the threshold.
[88] For a more nuanced study on the difficulties associated with standardizing and regional DRM see (Rhinard, Hollis and Boin 2012).

response institutions (cf. ASEAN 2005, CARICOM 2007). The agreements ought to be specific on standardizing practices across countries. A full value of 0.2 is awarded to regional organizations that engage in interoperability at the operational level, which requires a higher degree of coordination and cooperation between countries (cf. European Council 2007b).

The main reason for pooling assets is to provide a faster response time and overcome potential collective action problems. However, the costs are also particularly high as this transfers the national responsibility to protect towards a collective responsibility. These costs are again divided into two separate indicators. The lesser of the two is based on the idea of pooling resources that can be made available in the event of a disaster. An example is the pre-registering of national capacities that can be used in the event of a transboundary disaster (cf. European Commission 1994; European Council 2007b). If this is explicitly agreed to, a value of 0.10 can be awarded. If member states agree to regional stockpiles of vaccinations, fire fighting equipment, or stand-by forces a further value of 0.1 can be given.

Table 3.1 Fuzzy-set values for the outcome condition

Regional Organization	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2009 (+2)*[89]
EU	0.00	0.40	0.65	0.90
ASEAN	0.30	0.30	0.30	0.90
PIF	0.35	0.35	0.35	0.65
CARICOM	0.00	0.00	0.70	0.90
Mercosur	0.00	0.00	0.00	0.25
SADC	0.00	0.00	0.30	0.70
LAS	0.00	0.45	0.45	0.80
AU	0.00	0.30	0.30	0.65
OAS	0.00	0.00	0.55	0.75
ECO	0.00	0.00	0.00	0.45

Source: cf. Annex 6.3

The outcome of these values is displayed in Table 3.1. The primary documents used to calculate the fuzzy values for the outcome condition come from official regional agreements on DRM. Each document is displayed in Annex 6.3, which depicts the individual fuzzy values for each qualitative anchor as well as the total values. References are also provided for each document to promote code reliability

[89] The plus sign (+2) represents the years 2010 and 2011. Including these extra years has an effect on the outcome value on LAS which developed from a fuzzy value of 0.4 to 0.80 from 1987 to 2011 (cf. Annex 6.3).

and the possibility for replication of the results.[90] The final figure that determines the level of DRM cooperation is based on a logical OR statement where the highest value for each category is cumulatively calculated over the 40-year period.[91] To provide a general overview, the fuzzy values are summarized into four separate decades beginning in the 1970s and ending in 2011. Values that are below the threshold of 0.50 represent regional organizations that are more out than in the set of regional DRM and values above 0.50 represent regional organization that are more in than out of the set.

A preliminary review of the table clearly shows a definite rise in the number of regional organizations that are in the set of regional DRM: from no regional organizations in the 1980s, three in the 1990s, and nine in the 2000s. A more in-depth survey and description of how these fuzzy values were calculated are turned to in the following section.

3.1.2.4. A survey of regional DRM

Two distinct periods can be identified in the short history of regional DRM cooperation. The first occurred from the mid 1970s to the mid 1990s when regional organizations such as the EU, ASEAN, LAS, OAU and the PIF presented declarations of intent or an acknowledgment on the importance of regional cooperation on natural disasters. These declarations were rarely followed by any precise agreements or any substantial cooperation that exceeded information sharing.[92] In stark contrast to the first period, from the late 1990s to the present, a significant growth in regional DRM cooperation occurred across the globe. The EU created legal competencies in the area of civil protection in 1997, NATO created a Euro-Atlantic Disaster Coordination Centre in 1998, and the SADC and ASEAN began working in earnest on frameworks for DRM cooperation which were officially established between 2001 and 2005 respectively. During this short period, from 1997 to 2008, at least 16 regional organizations began or updated cooperation in DRM. These include *inter alia* the Commonwealth of In-

[90] In order to further increase the reliability of these results and limit any miscalculation, all documents for each regional organization was assessed for each year. However, due to the immense number of documents on civil protection in the EU, these were limited to all Commission and Council Decisions and Resolutions (legal texts). Documents indicating the most advanced level of cooperation are used for each year.

[91] This is based on the assumption that cooperation will not disintegrate over time. Once institutionalized, policy issues have a tendency to be 'locked-in' (Moravcsik 1997) or 'path-dependent' (Mahoney 2001).

[92] An exception to this was CARICOM, which established an agency to facilitate and manage major natural disasters in the Caribbean region in 1991.

dependent States (CIS), the OAS, the Intergovernmental Authority on Development (IGAD), the Gulf Cooperation Council (GCC) the Disaster Preparedness and Prevention Initiative for South Eastern Europe (DPPI-SEE), the Andean Community (CAN), the AU, and the South Asian Association for Regional Cooperation (SAARC). By 2012 most regional organizations have (at least on paper) well-stipulated and concise agreements on collective cooperation in the prevention, preparedness, response, and recovery from natural disasters. The following provides a description of a representative sample of these regional organizations with a view of determining the level of cooperation according to the five qualitative anchors described in the previous section.

Association of South East Asian Nations (ASEAN)

In 1967 the spectre of Communism was hovering in North Asia, the economic power of China was growing, and the prospect of Indonesia as a rising hegemon in Southeast Asia seemed real. Against this backdrop Indonesia, Malaysia, the Philippines, Singapore, and Thailand agreed to cooperate together to stimulate their economies and provide security against perceived threats from both inside and outside the nascent community. This agreement was solidified in the Bangkok Declaration establishing ASEAN. Brunei Darussalam, Vietnam, Lao People's Democratic Republic (PDR), Myanmar, and Cambodia would eventually join this association in the period 1984 to 1999.

The Bangkok Declaration (ASEAN 1967), and a series of other declarations and treaties that followed, placed a strong emphasis on the '[m]utual respect for the independence, sovereignty, equality, territorial integrity, and national identity of all nations' and the 'right of every State to lead its national existence free from external interference, subversion or coercion' (ASEAN 1976b (1)). These founding principles reflect the so-called ASEAN way (cf. Haacke 2003) that not only underlines the importance of non-interference but also encourages informal dialogue. This may be one reason why the 'formal' structure of ASEAN remains limited. According to a UN regional survey conducted in 2008, ASEAN has a permanent staff of approximately 600 with 30 dedicated to security and defence issues (UNU-CRIS 2008, pp. 27-34) and reflects an eclectic set of political systems ranging from partial democracies, military dictatorships as well as an Islamic monarchy.

The natural catastrophe risk index in 2010 rates Southeast Asia as one of the most at-risk regions in the world (Peduzzi, Herold and Mouton 2009, supplement).[93] Given the geographical and meteorological instability of the region, it is not surprising that attention to natural disasters was first mentioned in the Declaration of ASEAN Concord: 'Natural disasters and other major calamities can retard the pace of development of member states. They shall extend, within their capabilities, assistance for relief of member states in distress' (ASEAN 1976b, §4). Only four months after the signing of the Concord, the ASEAN Declaration on Mutual Assistance on Natural Disasters was signed. This emphasized the need to increase communication, training, relief assistance, disseminate assets, and designate national government agencies (ASEAN 1976a, §I-III), although it was conditional upon the 'respective capabilities' of member countries (Ibid, preamble) that were particularly limited.[94]

Gradual developments, nonetheless, emerged. A committee entitled the 'Experts for the Establishment of ASEAN Combined Operation against Natural Disasters [*Sic*]' (ASEAN 2004; 2011a) was established in 1971 through the ASEAN Committee on Social Development.[95] This committee then evolved into the ASEAN Experts' Group on Disaster Management (AEGDM) in 1993. A proposal for a regional programme on disaster management was then raised and mooted in the AEGDM in 1996. Despite this set back, a working group was formed with close assistance from the Asian Disaster Preparedness Centre (ADPC), the European Commission Humanitarian Aid Office (ECHO), national emergency agencies, and the Mekong River Commission.[96] The outcome of this group was a draft framework that developed into the ASEAN Regional Programme on Disaster Management (ARPDM), endorsed by the ASEAN standing committee in 2003.[97] This 79 page programme outlines five principal objectives (out of 29) to be carried out in the period 2004-1010: the establishment of a regional disaster management framework; capacity building; sharing information and resources; promoting collaboration and strengthening partnerships; and public education,

[93] The most at-risk region is Southern Asia that includes Iran, Afghanistan, Pakistan, India, Sri Lanka and Bangladesh. All of these countries except Iran are members of the SAARC. With Indonesia, Myanmar and the Philippians in the top 15 most vulnerable countries, ASEAN comes in as the second most at-risk region (Maplecroft 2010).
[94] The agreement notes that these initiatives were established on the knowledge that its member countries had limited capacities to meet transboundary disasters in the region.
[95] The group met biennially until it was upgraded to the ASEAN Committee on Disaster Management (ACDM) which meets on an annual basis (ASEAN 2004, 2011a).
[96] The ADPC is a non-governmental and not-for-profit organization established in 1986.
[97] For a more detailed description of this process and the involvement of the UNHCR see ASEAN (2004, 5-9). Also note that the ARPDM was agreed in 2003 but not published until 2004, which explains the discrepancy with the in-text reference.

awareness and advocacy (ASEAN 2004, p. 10).[98] The first objective was fulfilled in 2005 when a legally binding ASEAN Agreement on Disaster Management and Emergency Response (AADMER) was signed and later ratified in 2009. The document requires member states to establish a 'conference of the parties', an ASEAN disaster management and emergency fund, an ASEAN coordinating centre for humanitarian assistance (AHA Centre) to coordinate and facilitate cooperation and response to disasters, and national focal points to implement the agreement in each member state and provide a contact point for the AHA centre (ASEAN 2005a, Art. 20-4).[99] The agreement also provides for the participation of an annual simulation exercise, increased joint scientific research, and the provision of training, education, and public awareness. Additionally, so-called standby arrangements have also been agreed upon, albeit on a voluntary basis, whereby national assets and capabilities are registered on a common database that is accessible to national disaster management authorities. The agreement also aims to establish an ASEAN emergency rapid assessment team for response to disasters. The AHA centre, the secretariat and the conference of the parties and the national focal points are given the mandate to see that all of these aims are implemented, which includes periodic reviews.[100] Three years after AADMER was agreed, a detailed document on Standard Operating Procedures was published in 2008 (ASEAN 2009c) that provides clarification of procedures and some preliminary standardization measures in terms of national and regional DRM cooperation.

The AADMER agreement has not steered away from the original 1976 declaration. What has changed, however, is the development of its institutional design. Even though there remains a continual insistence on non-interference and the upholding of the ASEAN-way, the latest DRM agreement expresses a greater need to cooperate more closely on disaster relief and response. Indeed, this tension only increases with

[98] More specifically, this means the establishment of the ASEAN Response Action Plan; refresher courses/expertise development; ASEAN Disaster Information Sharing and Communication Network (ASEAN DISCNet), i.e. Development of ACDM Website and NDMO Websites and publication of ASEAN Disaster Management Information Network (ADMIN) Newsletter; partnerships with relevant organizations and NGOs and mobilizing Financial Support and Resources; and ASEAN Day for Disaster Management and Enhancing Disaster Management Public Education and Awareness Programmes (ASEAN 2004).

[99] The AHA centre was officially made operational at the ASEAN Summit held in Bali 17 November 2011.

[100] Other references to DRM include the establishment of the ASEAN socio-cultural community (ASCC) under the Declaration of ASEAN Concord II, which notes the need to 'intensify cooperation in area of public health, including prevention and control of infectious diseases …population growth, unemployment degradation and transboundry pollution as well as disaster management' (ASEAN 2004, C§4,6). A Transboundry Haze Action Plan (1998) and ASEAN agreement on Transboundry Haze Pollution in June 2002 was also established.

the goal of establishing supranational assets (an ASEAN emergency rapid assessment team and the AHA centre). The level of obligation has also increased as AADMER legally binds its signatories to fulfil the stated obligations. Monitoring and evaluation are also provided for through the annual ACDM meetings where evaluation reports are requested (ASEAN 2004, p. 15). However, such monitoring is weak; the fulfilment of the aims of the agreement remains in the hands of the member states that are not subject to any direct or coercive measures.

Fuzzy value construction of ASEAN DRM cooperation

Seven major documents on DRM in ASEAN can be identified over its 36-year history. Using these as the main sources for establishing fuzzy values on the level of cooperation, each document was graded according to the five qualitative anchors as noted in the previous section. The first four documents – such as the 1976 Decleration on Mutual Assistance on Natural Disasters and the 2003 ASEAN Concord II – are formalized at the executive level (0.10), acknowledge the importance of collective cooperation (0.10), and recommend some preliminary knowledge sharing initiatives and operational practices (ASEAN 1976b, Art.I; ASEAN 2004). However, there is a general lack of specific measures for operational capacity, standardization or the pooling of national assets. A total fuzzy value of 0.45 consequently results, which is classified as nascent cooperation (more out than in the set of regional DRM cooperation). ASEAN crossed the threshold in 2005 with the publication of AADMER (ASEAN 2005) and Standard Operating Procedures (ASEAN 2009c). Here, not only was an operational capacity developed and the full cycle of DRM referred to (0.2), but official acknowledgement (0.2), knowledge sharing (0.2), and standardization procedures were also put in place (0.2), as well as the establishment of an emergency rapid assessment team (0.1). The accumulated value for ASEAN DRM after 2005 is thus highly advanced with a value of 0.9. For a more specific illustration of how these values were arrived at, as well as a complete list of references, see Annex 6.3.

CARIBBEAN COMMUNITY

Volcano eruptions, earthquakes, hurricanes, and floods reflect some of the multidimensional risks that challenge the economic and social stability of the Caribbean region. In an effort to create a regional capacity in the area of prevention and response against the detrimental effects of these and other crises, the leaders of the Caribbean countries first met in the aftermath of two deadly hurricanes in 1979 (Jones, Bisek and Ornstein 2001, p. 32). From these discussions, and with the support of the Unit-

ed Nations Disaster Relief Organization (UNDRO), a Pan Caribbean Disaster Preparedness revention Project (PCDPPP) was established from 1981-1991 to increase DRM coordination between Caribbean countries (CDB 1998, §1.08).[101] This project was then succeeded by the Caribbean Disaster Emergency Response Agency (CDERA) in 1991, 18 years after the signing of the Chaguaramas Treaty establishing the Caribbean Community.[102]

Emerging out of the 1990 Kingston Declaration. CDERA *inter alia* facilitates member state requests for assistance in the event of a major disaster, encourages coordination between emergency management agencies, and cooperates with other relevant actors and donors (CARICOM 1990, §13; CARICOM 1991, Art. 4). Unlike its predecessor, CDERA has been proactive in developing training initiatives and enhancing contact between various sectors within the CARICOM community such as national emergency management agencies and telecommunication engineers (Bellers and McKemey 2000, p. 13, cf. Aguaconsult 2009, p. 33).

CDERA's focus on response and lack of attention to prevention and resilience was a driving factor for the creation of a new agency in 2009 (CARICOM 2010). The agreement establishing the Caribbean Disaster Emergency Management Agency (CDEMA) thus aims to carry on the objectives of CDERA and promote a 'culture of disaster loss reduction'. It also aims to implement policies at the regional and local levels in the area of preparedness, preparation, and response and recovery (CARICOM 2010, p. 9).

During the period between the creation of CDERA in 1991 and CDEMA in 2009, a number of other relevant agreements were made that touch on regional DRM. First, the 2001 Comprehensive Disaster Management Strategy introduced the concept of Comprehensive Disaster Management (CDM) which is defined as DRM cooperation on all hazards, the 'complete' cycle of DRM – prevention, mitigation, preparedness and response – and the inclusion of the public-private sector, civil society and the local population in DRM (CARICOM 2001, p. 16).[103] Second, in 2006 a Treaty on Security Assistance among CARICOM Member States was signed establishing a Security Assistance Mechanism. The first objective of this mechanism is the 'efficient and timely response to and management of natural and man-made disaster in order to

[101] This was supported by the UNDRO, CARICOM, PAHO/WHO, the Red Cross, Canada, the UK and the ECC (Carby 2011, 30).
[102] The creation of CARICOM through the 1973 Treaty of Chaguaramas was an extension and development from the previous British West Indies Federation (1958-1962) and the Caribbean Free Trade Association (CARIFTA) (YIO 2010).
[103] Note that the complete cycle of DRM ought to include recovery, which is absent in this agreement.

reduce and eliminate the harmful consequences thereof' (CARICOM 2006, Art.3(a)). This is coordinated by a joint strategic coordination and planning committee comprised on the coordinator of the Regional Security System (RSS) and military officials (CARICOM 2006, Art. 5 (1)). The planning committee organizes and sends appropriate personnel and assets – such as transport vessels – to a requesting country within CARICOM, such as search and rescue missions. Third, the 2007-2012 enhanced strategy and framework on DRM was presented in 2007 as an update of the 2001 document introducing CDM. This document differs in its ambition in terms of more precise goals such as creating a regional disaster risk reduction network and strengthening national disaster management offices (CARICOM 2007, Art. 5.5). This also includes the specific identification of international actors who will support the fulfilment of these and other goals.

Regional cooperation in the Caribbean began, unlike most other regions, with a high level of institutional design. The 1991 CDEMA agreement, for example, notes that participating countries ought to 'to identify, maintain in a state of readiness and make available immediately on request by the Coordinator relevant material and human resources in the event of disaster' (CARICOM 1991, Art. 13 (s)). Not only was a functioning agency established to coordinate disaster prevention and response, but the member states are also obligated to provide assistance if requested. If these obligations are 'persistently violated' a member state can be suspended from the Council (Ibid, Art. 29). With the exception of a slight increase on efforts for standardization, CDERA reflects a similar and impressive level of cooperation in DRM that tentatively stenches beyond intergovernmental cooperation.

Fuzzy value construction of CARICOM DRM cooperation

CARICOM stands out amongst other regional organizations for being the first to cross the threshold from being more in than out of the set of DRM cooperation in the early 1990s. Emerging out of the Pan-Caribbean Disaster Emergency Response Agency, CDERA was established at the executive level and acknowledges the need for cooperation (0.2); it emphasizes information sharing (0.2); it has a clear operational component and acknowledges the DRM cycle (0.2); and it provides provisional asset-pooling initiatives (0.1) (CARICOM 1991, Art. 2, 4, 11-12, 13(s)).[104] This agreement was later updated with more specific and further proposals on the standardization of

[104] The Pan-Caribbean Disaster Emergency Response Agency is not included in this analysis because it was not a direct initiative from CARICOM, but rather a transnational effort that CARICOM participated in.

operational practices (0.2) (CARICOM 2007). The cumulative total for CARICOM DRM cooperation is currently advanced with a fuzzy value of 0.9. For a more specific review of the seven main DRM documents used to establish the fuzzy values for CARICOM DRM and a complete list of references see Annex 6.3.

THE EUROPEAN UNION

The successful European Coal and Steel Community (ECSC) in 1951 and the failed European Defence Community (EDC) in 1954 were directed towards providing political and financial stability for a safer Europe. The continent would have to wait another 20 years before cooperation on the protection of its citizens would be first mentioned, and another decade before any legal framework would be established. A little over a decade after the Declaration of ASEAN Concord and in the same year as the LAS agreement on relief operations, the European Council produced a resolution in 1987 that encouraged cooperation among member states in the field of civil protection with an emphasis on the exchange of information, simulation exercises, and the establishment of 'liaison officers' to transmit information from the Commission to member states.[105] Regular meetings were also proposed to monitor compliance of the agreement (European Council 1987). This declaration was followed by a series of Council resolutions and decisions as well as Commission communications that were framed around the Maastricht Treaty (Ekengren 2008, p. 48, cf. European Council 1992, Art.103(a)). This burgeoning cooperation led to the first legal text establishing a community action programme in the field of civil protection in 1997 (European Council 1997). Even though this agreement was not designed to harmonize any laws or regulation of member states (Ibid, Article 2:§3), it does provide for specific measures for 'supporting' member states' civil protection frameworks by organizing training, the exchange of experts, simulation exercises, and improving public information and education. This two-year programme was then updated in 1999 to a five-year action programme, providing a backdrop for the creation of a 'Community Mechanism to facilitate reinforced cooperation in civil protection assistance interventions' (European Council 1999, 2001a).[106]

The community mechanism sets out a number of 'tools' to facilitate cooperation in the event of a transboundary disaster affecting member states inside the Union or in

[105] According to Magnus Ekengren, civil protection was placed on the agenda three years before the declaration at the ministerial meeting in Rome in 1985 (2008, p. 47) and received stimulus from the forest fires and heat waves at that time (Ekengren *et al.* 2006, p. 460).
[106] Also see European Commission (2003) which set the rules for implementation of the community mechanism.

third countries. The tools include a training programme, a Monitoring and Information Centre (MIC), a Common Emergency Communication and Information System (CESIS), and establishment of assessment and coordination teams (European Council 2001a, Art. 1(3)). Member states are also required to notify the Union on what intervention teams could be made available in advance of a disaster (Ibid, Art. 3(a)).[107] Such requirements have increased with the recast of the mechanism in 2007 where, *inter alia*, a module system was introduced that requires the listing of 17 specialized teams and assets from member states, such as 'aerial forest fire fighting module using helicopters', 'heavy urban search and rescue' or an 'advanced medical post' (European Commission 2010a). It is worth pointing out that the requirement to list a set of DRM competencies before a crisis occurs – and made available to all member states through the CESIS – places larger expectations on those member states that list their DRM competencies at the community level. In other words, these agreements provide conditions that make it harder for member states to say no, thus tampering with national sovereignty in exchange for tacitly enforced solidarity.

The Union's capacity in DRM was also enhanced in 2007 with the adoption of a civil protection financial instrument that provides for 189.8 million Euros to support the mechanism in the period 2007-2013 (European Council 2007a). This instrument complements the EU solidarity fund established in 2002 which has provided relief aid to 47 disasters in 22 member states with a total payment of around 2.4 million Euros (European Commission 2012b).[108]

In addition to the community mechanism, the Council established the Emergency and Crisis Coordination Arrangements (CCA) in 2005. These arrangements allow for an institutionalized system of cooperation at the EU level to provide assistance to the affected member state(s). The main components of CCA include member state ambassadors (Coreper II), the Council Secretariat, the EU Presidency, and the Crisis Steering Group – an ad hoc grouping of relevant ambassadors and crisis managers (Larsson 2009, p. 134). An intelligence sharing organizational structure situated within the Council Secretariat called the Situation Centre (SitCen) acts as the main operational arm of the CCA. SitCen operates around the clock and is tasked with contributing to early warning, situation monitoring in times of crisis, and providing for

[107] Already by the end of 2003, 6,737 persons were registered in the database (Ekengren *et al.* 2006, p. 461).
[108] While impressive, this figure represents on 24 per cent of the total amount of funds that could be used. The large threshold for activating the fund – set at an estimated damage of 3 billion Euros or 0.6 per cent of GNI – is presumably the reason for this fairly modest figure (Rhinard, Hollis and Boin 2012).

facilities for a crisis task force – an ad hoc coalition of practitioners and member states (Wendling 2010, p. 77). The CCA and SitCen's tasks are, however, principally directed towards political issues and the prevention of manmade disasters – such as weapons of mass destruction and terrorism – and limited to gathering and sending the 'right' information at the 'right' time (personal correspondence 2008, European Council/SitCen). It is a platform for politically strategic decision making and not used to coordinate modules or response capacities.

Apart from the Council-based CCA, the Commission also has a number of specialized DRM cooperative endeavours within many Directorates General, such as DG SANCO and DG RELEX. A Commission official within the Secretariat-General noted that there are as many as 18 to 19 DGs with a crisis response unit (personal correspondence 2008, Commission, cf. Missiroli 2006, p. 433). Many DGs also host so-called Rapid Alert Systems (RAS) that allow member states to rapidly share information with each other and the Commission when critical emergencies, such as biological and chemical attacks and accidents, nuclear emergencies or disruptions in critical infrastructure including transport or energy networks. The various RAS are then coordinated through a central node in the Commission called ARGUS that is located in the Secretariat-General of the Commission.[109] The Humanitarian Aid Department (ECHO), where the MIC has been relocated to since 2010, within the Commission also holds a specific mandate to provide assistance to countries outside of the EU who have suffered from a major crisis. It is involved in promoting disaster prevention measures through technical assistance, training, and public awareness (European Commission 2011).

The Treaty of Lisbon has sharpened the Union's competencies in the field of civil protection (European Council 2007d, Art. 2(e); Art.176(c)).[110] First, it introduces qualified majority voting, which means that a more efficient mode of decision-making on DRM is now possible. Second, the Treaty established the solidarity clause that increased the obligation of member states to cooperate on DRM:

> 1. The Union and its Member States shall act jointly in a spirit of solidarity if a Member State is the object of a terrorist attack or the victim of a natural or man-made disaster. The Union shall mobilise all the instruments at its disposal, including the military resources made available by the Member States, to:

[109] I am thankful to Sara Mydral for providing detailed information on this point and on the CCA.
[110] The Treaty was signed by the heads of state on the 13 December 2007 and entered into force on 1 December 2009.

> (b) assist a Member State in its territory, at the request of its political authorities, in the event of a natural or man-made disaster.
>
> 2. Should a Member State be the object of a terrorist attack or the victim of a natural or manmade disaster, the other Member States shall assist it at the request of its political authorities. To that end, the Member States shall coordinate between themselves in the Council.
>
> European Council 2007d, Art. 188(r); 2008, Art. 222

Through a process stretching throughout a five-year period the establishment of this clause introduces a highly specific legally binding agreement at the regional level that makes a cautious step over the traditional safety grounds of intergovernmental cooperation.[111] Indeed, as paragraph 2 clearly states, member states are now obliged to assist 'at the request of its political authorities', albeit, with little suggestions over how or what this assistance would look like.[112] The clause also opens up a number of critical questions such as: 'what type of threats', 'what is the scope of the clause', or 'what are the legal implications' (Mydral and Rhinhard 2010, p. 8)? These and other questions may act as a catalyst in creating more specific regional capacities for DRM in the future and certainly marks, at least on paper, the beginning of a supranational capacity.[113]

The EU has certainly developed from its original declaration in 1987 to a point where supranational and national capacities are beginning to emerge in the area of prevention, preparedness, response, and recovery.[114] To be sure, cooperation on the most part remains intergovernmental, whereby member states are not directly obligated to participate.[115] Although EU civil protection cannot be classified as an unqualified success (Rhinard, Hollis and Boin 2012) it has, nevertheless, grown to become a highly developed apparatus.

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[111] For a more in-depth discussion of this as well as the five-year history that pre-empts the clause see Ekengren I. (2006) and Mydral and Rhinard (2010).
[112] Sara Mydral and Mark Rhinard note that member state requirements are further specified in a declaration after the establishment of the treaty which noted that member states could 'choose the most appropriate means by which to comply with its own solidarity obligations towards the stricken state' (2010, p. 6). This provides more flexibility to the choices available to member states thus diluting the possible strength of the agreement.
[113] While outside the scope of this study, it is interesting to note that proposals, initiatives and agreements made do not always meet with action (cf. Ekengren *et al.* 2006, p. 458, Hollis 2010a).
[114] Unlike many other regional organizations, issues dealing with recovery are absent from the main documents on civil protection. This is due to a division of labour, whereby recovery is managed by development authorities. An exception to this is the solidarity fund.
[115] Soft incentive schemes such as an emphasis on making the EU floods directive transparent and public puts more pressure on member states to participate (European Council 2007b)

Fuzzy value construction of EU DRM cooperation

Council resolutions on DRM cooperation in the late 1980s and early 1990s contain references to the importance of cooperation (0.2) and information sharing initiatives (0.2), yet do not include references to operational capacity or standardization procedures. This period of nascent cooperation is represented by a value of 0.40. However, the threshold into the set of regional DRM cooperation was soon passed in 1994, when a Council resolution issued preliminary operational measures in the form of a 24 hour stand-by service run by the Commission and supported by the Commission initiative to maintain an operational manual listing *inter alia* a register of national resources that can be used in times of crises (Council 1994). This was later developed into the (recast) community mechanism (Council 2001a, 2007b). These and other documents produced in the last decade focused on the full disaster management cycle (0.2), promoted information sharing through simulation exercises and exchanges (0.2), established an operational centre (0.2), standardized procedures (0.2), a list of national resources to use, as well as preliminary pooling of resources such as specialized resources and teams (0.1). A fuzzy value of 0.9 is consequently established reflecting highly advanced cooperation. A full list of these and other documents, and their conversion to fuzzy values, can be viewed in Annex 6.3.

THE LEAGUE OF ARAB STATES

For different reasons both the occupied and occupiers sought stability in the Middle East after the Second World War. With a strong backing from Britain a sense of security was achieved through the Pact of the League of Arab States, signed by Egypt, Iraq, Trans-Jordan, Lebanon, Saudi Arabia, Syria, and Yemen in 1945. This Pact was soon complemented by the Treaty for Joint Defence and Economic Cooperation, signed in 1950. Over a period of almost 50 years this original group, united by a common language, history, culture, and religion, would eventually include a total of 22 members as the colonial shackles rusted away.[116] The general trajectory of the organization has ostensibly been guided by an unwavering value of national sovereignty and fluctuating Arab solidarity culminating in a general decline in collective political and security cooperation (Murden 2009, pp. 121-30). It would seem that geopolitical and economic concerns have outweighed any focus on citizen protection for the first four decades of the Arab League.

[116] Other members include Algeria, Bahrain, Comoros, Djibouti, Kuwait, Mauritania, Morocco, Oman, Palestine, Qatar, Somalia, Sudan, Tunisia, United Arab Emirates, and Libya (suspended in 2011).

More recently cooperation began to emerge, albeit, at a fairly slow pace despite a number of high-profile disasters that affected the region. In the period 1980-2008, natural disasters in the region affected approximately 37 million Arab people and incurred 20 billion USD in economic damages (LAS 2011, p. 6). Recent examples of these natural disasters include the 2003 earthquake in Algeria, the 2007 cyclone in Oman, the 2009 floods in Morocco, and the 2007-2010 droughts in Jordan and Syria. Except for the Arab Cooperation Agreement in organization and facilitation of relief operations, approved in 1987, few efforts were made to mitigate and respond to these and other disasters (LAS 1987). This state of affairs has recently changed.

In 2004 statutes for an Arab Centre for Earthquakes and other Natural Disasters Risks were adopted and entered into force in 2011 (El Mallah 2011a). In 2007 the Arab Ministerial Declaration on Climate Change mentioned the need for adequate mechanisms to ensure against natural disasters that include information sharing, creating partnerships, and developing weather information systems (LAS 2007, §19). In 2008 the LAS presented a draft 'Arab Protocol on cooperation for speedy and immediate response…in cases of disasters, crisis and emergencies' as well as a Memorandum of Understanding (MoU) with the UNISDR to implement HFA goals in the region.[117] With the aid of the UNISDR these initiatives were followed by the establishment of a centre for disaster risk reduction training and research in 2009 (LAS 2011, p. 8). In the same year the Arab League compiled a report on member countries' capacity on DRM with the support of the UN Secretariat, the Islamic Development Bank and other UN agencies, (H.R.H. Prince Turki Bin Nasser Bin Abdulaziz 2009, §4). The outcome of this report depicted a general lack of capacity in many of the member countries combined with a growing realization of the importance of disaster prevention and response, and allegedly provided the impetus to prepare an Arab Strategy for Disaster Risk Reduction (DRR) that was released in 2011 (Ibid, §5). Approved by the Council of Arab Ministers responsible for the Environment in December 2010, this strategy presents five key priorities: (1) the strengthening of cooperation across different sectors on disaster reduction, such as civil society; (2) the development of DRM capacities in identifying, assessing and monitoring risks; (3) promoting training, information exchange, standardization, and public education; (4) improving the links between the sub-national and national levels of DRM; and (5) including emergency response, preparedness and recovery (LAS 2011, pp. 15-16). The

[117] The Hyogo Framework for Action (HFA) set out five distinct goals in the area of DRM that were developed by the UN and disseminated at the 2005 world conference on Disaster Risk Reduction. For more on this see Chapter 4 and UNISDR (2005).

fulfilment of these initiatives is monitored by the LAS which requests situation reports from the member states (Ibid, p. 20).[118]

Despite its long history as an organization and short history in the field of DRM, the Arab League has taken significant steps in producing a regional response to regional disasters. The framework agreement, while exhibiting a low level of institutionalization, does express an emerging design that includes attention to standardizing DRM information according to global standards, as well as attention to preparedness, prevention, response, and recovery (Annex 6.3, LAS 2011, pp. 5, 17, cf. IASC 2011). The establishment of a research centre for disaster risk reduction, furthermore, depicts the resolve of the organization to establish an information base from which an efficient regional DRM regime can emerge.

Fuzzy value construction of LAS DRM cooperation

As LAS has a relatively short history in the area of DRM cooperation, only two major documents are used to assess the fuzzy values of cooperation. The first period of nascent cooperation is defined by the Arab Cooperation Agreement Regulating and Facilitating Relief Operations (LAS 1987) that not only acknowledges the need for cooperation (0.2) and recommends preliminary knowledge sharing initiatives (0.1), but also established an Arab Supreme Relief Committee to coordinate relief action between Arab states (0.1). Its lack of attention to the full disaster management cycle, however, means that this agreement does not cross the threshold in the set of regional DRM cooperation. The 2011 Strategy on DRR effectively passed the threshold by including prevention, preparedness, response, and recovery aspects of DRM and an operational unit (0.2). It officially recognizes the importance of cooperation (0.2) and promotes knowledge sharing practices (0.2) and imposes standardization measures on operational activity (0.2). A total fuzzy value of 0.8 consequently defines LAS current level of cooperation as 'advanced' according to official agreements.

THE PACIFIC ISLANDS FORUM

Emerging from a general dissatisfaction with the current regional structure under the South Pacific Commission (formed in 1947), the Cook Islands, Niue, the Federated States of Micronesia, Palau, the Marshall Islands, New Zealand, and Australia agreed

[118] The following LAS agencies have also incorporated disaster risk reduction measures: the Arab Academy for Science, Technology and Maritime Transport (AASTMT), the Arab Centre for the Study of Arid Zones and Dry Lands (ACSAD), the Arab Organization for Agricultural Development (AOAD), the Arab Labour Organization (ALO) and the Arab League's Educational, Cultural and Scientific Organization (ALECSO) (LAS 2011, p. 7).

to establish the South Pacific Forum (SPF) in 1971 (Urwin 2005, p. 13) that later became the Pacific Islands Forum (PIF) in 2000. Reflecting similarities to ASEAN-way, the PIF is guided by the 'Pacific-way' that places emphases on non-interference, consensus and the respect for sovereignty. Based on these values – which are also infused with a colonial *zeitgeist* – it is not hard to understand the general aversion by many Pacific Islands to cooperate at the regional level (Koloamatangi 2005, p. 189). Integration nevertheless progressed, spilling over into security cooperation in the 1990s that was marked by a series of declarations. However, the principal concern has remained within the economic sphere such as fisheries and trade. Although the economic and social vulnerabilities of small island states are particularly high, compounded by the threat of increasing sea level, flooding, and hurricanes, cooperation on DRM has been particularly limited.

Regional activity on DRM can be traced back to 1975, when the SPF established a regional natural disaster relief fund (PIF 1975). However, regional attention to this issue seems to have lain dormant until the leaders of the Forum issued a vision statement through the fourth Pacific Regional Disaster Meeting in Madang in 1995, acknowledging the need to reduce vulnerability to natural disasters (Bettencourt *et al.* 2006, p. iv). This was followed by the Aitutaki Declaration on Regional Security Cooperation, signed in 1997. Similarly, this document recognizes the region's vulnerability to natural disasters, noting that members of the Regional Security Commission would convene in the event of an emergency (PIF 1997, Art. 2; 13).[119] The capabilities of the PIF member states have, nevertheless, remained particularly limited; DRM efforts were 'under-resourced and operated outside mainstream government processes' (Bettencourt *et al.* 2006, p. iv). In a surprising move, the Forum has given the mandate to 'coordinate disaster management capacity building' to an international organization: the South Pacific Applied Geoscience Commission (SOPAC), which is a division within the newly created Secretariat of the Pacific Community (Pratt 2005, p. 7).

Under the guidance of SOPAC, concrete measures on DRM developed, culminating in the release of the Pacific Disaster Risk Reduction and Disaster Management

[119] Other regional declarations on security include the 1992 Honiara Declaration, the 2000 Biketawa declaration, and the 2002 Nasonini Declaration. None of these declarations mention natural disasters, although the latter comes close when it notes its commitment to the 'adverse effects of globalization' (PIF 2002). Two treaties have also been signed within the life-span of the Forum both of which have a security dimension. First, the Treaty of Raratonga, signed in 1985, establishes a nuclear free zone in the Pacific. The second treaty is referred to as the 1995 Waigani Convention, which bans the exporting of hazardous and radioactive wastes to the Pacific (Boxall 2005, p. 169).

Framework for Action 2006-2015. Also known as the Madang Framework, this Action Plan closely follows the guidelines set out in the 2005 UN Hyogo Framework for Action.[120] This includes recognizing the need for training at the local, national and regional level, increasing coordination between stakeholders and NGOs, and creating good practices (PIF 2005).[121] In addition to this framework, the PIF Economic Ministers Meetings have periodically assessed the issue and importance of the costs of natural disasters with the support of SOPAC (PIF 2003, 2009a, 2009b).

The Madang framework agreement shows clear signs of ascending cooperation on DRM that aims to *inter alia* 'mainstream' DRM into member states emergency planning policies (18(a)), promote 'best practices' to be adopted by member states (38(c)), establish regional early warning systems (45(a)), and harmonize them with 'global networks' (45(c)) (PIF 2005). These and other expected capacities are mirrored by a low level of institutionalization where procedures for implementation and degree of obligation are severely limited.

Fuzzy value construction of PIF DRM cooperation

The Regional Disaster Relief Fund (PIF 1975, cf. PIF 2009b) and the Aitutaki Declaration both acknowledge the importance of cooperating on DRM (0.20) and the former also provides for preliminary operational capacity in the form of relief funding (0.15). This nascent level of cooperation continued until the Madang Framework was finalized in 2005. This marks the point when PIF crosses the threshold of the set of regional DRM cooperation. Here, an operational capacity in terms of funding is mentioned (0.15) as well as preliminary standardization measures such as regional design of 'best practices' on DRM to be disseminated to all member states (PIF 2005, 38(c)). The cumulative total for PIF DRM is 0.65, reflecting advanced regional DRM cooperation. For a more detailed account of how these values were produced see Annex 6.3.

THE SOUTHERN COMMON MARKET

Orchestrated by Simón Bolívar, the Congress of Panama of 1826 aimed to integrate South America into a regional whole with the purpose of preventing Spanish recolonization and resolving internal disputes over territory (Mace 1988, p. 405). Bolívar's dream was to 'convene there [Isthmus of Panama] an august assembly of repre-

[120] This is not particularly surprising given the strong links between SOPAC and the UN and the financial support from the EU (SOPAC 2010).
[121] The Pacific Plan was released in the same year, which outlines the need to develop and implement 'policies and plans for the mitigation and management of natural disasters' as well as supporting the Madang Framework (PIF 2005, p. 7).

sentatives of republics, kingdoms, and empires to deliberate upon the high interests of peace and war with the nations of the other three-quarters of the globe' (Bolivar 1951, cited in Thomas and Thomas 1963, p. 5). These endeavours, as well as 50 others from the period 1820-1870, resulted in failures despite small glimmers of hope, such as the Republic of Great Colombia from 1822-1830 and the Peruvian-Bolivian Confederation from 1835-1839 (Ibid, pp. 405-6). The tint of a colonial past and the myth of regional integration have thus set the scene for contemporary regional integration projects since the end of the Second World War. Many of these attempts, such as the Latin American Free Trade Association in 1951, its reformation into the Latin American Integration Association in 1980, the Latin American Economic System in 1975, the Rio Group in 1986, and the Latin American parliament in 1987, were all overshadowed by *Mercado Común del Sur* (Mercosur) or the Southern Common Market. In an attempt to create a more cohesive economic agreement that would balance the North American Free Trade Agreement (NAFTA) (Baldwin 1997, p. 8), Argentina, Brazil, Paraguay, and Uruguay signed the Treaty of Asunción in 1991. This has been considered the most successful integration scheme in the region (Malamud 2005, p. 422). More recently Mercosur has joined forces with the Andean Community of Nations to form a Union of South American Nations (UNASUR) in 2008 as well as the Community of Latin American and Caribbean States in 2010. The success of Mercosur, however, has been more in images and words than in action and practice. While small advances may have been made, the member states have not yet reached the level of customs union or a free trade area (Sbragia 2010). The political centre is also meagre due to a small administrational budget, the lack of effective enforcement mechanisms, and the general rejection of supranationality (Ibid, p. 272).

In comparison to South and Southeast Asia, South America is not as prone to major natural disasters. Disasters, nevertheless, can occur with significant transboundary effects such as the 1987 Earthquake in Ecuador. The numbers are not insignificant either: from the period 1970-1999 approximately 32 disasters occurred each year in the region, which incurred 75,000 deaths per year and an annual economic loss between 700 million to 3.3 billion USD (Charvériat 2000, p. 9, Simonelli and Duran 2006, p. i). Perhaps this is why, in November 2008, the first meeting on DRM was held under Mercosur's Common Market Group, which became thereafter institutionalized as the Special Meeting on Disaster Risk Reduction Socio-Natural, Civil Defence, Civil Protection and Humanitarian Assistance MERCOSUR (REHU). According to this founding document, member states aim to enhance coordination and cooperation between member states' risk management systems (Mercosur 2009, Art. 2)

through regular meetings by competent authorities from the member states (Art. 1). The agreement also makes clear that it is not legally binding on the member states (Art. 4). Although Latin America does not lack regional initiatives on DRM (such as the Andean Committee for Disaster Prevention and Attention (CAPRADE), and the OAS Inter-American team of consultants on natural disaster counter action (OAS 2011d)) Mercosur remains one of the less-developed in terms of its institutional design and degree of institutionalization on DRM. Although the REHU was only established in 2009, it nevertheless has given very little attention to the protection of its citizens from natural disasters.

Fuzzy-value construction of Mercosur DRM cooperation

As Mercosur has only recently established the REHU, it remains within the nascent category, that is more in than out of the set of regional DRM cooperation. Its full fuzzy value of 0.25 is based on the official acknowledgement of the need to cooperate on regional DRM (0.2) and the establishment of a committee as a preliminary information sharing initiative (0.05).

THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

In 1980 the Southern African frontline states (Angola, Botswana, Mozambique, Tanzania, and Zimbabwe) decided to integrate their economies through the establishment of the Southern African Development Coordination Conference (SADCC). The main aim of SADCC was to reduce economic dependence on South Africa, protect against apartheid instability, and coordinate foreign aid (Hwang 2007, p. 67). As animosity gave way to amity at the end of the Cold War, SADCC became the Southern African Development Community (SADC) through the Windhoek Treaty in 1992, which included South Africa as a full member two years later in 1994. Although the principal focus was on economic coordination, the expanding organization soon headed into deeper waters by cooperating on security issues. This led to the creation of a SADC strategic indicative plan on politics, defence, and security cooperation in 2004.

The low level of development combined with a vulnerable hydrological environment in many southern African countries means that regular droughts and floods can easily create food scarcity and health risks. It is understandable that within such a context the first SADC summit recommended development and collective cooperation

in food security (Costea and Felicio 2005, p. 18).[122] This awareness gradually grew into a number of initiatives, programmes, and agreements, such as the 1997 Food Security Strategy Framework (SADC 2002, §1.3.2), the 1999 Regional Drought Management Strategy, the 1999 Regional Vulnerability Assessment Committee (RVAC) (with a specific mandate to improve food security), and the 2004 Strategy for Floods and Drought. Cooperation on these particular issues was complemented by building cooperation on DRM, which first began through the ad hoc meeting on DRM in 1997 (Borton *et al.* 2001, p. 6) that was later institutionalized as the Disaster Management Steering Committee in 2000. In 1999 the SADC Protocol on Health was also signed, which mentioned the importance of disaster management by emphasizing the need for increased coordination, collaboration, and the development of a mechanism for assistance (SADC 1999, Art. 25). This need was reverberated in the protocol on politics, defence, and security cooperation signed in 2001, which noted the need to 'enhance regional capacity in respect of disaster management and co-ordination of international humanitarian assistance' (SADC 2001b, Art. 2).

Significantly, the SADC multi-sectoral Disaster Management Strategy was also agreed upon in 2001. This document sets out an ambitious number of goals, such as risk mapping, early warning, public education, and contingency planning (Borton *et al.* 2001, p. 40). This strategy was later revised in 2006 as the SADC Disaster Risk Reduction (DRR) Strategic Plan 2006–2010, which placed more emphasis on preparation and prevention than just response.[123] Other initiatives from the agreement include a SADC Disaster Risk Reduction Unit (DRRU) that, with the support of the SADC DRR Technical Committee, aims to coordinate DRM activities (SADC 2011), and a proposed Disaster Management Trust Fund (SDMTF) (UNISDR 2009a, p. 19).

The institutional design features of SADC DRM cooperation boasts a number of initiatives that are mostly developed in the area of information management with some emerging operational capacities. The institutionalization of DRM cooperation is comparatively low; little obligation and few procedures for implementation are apparent. This general pattern is reflected in the lack of cooperation by member states in the

[122] The Southern African Development Cooperation Community (SADCC) created a food security sector in 1980, which was placed under the Agriculture and Natural Resources (FANR) Development Unit (SADC 2002, §1.3.2). This was followed by a Regional Early Warning System established in 1986.

[123] The reason for this facelift was due to non-implementation of the strategy, pressure to realign DRM with the 2004 Regional Indicative Strategic Development Plan (RISDP) and the 2004 Strategic Indicative Plan for the Organ (SIPO), and external pressure to conform to the 2004 African Union Partnership for Africa's Development (NEPAD) in 2004 (SADC 2004, 2006).

2001 DRM framework, which motivated a second revised attempt in 2006 (Masamvu 2006). Indeed, the lack of motivation is also reflected in the creation of the original 2001 framework that was outsourced to the UNDP (2001) instead of regional deliberation.

Fuzzy-value construction of SADC DRM cooperation

Until 1999 the SADC region had no formal cooperation on DRM. However, in a matter of only two years it went from no cooperation to passing the threshold of advanced regional DRM cooperation. That is, from preliminary information sharing initiatives (0.10) and the official acknowledgment of the need to cooperate (0.2), to the creation of operational capacities (0.15) under the SADC Disaster Management Strategy (SADC 2001a). This strategy was then recast in 2006 with the formation of a Regional Disaster Management Unit as part of a its regional operational capacity (0.2) and the introduction of standardization measures in terms of disseminating common standard terminology (0.1) (SADC 2006, Ob.3(c); Ob.5). The cumulative total for SADC DRM cooperation is 0.7, indicating that it is well over the threshold of regional DRM cooperation. For a more comprehensive overview see Annex 6.3.

THE AFRICAN UNION

The intellectual seeds of pan-Africanism can be traced back to at least the 1930s with the writings of W.E.B. Dubois. The sentiments espoused by Dubois found fertile soil in the political actions of a number of African leaders in the 1960s such as Kwame Nkrumah and Haile Selassie (Badejo 2008, pp. 25-6). Amidst a period of political independence from colonial rule in the 1960s, the Organization of African Union (OAU) was created in May 1963 to form a common front against apartheid, foreign influence and colonialism (Ibid, p. 12). The idea of eradicating political borders created by colonial masters certainly reinforced the vision of a single government for the continent (Murithi and Ndinga-Muvumba 2008, p. 2). However, the goal of a common union was resisted by a number of states who preferred to proceed at a more gradual pace (Badejo 2008, p. 30). The pan-African vision was also grafted onto the power and strategic interests of Ethiopia, who may have seen the OAU as a vehicle to legitimate its newly-acquired territories as well as to prevent a possible invasion from Italy (Ibid). A united Africa never eventuated; instead, the OAU slowly lost its legitimacy over a period of 30 years as it was increasingly seen as an 'elite *club of dictators*' and accused of 'bureaucratic paralysis' (Engel and Fomes Porto 2010, p. 1 original emphasis). With the end of the Cold War, African leaders began to reassess the status

of the OAU which eventually led to the creation of the African Union (AU) in 2002. The norm of non-interference was replaced with non-indifference (Mwanasali 2008, p. 41) along with an emphasis on economic development and democracy promotion. These and other principles are reflected in the AU Constitutive Act and are supported by the Assembly, the Executive Council of Ministers, and the Commission. Other institutional bodies have also emerged under the AU's new architecture, including a pan-African Parliament a Political Security Council (PSC), the African Court of Human and People's Rights, an African Central Bank, the African Monetary Fund, and the New Partnership for Africa's Development (NEPAD). The AU also emphasizes the importance of cooperation and coordination with its Regional Economic Communities (RECs) which include CEN-SAD, ECCAS, COMESA, ECOWAS, IGAD, SADC, and UMA. The membership of the AU currently includes 53 African nations.[124]

The vulnerability of the African continent to natural disasters has been a continual source of economic and social loss. Some examples include: the harsh droughts and associated famines in the early 1970s and 1980s in the Horn of Africa and Ghana, which prompted the OAU to develop an emergency Priority Programme for Economic recovery (APPER); the 2000 flood in Mozambique that caused an equivalent economic loss of 12 per cent of national GDP; the 2002 famine in Zambia and Zimbabwe producing a loss of approximately nine per cent of national GDPs (AU 2004, p. 5); and the 2011 drought and famine in Somalia, Ethiopia, and Kenya. While the economic interdependencies of some African countries may not be equivalent to the US or Europe, the impact of globalization has nevertheless had a significant impact producing unanticipated backlashes to social and economic vulnerabilities. A good example of this is the increase in the value of pastoral lands as the price for beef has increased over the years. This has depleted resources and created larger costs for communities when large floods and droughts occur (Rotberg 2003, p. 11).[125] Despite the repeating nature of many of these natural disasters and the impact they have on national economies, little regional efforts have been coordinated to mitigate future disasters. Nonetheless, the OAU was not entirely absent from this area. As a result of the critical economic shocks experienced from prolonged droughts in the African continent, the OAU and the UN established a Special Emergency Assistance Fund for Drought and

[124] Morocco and Madagascar are not full members: Morocco left the OAS in 1984 and Madagascar was suspended in 2009.

[125] Counter-intuitively, the recent increase in farming development in many African countries in terms of drilling wells, eradicating parasites, and better treatment of cattle diseases, together with rising prices for beef, increased demand leading to an over-production and depletion of natural resources, which increased the vulnerability of society to droughts and floods (Newsday 1973, p. 16).

Famine in Africa (SEAF) in 1985 (UN 1989, p. 501) which is still in function today (AU 2011c). Pan-African cooperation on DRM otherwise remained dormant until 2003.

Emerging from the AU's New Partnership for Africa's Development (NEPAD), a series of workshops, meetings, and conferences on DRM were held in 2003-2004. These initiatives produced the Disaster Risk Reduction (DRR) Strategy that was adopted at the African Ministerial Conference on Environment (AMCEN) in June 2004 and passed through the AU's 3rd Ordinary Session in the following month (AU 2004, 3). The strategy prioritizes three focal points. First, it aims to enhance and facilitate cooperation with sub-regional organizations within the AU, such as ECOWAS, SADC, or IGAD. In this sense, the document is designed as a master-copy on which other regional organizations ought to base their own 'unique' DRM policies. Second, the strategy aims to change current DRM norms by transforming 'the basic mindset and practices of national authorities; the disaster management community; the public and development partners' (Ibid, p. 4). Third, the strategy aims tentatively to link political conflict resolution with disaster relief through regular communications with the DRM programme and the AU Commission on Peace and Security. The structure of the agreement is based on a baseline study conducted in 2003 based on the UNISDR framework. It identifies a number of DRM issues that ought to be prioritized, such as increased public awareness, enhanced knowledge management, and political commitment. An Africa Working group on DRR was also formed in 2004 in order to facilitate the strategy's primary goals. To this end, a 2006-2010 programme of action for the implementation of the strategy, and a recast programme of action for the period 2006-2015 have been created.

Both of these programmes provide specific measures to implement the strategy. The latter also emphasizes the importance of the UNISDRs Africa Platform for Disaster Risk Reduction as the 'primary regional mechanism to support the implementation of disaster risk reduction strategies and programmes at regional, sub-regional and national levels' (AU 2009, p. 5). The role of the sub-regional level as a facilitator of the strategy's objectives to its member states is also specified in the recast programme. In addition to these initiatives, ministerial conferences on DRR have been held in 2006 and 2010, a proposal for an African Centre of Excellence for Capacity Development has been tabled (Ibid, 7) and an official request to perform a feasibility study on an 'African owned Pan-African Disaster Risk Pool' has been made. In a similar approach to a recent EU Commission proposal (European Commission 2010b), this risk pool would aid African governments with contingent funding to respond to

food insecurity and droughts by providing member states with immediate access to funds in the event of a crisis (AU 2011a, cf. AU 2010a, VIII).

If this 'risk pool' eventuates, the AU will have certainly emerged as an important regional body for DRM. Unlike other regions, such as the EU or ASEAN, the AU's DRM capacity has developed at a fast pace in the late 2000s. The AU has the potential to play a significant role as a leader for sub-regional organizations in providing a blueprint of DRM cooperation providing that these are adjusted to local situations.

Fuzzy value construction of AU DRM cooperation

The (Organization of) African Union has either had no cooperation or a nascent level of regional DRM cooperation until 2009. Before this date, cooperation was limited to official acknowledgements of the need to cooperate (0.2), as well as information sharing initiatives (0.2) (cf. UN 1985, AU 2004). This was later changed with the encouragement of funding for emergency response, preparedness, and recovery activities (0.15) and the introduction of 'harmonizing DRR policies and strategies at regional and national levels' (AU 2009, 12-13) (0.1). The cumulative total for the AU's DRM cooperation is 0.65, which indicates that it is more in than out of the set of regional DRM cooperation. For more on the construction of the fuzzy values see Annex 6.3.

THE ORGANIZATION FOR AMERICAN STATES

The Monroe Doctrine and the newly independent states of South America clearly signalled the political will of the Americas against any further European or foreign interference in the early 19th century. This may have encouraged self-preservation and 'continental solidarity' that would lay out the foundations for an American community (Thomas and Thomas 1963, pp. 4-5) – such sentiments were clearly expressed in South America – but the resilience of the US to participate in these endeavours, such as the Congress of Panama, stifled any dreams of Pan-American unity. Nevertheless, Hispanic American conferences and treaties were periodically held throughout the 19th and early 20th centuries that upheld organizational characteristics and values that can be seen in the OAS. These included, although not always honoured, non-interference, peace and conflict mediation, dispute resolution, and even the imposition of sanctions (Ibid, p. 10). At the time of the end of the Second World War, there was growing frustration over the lack of South American representation on the newly established Security Council of the UN, fear of an aggressive Russia, and the need for economic support (Ibid, p. 31). These factors provided a powerful mix that saw the

creation of an Inter-American Treaty of Reciprocal Assistance (Treaty of Rio de Janeiro), signed in 1947.[126]

The OAS has 36 members comprising North, Central, and South American countries.[127] Its organizational structure is principally made up of annual meetings of the General Assembly (held since 1971) that acts as the highest decision-making body. The permanent council consists of member state representatives who meet regularly to discuss a range of issues, including administration, the OAS budget, and inter-organizational cooperation.[128] Other central institutional bodies include the inter-American Council for Integral Development (CIDI); the Inter-American Juridical Committee (IAJC); the inter-American Commission on Human Rights; the General Secretariat; and inter-American committees and Commissions (OAS 2011a). Its main activities centre around democracy promotion, social and economic development, 'multi-dimensional security', tourism, and culture.

The principal OAS institutional body working on DRM issues is the Risk Management and Adaptation to Climate Change department (RISK-MACC). This body is under the auspices of the Executive Secretariat for Integral Development and the General Secretariat. Cooperation on DRM through these organs has become increasingly active in the last two decades. In 1991 the OAS formed an agreement on the Inter-American Convention to Facilitate Disaster Assistance that held similar provisions to ASEAN's AADMER or CARICOM's CDERA, albeit with no regional operational capacity. That is, it provided clear specifications for the facilitation of disaster responses between states. The agreement has, however, remained dormant as it requires the signatures and ratification of all 35 member states. Presently, only four have signed and five have ratified the agreement.[129] A more successful proposal arose in the first Summit of the Americas in 1994, which produced the Miami Plan of Action when cooperation with the Argentinean White Helmets Initiative (WHI) – a peace-keeping force focused on response and mitigation of humanitarian and natural disasters – was recommended. This plan of action encourages, albeit on a voluntary basis, national selection and training of volunteer corps that can assist in the event of national and regional disasters (SOA 1994, Art.111 (20)). The following year also saw a significant

[126] This Treaty emerged in between the 8th and 9th International Conference of American States that began in 1890 in Washington DC.
[127] Cuba was suspended in the period 1962-2009.
[128] Meetings of consultation of ministers of foreign affairs are also held upon the permanent council request.
[129] Colombia, Nicaragua and Panama signed the agreement in 1992 followed by Peru in 1996. Member states that have ratified the agreement include Panama, Peru, Uruguay, Dominican Republic, and Nicaragua (OAS 1991).

cooperation agreement passed: the OAS Inter-American Emergency Aid Fund (FONDEM). This is designed to aid any member state in the event of a natural disaster through technical, social, humanitarian, material, and financial support (OAS 1995a, Art.III). Funds are sourced from voluntary contributions or unused appropriations from the previous biennia (Ibid, Art. IV). The Secretary General is then able to use these funds to grant emergency aid up to 25,000 USD per case. Recent examples include the granting of a total of 176,700 USD of emergency funds to Belize, Costa Rica, Haiti, Saint Vincent and the Grenadines and Saint Lucia in 2010, as well as satellite telephones to Chile after the earthquake in February (OAS 2010a, p. 22). The Secretary General holds the general mandate for receiving and distributing requests as well as facilitating resources and emergency plans with other international organizations such as the United Nations Emergency Fund, the World Food Programme, the Pan American Health Organization, and the League of Red Cross Societies (OAS 1995a, Art. VII-VIII).[130]

The Inter-American Committee for Natural Disaster Reduction (IACNDR) was created in 1999 as the principal body in the OAS to lead cooperation on DRM. To this end the Permanent Council, the Inter-American Council for Integral Development (CIDI), the Committee on Hemispheric Security, and the Permanent executive Committee of CIDA were brought together to form the core structure of the Committee (OAS 2007a, p. 109).[131] The RISK-MACC department also enhanced its inter-institutional cooperation in the same year through the creation of an Inter-American Network for Disaster Mitigation, designed to enhance intra-regional and international cooperation on DRM, analyse issues surrounding prevention and mitigation, and coordinate and implement the Inter-American Strategic Plan for Policy on Vulnerability Reduction, Risk Management and Disaster Response (IASP). This document aims to reduce the loss of life and property, improve emergency preparedness and response, improve financial protection from natural disasters, and increase the resilience of critical economic and social infrastructures (OAS 2003b, 2003c). In the same year the Declaration on Security in the Americas noted the importance of natural disasters in its widened security vision (OAS 2003a).[132]

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[130] The inter-American committee for emergency situations was also set up at this time which consists of the 'Chair of the Permanent Council, the Secretary General of the OAS, the Director of the Pan American Health Organization, the President of the Inter-American Development Bank, and, in due course, the Chair of the Inter-American Council for Integral Development, or their respective representatives' (OAS 1995a, Art.VI),

[131] The CIDI is a body of the OAS used to promote partnerships in the member states.

[132] Inter-American Defence Board also has some influence on DRM through the provision of technical, advisory and educational services (OAS 2006b).

Attention to increasing coordination amongst the numerous institutional bodies within the OAS that deal with disaster risk reduction was the principal focus of a 2005 declaration on Natural Disaster Reduction and Risk Management. In a similar vein to the EU's ARGUS system, the General Assembly agreed to review the FONDEM and the IACNDR for the purpose of creating a 'single permanent inter-American committee to address natural and other disasters'. This committee would also subsume the functions of the IACSE and the IAEAC (OAS 2005b, Art.4 (b)). The following year witnessed the first inter-American ministerial conference on sustainable management of which DRM was raised as a significant issue. The outcome of this conference was the creation of an Inter-American Program for Sustainable Development for the period 2006-2009, with a particular focus on strengthening national DRM capacities (OAS 2006b, §3.3). More recently, the OAS has created a forum where other regional organizations working on DRM can coordinate their efforts and discuss best practices. Members of this forum include CDEMA, REHU, the Andean Community's *Comité Andino para la Prevención y Atención de Desastres* (CAPRADE) and the Central American Integration System's *Centro de Coordinación para la Prevención de los Desastres Naturales en América Central* (CEPREDENAC) (OAS 2010b). A working group comprising of the Permanent Council and the Permanent Executive Committee of the Inter-American Council for Integral Development (CEPCIDI) has also convened to discuss and prepare a plan of action for an increased coordination role of the OAS in DRM (Ibid).

In terms of operational capacity, Argentina's White Helmets Initiative (WHI) and the Simón Bolívar Humanitarian Task Force have continued its close cooperation with the OAS (OAS 1995b, 2008b). The OAS has increasingly used the WHI and the Regional Humanitarian Volunteer Corps Network as the primary vehicle for the OAS to remain active in responses to natural disasters (cf. OAS 2008a, 2008b). The reciprocal relationship that the OAS shares with the WHI also promotes other member states to become more involved through various OAS declarations encouraging, for example, member states to set up focal points or contribute to WHI funds (Ibid, Art.4, 6). The OAS permanent missions to member states are also called on to 'play an active role in the provision of technical expertise in disaster coordination' (OAS 2002, Art.5 (c)). Given the critical role of first-time response to natural disasters, these missions should not to be underestimated in their capacity to provide assistance.

The above description clearly indicates a growing regional concern for mitigating and responding to natural disasters in the Americas. This growth is most likely to increase in the coming years, particularly if the 14 draft resolutions on DRM for 2011

become a reality.[133] It would have been difficult to imagine this impressive list two decades earlier. The OAS has since emerged as a significant regional supplier of citizen protection from natural disasters, which *inter alia* includes a 2005 declaration on DRM and the continual use of regional assets, such as the WHI.[134]

Fuzzy-value construction of OAS DRM cooperation

The OAS was already highly active in DRM cooperation in the mid 1990s, when it not only acknowledged the need for cooperation (0.2), but also provided preliminary information sharing (0.1), operational capacity through the White Helmets Initiative (0.15) and preliminary asset pooling (OAS 1991, 1995). However, unlike many other regional organizations examined in this thesis, the OAS has not dramatically increased from sitting just over the threshold of the set of regional DRM cooperation. This is due to its dependence on inter-regional DRM cooperation, such as its reliance on the WHI, instead of forming a central operational hub within the OAS secretariat. Indeed, it is only because greater attention has been directed toward standardization procedures recently (cf. OAS 2011b, 2011c, 2012) that its cumulative fuzzy value has increased to 0.75. For a more extensive overview see Annex 6.3.

THE ECONOMIC COOPERATION ORGANIZATION

Through trilateral cooperation between Iran, Pakistan, and Turkey the Regional Cooperation for Development (RCD) emerged in 1964 in order to strengthen economic ties. In 1985 this organization was given a new lease of life as the Economic Cooperation Organization (ECO). This development also ushered in seven more members in 1992: Afghanistan, Azerbaijan, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan. The founding Treaty of Izmir, originally signed through the RCD in 1977, has gone through two main revisions in 1991 and again in 1996. According to the current Treaty, its main objectives are to promote sustainable economic development, cooperate in social, cultural, technical and scientific fields, promote

[133] Some examples of these resolutions include: a joint committee on disasters and defence; a seismic microzonification project for the construction of earthquake-resistant housing; a proposal for a hemispheric disaster relief college; public and private partnerships for the strengthening of mechanisms to handle natural hazards; the creation of an inter-American network for disaster-related youth abandonment and orphanage; an expansion of the White Helmets Initiative; and a disease prevention plan for small island nations during emergency disasters (OAS 2011c).

[134] All accessible and relevant documents to OAS DRM were used to assess the fuzzy values, which can be seen in Annex 6.3. While there may be some missing documents, such as AG/RES,1803(XXXI-0/01) and AG/RES,1995(XXXIII-0/03) I am confident that the documents provide a good representation of DRM cooperation as the missing ones are, nevertheless, represented in the preambles of more recent documents that have been accounted for.

integration of the public and private sectors, increase cooperation on transport and communication infrastructures, develop cooperation on drug abuse and control, facilitate cooperation on environmental protection, and increase cultural ties among its member states (ECO 1996, Art.II(a-n)). Based on these goals, ECO has developed its capacities by creating educational and scientific institutes and an ECO Trade and Development Bank. More recently, a programme for food security and seed supply has been set up to support regional agriculture; and in the area of health ECO are currently working on an ECO Blood Safety Network and Drug Regulatory Network (Maroofi 2011).

The South-central Asian region has not been immune to natural calamities. The 1947 earthquake in Ashgabat has been listed as one of the deadliest earthquakes recorded with a death toll of 110,000 people (USGS 2011). A series of other earthquakes followed this tragedy such as Uzbekistan in 1966, Tajikistan in 1989, Kyrgyzstan in 1992, Azerbaijan in 2000, Iran in 2003, and Pakistan in 2005. Other natural disasters that have pervaded the region include the 1970 Bhola cyclone in former East Pakistan and the flash floods in Turkey in 2009, causing an estimated economic loss of 70-80 million USD (Reuters 2009). Despite the terrific economic and social costs these and other disasters have had on the region – which tends to be exacerbated by the low level of development in some of these countries – little regional cooperation has emerged until recently.

ECO held its first annual conference on DRM in 2007 which also coincided with the signing of a Memorandum of Understanding (MoU) on DRM cooperation with the UNISDR. This document addresses areas of cooperation, including enhancing local capacities (ECO 2007, 2.1), promoting inter-regional, regional and sub-regional cooperation (Ibid, 2.3), and the exchange of information (Ibid, 3.2). Although the conferences are not at the ministerial level, the participants do produce a list of recommendations for submission to the ECO ministerial conferences by the ECO secretariat. Considering the short time within which this policy space has emerged, the recommendations are fairly robust. Not only is attention placed on the exchange of knowledge, but also on proposals for a Regional Trust Fund for Disaster Risk Management, regional relief storage, databanks, DRM networks, and training (ECO 2008a). A number of declarations have also been issued at the ministerial level as a result of the annual ECO ministerial conferences. These declarations demonstrate an awareness of the cost of natural disasters and specify the importance of increasing cooperation on emergency management.

The 2006 Baku Declaration endorsed the Regional Centre for Risk Management of Natural Disasters (ECO-RCRM) with the aim of enhancing DRM capacities in the member states of ECO. The origins of the Centre began with a proposal to ECO in 2004 from the Meteorological Organization of the Islamic Republic of Iran for establishing a regional centre for risk management (ECO 2008b). This proposal then materialized in the first ECO meeting of the heads of meteorological organizations, whose participants prepared and agreed to a draft MoU on the establishment of the ECO-RCRM in 2007. A working group emerged from this meeting which established the statutes of the centre. It was officially established in the same year at the National Centre of Climatology in Mashad, Iran. The main functions of ECO-RCRM include disaster and risk assessment, drought monitoring and seasonal predictions, workshops, and training. Presently, this centre is only affiliated with ECO, with the goal of incorporating it into a specialized agency at a later date (ECO 2010b).[135]

Despite a long history of devastating natural disasters, the ECO region has not cooperated on DRM until recently. Since 2007, however, cooperation has developed steadily to a point where an operational arm of ECO DRM exists. This centre does not yet facilitate member states' responses to disasters but does provide a focal point of disaster relief initiatives, information gathering, and knowledge sharing, which is complemented by the ECO conferences on Disaster Risk Reduction (DRR) and meetings between the heads of national meteorological organizations.

Fuzzy-value construction of ECO DRM cooperation

Cooperation on DRM through ECO remains at a nascent level. That is, it is more out than in the set of regional DRM cooperation. Official declarations on the importance of cooperating (0.2), important information sharing initiatives (0.2) and the establishment of early warning mechanisms (0.05) define the milestones of cooperation for ECO. The cumulative value of these initiatives is equal to 0.45, which is just below the threshold of advanced regional cooperation. While there have been proposals for pooling assets and other more advanced forms of cooperation, they are not included in the sum because they have not been officially agreed upon by ECO practitioners. For a more comprehensive overview of ECO and the construction of the fuzzy values see Annex 6.3.

[135] In August 2011 Kazahstan, Kyrgystan, and Tajikstan formed an intergovernmental centre for disaster response and risk reduction, which is designed to improve coordination and cooperation in DRM (UNPAN 2012).

3.1.2.5. Summary

The above tour through the field of regional DRM cooperation reveals a colourful illustration of a policy space characterized by differences and similarities. These organizations were measured according to five qualitative anchors designed at the beginning of this section. The threshold indicator – determining whether the membership of a case is more in or out of the set of regional DRM – is based on the extent to which member states of a regional organization agree on specific operational activities. The nascent level of cooperation – from 0.00 to 0.50 – is defined by (1) the extent to which there is an awareness of the need to cooperate, and (2) the extent to which knowledge-sharing initiatives are proposed. The advanced level of cooperation – from 0.50 to 1.00 – is defined by (1) the extent to which standardization measures are put in place, and (2) the extent to which regional 'asset pooling' is instigated. These qualitative anchors are derived from empirical knowledge of regional DRM, and the theoretical-based assumption that advanced cooperation will produce greater costs to member states. For a list of the resulting fuzzy sets for each case, see Table 3.1.

According to the qualitative anchors, the EU, ASEAN, and CARICOM are currently the most developed in terms of DRM cooperation (cf. Table 3.0). They all engage in information sharing; they all have some form of operational capacity, and have taken some steps towards the standardization of DRM practices. While these organizations come close to owning common pool resources, none of the regional organizations assessed in this dissertation have developed any substantial supranational capacity in this domain. LAS and the OAS are also highly developed, with total values of 0.80 and 0.75 respectively. These are followed by SADC (0.70) that is 'more in than out', the AU (0.65), and PIF (0.65), which are just above the crossover point. Lastly, ECO is just below the threshold (0.45) and Mercosur is 'mostly out' of the set (0.25). For a detailed account of how each value was evaluated and plotted see Annex 6.3.

The development of DRM over time reveals a general pattern of growth over the 36-year period. The first period, from the mid 1970s to the mid 1990s, features no cooperation or a nascent level of cooperation on DRM. In the 1990s three organizations broke the threshold of being more in than outside the set of advanced DRM cooperation: the EU, CARICOM and the OAS. This development ushered in the second period of DRM cooperation – from the mid 1990s to the present – when a majority of regional organizations entered into the set. Put simply, in the 1970s there is minor activity on regional DRM, which is followed by a slight increase in the 1980s and 1990s, and a major increase from the 1990s to the present.

This overview of the output condition emphasizes two important observations. First, the last decade is highly significant because a majority of regional organizations exceeded the threshold regardless of their long or relatively short histories as regional organizations. Second, this is complemented by a substantial increase in growth of all regional organizations from the 1990s. The reasons for these trends are now turned to by locating and then testing the main explanatory variables derived from neoliberal institutionalism.

3.1.3. Hypothesized conditions for the emergence of regional DRM

In line with the substantive and methodological assumptions derived from neoliberal institutionalism, four hypotheses have been formulated (cf. Chapter 2, 32). These are defined by four causal Conditions: interdependence, expectations, asymmetries, and power.

H1. When regional interdependence is high, DRM cooperation will be highly developed
H2. When the expected costs of future natural disasters are high, DRM cooperation will be highly developed
H3. When the intra-regional diversity of natural disasters is high, DRM cooperation will be highly developed
H4. When intra-regional power disparities are high, DRM cooperation will be highly developed

This section unpacks these hypotheses. It locates appropriate indicators for each condition that can be contrasted against the outcome condition. The goal is to arrive at formulations of sufficient or necessary causal conditions for the emergence of regional cooperation on DRM. Accordingly, regional interdependence, the degree to which asymmetric risks are prevalent in each region, regional expectations of future natural catastrophes, and the distribution of power within a region, are each described in the following pages.

The validity of any fsQCA analysis hinges on how the conditions are calibrated. This is the process of converting raw data sets into a scale between 0 and 1, where 0 indicates full nonmembership, 1 indicates full membership, and 0.5 indicates the crossover point in a set. The calibration procedure for the explanatory conditions is based on Charles Ragin's 'direct method' (2008, pp. 85-94), which demands a theoretical and substantive argument for the placement of three qualitative anchors which will represent full membership, the crossover point, and full non-membership. Through a mathematical procedure using the log of odds, the raw data can then be

converted into the new interval scale producing fuzzy values between 0 and 1.[136] The extent to which a case has a high or low membership in a set can then be determined.

The data retrieved for all of variables are also based on a time dimension from 1970 to 2009. This period was selected for three reasons. First, it includes the entire period of regional DRM cooperation for the selected cases. Second, all of the cases, except for SADC and Mercosur, have an institutional memory that goes back at least to the 1970s.[137] Third, a period of 40 years provides for a broader interpretation of events by tracing the growth or decline of each condition in relation to the emergence of regional DRM. These motivations provide increased variation on the conditions, and also minimize the chance of idiosyncratic results that may emerge in a particular year.

While fsQCA remains somewhat limited when including a temporal dimension, this study conducts separate analyses for different time periods and compares these results by performing two fsQCA analyses.[138] The first is calculated when each regional organization begins cooperation on DRM either through declarative statements or other more advanced forms of cooperation. This is generally made before the year 2000. The second calculation is made when each region passes the threshold from 'more out than in' of the set of regional DRM cooperation to 'more in than out' of the set. This episode is generally situated in the period after 2000.[139]

The following section explains the background motivations for the selection of each condition, what indicators have been selected to represent each condition, and how the indicators are calibrated.

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[136] The direct method of calibration is translated in the following formula: degree of membership = exp (log odds)/[1+exp(log odds)] (Ragin 2008a, p. 91). This is simplified by using the fsQCA 2.0 software (version date: January 2009), which has an automated procedure that translates raw data into fuzzy sets.

[137] Mercosur is the youngest regional organization selected in this analysis, which was established in 1991. While this may conflict with other explanatory variables (such as the geopolitical power shift during the end of the Cold War), it is nevertheless selected precisely because of its outlier status: it does not cooperate, or cooperates at a very low level, on regional DRM. Mercosur's predecessor – *Programa de Integración y Cooperación Argentino-Brasileño* (PICAB) – can also be taken into account, which began in 1986 (cf. Malamud 2003, p. 56).

[138] Some scholars have attempted to include time as a new operator in addition to AND and OR (cf. Caren and Panofvky 2005). The current proposal for T-QCA, however, remains in its infancy as it has trouble accounting for the extra logical remainders that time introduces into the analysis.

[139] As data for the capacity of regional organizations is scarce, this condition is only included for the period 2000-2009.

3.1.3.1. Motivation and selection of conditions

The selection of conditions for explaining the emergence of DRM cooperation is informed through the pragmatic prioritizing of theoretical commitments and substantive knowledge. As illustrated in Chapter 2, four central and relevant causal conditions were derived from neoliberal institutionalism. These material-related conditions are considered fundamental for determining the interests for state cooperation in regional DRM. These are interdependencies, expectations, asymmetries, and power. These conditions direct attention toward broader causal features in favour of time-specific explanations, such as leadership or critical shocks. This does not mean, however, that the importance of agency or an attachment to methodological individualism is in any way reduced. Rather, the broader cost-benefit calculations that an agent makes, and is affected by, assumes the primary focus for the selection of explanatory variables in this study.

Even if a theory-based process can reduce the number of possible variables, a balance must still be reached that does not tip the scales towards a 'degree of freedom' problem (George and Bennett 2005, pp. 28-30) or that it does not exhaust the researcher's time-limits and capacity. Accordingly, a number of variables that are not included in this study are briefly mentioned. First, the existing institutional landscape that regional DRM agreements are set within can affect the extent to which DRM is institutionalized. As all agreements that are investigated already exist within a regional organization the importance of this variable over others is reduced. This does not mean that all regional organizations are homogeneous but that all DRM agreements are supported by an initial institutional structure. It is, therefore, assumed that a certain level of cooperation, commitment, and a high level of information (trust) has been attained between its members. Second, policy 'entrepreneurs', leaders or networks are often given a leading role by academics in explaining the emergence of a new institutional policy space (Stone Sweet, Fligstein and Sandholtz 2001, p. 19). This variable is also omitted as the study is primarily focused on investigating the conditions that motivate states to cooperate on regional DRM rather than emphasising the individual initiators. It is presumed that nation states – as rational actors – have a set of incentives that are determined by the four causal factors under investigation. In this sense, time-specific variables help to stimulate cooperation based on existing underlying conditions that can be skilfully used by the entrepreneur, but these conditions must be already present for cooperation to commence. Thus, even if a regional secretariat is highly developed, DRM cooperation will only emerge and develop when

the hypothesized conditions are present. Third, one of the most well-known explanations given by practitioners and academics alike, especially in the area of natural crises, is external shocks to the system. The bracketing of this variable is based on the assumptions mentioned above concerning time-specific explanations. The same logic can be also applied to explanations based on domestic preference structures that, while considered important, are insufficient to explain cooperation without the presence of the four hypotheses presented in this chapter.

3.1.3.2. The inter-relationship between the conditions

The selected conditions – interdependence, asymmetries, expectations, and power – are not considered autonomous but interdependent. It is hypothesized that each condition is an INUS condition for the emergence of regional DRM. That is, 'an insufficient but necessary part of a condition which is itself unnecessary but sufficient for the result' (Mackie 1965, cited in Mahoney *et al.* 2008, p. 125). This means, for example, that neither an interdependent group of states (Xi) nor a regional organization with high power disparities (Xiv) is necessary or sufficient for an outcome. Instead, they are both two conditions, which are part of a larger combination that is sufficient but not necessary for the emergence of regional DRM. This is depicted below in the form of a Boolean equation. The signifier (Y) represents the outcome, (Xi-iv) represents the conditions, (→) represents the correlation pathway, and the operator (∗) represents the logical AND function.

$$Y \rightarrow Xi{*}Xii{*}Xiii{*}Xiv$$

Cooperation on regional DRM (Y) is thus possible if interdependencies (Xi), expectations (Xii), asymmetries (Xiii), and power disparities (Xiv) are present.

The reason the conditions are conceptualized as INUS conditions rather than sufficient or necessary conditions is based on the logical and theory-based connections made between the selected conditions. For example, if there is high interdependence and high expectations but low power disparities, it is unlikely that states will cooperate on regional DRM because there is no identifiable state or entrepreneur that has the capacity and incentive to coordinate regional cooperation. If interdependencies were low and asymmetrical risk was high, there would be no incentive to cooperate because the costs to each member state would not be affected by another's loss from a natural disaster. These examples and others ought to become clear in the following section that describes the four explanatory conditions. As the inter-relationship be-

tween the conditions is most appropriately demonstrated through an INUS condition, the following INUS hypothesis is formulated as follows:

INUS Hypothesis	Interdependence, asymmetries, expectations, and power are insufficient but necessary parts of a condition which is itself unnecessary but sufficient for the emergence of regional DRM cooperation

3.1.3.3. Interdependencies

Interdependence is often considered the key explanatory variable for collective cooperation. It is defined as 'mutual sensitivity': the 'extent to which change in one state affects change in others' (Keohane and Nye 1973, p. 160).[140] Natural disasters can produce significant damage to the macroeconomic performance of a state (cf. Charvériat 2000, Bergholt and Lujala 2012). This can include temporary market destabilization and falls in share prices and long-term losses in production capacities, such as critical damage to irrigation systems, electricity production, crops, transportation routes, industrial complexes, and even educational infrastructure (Charvériat 2000, p. 13). When these states share a high degree of intra-regional trade, neighbouring countries can also be heavily affected, as general exports and imports decrease as a result of major disasters (Gassember *et al.* 2010), and high trade intensity between countries produce transboundry affects.[141] Furthermore, the societal shock of a natural disaster tends to affect consumption patterns (Lian *et al.* 2007) that can also cut across national borders. It is thus posited that when there is a high level of economic interdependence within a region, the likelihood of regional cooperation on DRM will increase in order to reduce the potential costs from natural disasters. This functional argument is well summed up in Keohane's supposition that 'insurance regimes' will emerge under conditions of interdependence to insure against 'catastrophic events' (1989, p. 123).

[140] There is another definition of interdependence that Keohane and Nye refer to, which is based on 'relative vulnerability': 'the relative cost of alternatives for the parties, the less dependent state is the one which possesses relatively lower costs from the termination or drastic alteration of the relationship (1973, p. 160). The broader definition based on mutual sensitivity is used in this study.

[141] A good example of this is the damage or destruction of offshore oil industries in the Gulf of Mexico by Hurricane Ivan in 2004, when the daily production of 475,000 barrels of oil and 1.8 billion cubic feet of natural gas was disrupted for a month (Stewart 2005). Another example is Hurricane Mitch that destroyed an estimated 50 per cent of agricultural crops in Honduras in 1998 (Guiney and Lawrence 2000).

Table 3.2 Regional Symmetric Trade Introversion (STI) index: 1970-2008

Regional Organization	Symmetric trade introversion index			
	1970-1979	*1980-1989*	*1990-1999*	*2000-2008*
EU	0.55	0.52	0.74	0.76
ASEAN	0.75	0.71	0.66	0.73
PIF	0.73	0.75	0.80	0.79
CARICOM	0.89	0.86	0.98	0.98
Mercosur	0.68	0.72	0.90	0.89
SADC	0.54	0.26	0.84	0.93
LAS	0.20	0.20	0.60	0.55
AU	0.03	0.14	0.74	0.81
OAS	0.69	0.63	0.72	0.75
ECO	-0.10	0.80	0.63	0.55

Source: UNU-CRIS RISK (2011), author's own calculations[142]

The Symmetric Trade-Introversion (STI) index is used to assess the degree of economic interdependence in a regional organization. The raw figures representing this source are displayed in Table 3.2. The STI index shows the relative intra-regional trade intensity within a regional organization. Intra-regional trade intensity, in turn, is measured by the ratio of intra-regional trade share to the region's share of total world trade (Iapadre 2006).[143] Instead of selecting the intra-regional trade share, or the intra-regional trade intensity index, the STI is chosen because it takes into account internal and external bias of trade and is generally considered to be the most appropriate indicator of trade interdependence (Hamanaka 2012).[144] An internal bias to trade means that the intensity of trade within a region is higher than its external trade intensity: it has a bias to intra- and not extra-regional trade (Ibid). Additionally, this indicator is chosen because it can provide valuable comparisons across regions. Intra-regional trade share, for example, can be over-determined when a large trading country exists within a region even if the region does not have a trade bias (Anderson and Norheim 1993, cited in Hamanaka 2012, p. 3). Comparing intra-regional trade share across different regions would thus create an unrepresentative illustration of regional trade activity.

When a regional organization has an STI indicator below zero it has an extra-regional trade bias and when it is above zero it has an intra-regional trade bias. A figure of 1.00 is equivalent to no extra-regional trade and -1.00 is equivalent to no intra-

[142] The raw STI data from the UNU-CRIS RIKS database is presented annually. In order to recognize broader patterns over a longer period of time the average figure from each decade was calculated.
[143] Intra-regional trade share is the percentage of a regional organization's total trade (regional imports and exports) (Iapadre 2006).
[144] For more on the link between natural disasters and the economy see (Bergholt and Lujala 2012).

regional trade. In other words, the closer the STI value is to 1 the more interdependent the region is in terms of trade.[145] Taken over a 40-year period, this indicator demonstrates a general trend of economic interdependence before and after the establishment of regional DRM cooperation (cf. Best 1997, De Lombaerde and Langenhove 2005).

The primary source used for generating the STI data comes from the UNU-CRIS Regional Integration Knowledge System (RIKS) platform database. It organizes the STI data – sourced from the United Nations Commodity Trade Statistics Database – into regional groups (UNU-CRIS RIKS 2011).[146]

The two major trends in Table 3.2 depict a general increase in, and a particularly high level of, intra-regional trade intensity over the past 40 years.[147] That is, all regional organizations share a strong intra-regional trade bias. This means that even though over half of the cases examined in this study have less than 15 per cent intra-regional trade share (cf. Annex 6.4), they all have a strong regional trade bias.[148] Intra-regional trade increases in half of the cases in the 1990s, which may be due to the adoption of new treaties, internal restructuring, and the formalization of economic partnerships that came with the latest 'wave' of regionalism (Mansfield and Milner 1999).[149] ASEAN STI dropped in the 1990s, which may be due to the Asian financial crisis, and the OAS, PIF and CARICOM reveal a steady regional trade bias. ECO, on the other hand, is highly idiosyncratic, with an external trade bias in the 1970s and a high internal trade bias in the 1980s (when ECO was formed) that has increasingly depreciated. That is, since its creation, the intensity of trade within ECO has been outmatched by external trade activity. ECO is clearly the weakest trade block out of the 10 cases according to the STI indicator.

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145 For more on the technical specification of this indicator see (Iapadre 2006, Hamanaka 2012).

146 According to the UN statistic division, this database, notwithstanding its limitations, is the most comprehensive with over 1 billion records (UNcomtrade, cf. Chen and Lombaerde 2011, p. 5). Some limitations mentioned by the UN statistics division include: (1) confidential trade statistics not revealed to the UN; (2) discrepancies in country report to the UN statistical division (based on new commodity classifications); and (3) the imports reported from one country do not always match the exports from the connecting country. For a fuller account see (UNcomtrade 2010).

147 The only exception to this is ASEAN, which has generally maintained a value around 0.70.

148 This is according to the 2000-2008 period. Only ASEAN, the EU and the OAS share more than 20 per cent of their trade internally.

149 For example, this could include the Maastricht Treaty in the EU, the reconfiguration of the OAU to the AU, SADCC to SADC, and the creation of Mercosur in the 1990s.

Table 3.3 Regional STI Index conversion to fuzzy values (*fv*)

Regional Organization	*1970-1979*		*1980-1989*		*1990-1999*		*2000-2009*	
	STI	*fv* STI	STI	*fv* STI	STI	*fv* STI	STI	*fv* STI
EU	0.55	0.66	0.52	0.61	0.74	0.87	0.76	0.89
ASEAN	0.75	0.88	0.71	0.85	0.66	0.80	0.73	0.87
PIF	0.73	0.87	0.75	0.88	0.80	0.91	0.79	0.91
CARICOM	0.89	0.95	0.86	0.94	0.98	0.97	0.98	0.97
Mercosur	0.68	0.82	0.72	0.86	0.90	0.95	0.89	0.95
SADC	0.54	0.65	0.26	0.22	0.84	0.93	0.93	0.96
LAS	0.20	0.16	0.20	0.16	0.60	0.73	0.55	0.66
AU	0.03	0.06	0.14	0.11	0.74	0.87	0.81	0.92
OAS	0.69	0.83	0.63	0.77	0.72	0.86	0.75	0.88
ECO	-0.10	0.02	0.80	0.91	0.63	0.77	0.55	0.66

Source: UNU-CRIS RIKS 2011, fsQCA 2.0 software (breakpoints: 0.90, 0.45 and 0.00)

The STI index provides the raw data for establishing the set of interdependence. The first step towards converting the interval data into fuzzy scores is to specify the values of the interval data with three qualitative breakpoints: 'full membership in a set' (0.95), the 'crossover point' (0.50) and 'full nonmembership in a set' (0.05) (Ragin 2008a, p. 85). Justified on theoretical and empirical claims, these 'benchmarks' are used to rescale the interval data into fuzzy values, which is achieved through using the 'estimates of the log of the odds of full membership' (Ibid, p. 87).[150] The construction of fuzzy values from the STI index are defined below and illustrated in Table 3.3.

The STI index has raw data values between -1 (indicating full extra-regional trade) and 1 (indicating full intra-regional trade). The threshold that determines if a regional organization is in the set of interdependence is pegged at 0.45. That is, it is assumed that when a regional organization's intensity of internal trade is more than 0.45, its internal trade bias, as an indicator of interdependence, becomes a significant factor for encouraging regional DRM cooperation. This, in turn, increases the likelihood that its member states will form 'insurance regimes' to limit the liability incurred through natural disasters. This threshold is based on general commentaries on the level of interdependence. An STI value of 0.70, for example, is generally accepted as a representative figure of high regional interdependence (cf. Hamanaka 2012). Using this as a general base line and keeping in mind that 0.00 is equivalent to an equal share of intra and extra-regional trade intensity, 0.90 is equivalent to full member-

[150] This direct method of calibration is translated in the following formula: degree of membership = exp (log odds)/[1+exp(log odds)] (Ragin 2008a, p. 91). This fairly complicated procedure is simplified by using the fsQCA 2.0 software (version date: January 2009).

ship in the set of interdependence, and 0.00 is equivalent to full non-membership in the set of interdependence.[151]

3.1.3.4. Expectations

Much implicit or explicit emphasis is often laid on the importance of past crises for determining current or future risk levels. For the purpose of this study it is postulated that when there is a continual increase in the financial costs to a region from natural disasters, DRM cooperation will be more likely to emerge.[152] This logic is well illustrated in most regional DRM documents. For example, the 'Context and Rationale' of CARICOM's 2001 'Strategy and Results Framework for Comprehensive Disaster Management', notes the following:

> The old adage *"An ounce of prevention is worth a pound of cure"* surely applies to natural and technological hazards. Available information supports a high benefit to cost ratio for measures to mitigate or prevent damage. For example, the World Bank and USGS have estimated that $40 billion invested in risk reduction strategies could have saved as much as $280 billion in worldwide economic losses from disasters in the 1990s – a $7 return for each dollar spent.
>
> CARICOM (2001, p. 6 original emphasis)

This general cost-benefit calculation is a fairly common approach used both in practitioner and academic settings in order to quantify the amount of state vulnerability (Briguglio 1995, Charvéiat 2000, Beson and Clay 2004, Mechler 2004).

[151] A value of 0.70 is interpreted as being in the set of interdependence and not the cross-over for full membership as there is clearly a possibility for higher interdependence. The threshold is consequently set at 0.90.

[152] Including social costs – the number of deaths – have been purposefully omitted as the number of deaths caused by transboundary disasters has continually decreased over the last century (EM-DAT 2010).

Table 3.4 Estimated regional economic losses from major natural disasters as a percentage of regional GDP: 1970-2007

Regional Organization	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2007*
EU	0.16	0.20	0.15	0.09
ASEAN	1.27	0.26	0.45	0.27
PIF	1.01	0.88	0.29	0.13
CARICOM	0.33	3.75	1.19	1.73
Mercosur	0.82	0.85	0.08	0.09
SADC	0.22	1.41	0.06	0.08
LAS	0.39	0.97	0.19	0.13
AU	0.32	0.67	0.10	0.16
OAS	0.39	0.24	0.29	0.22
ECO	0.96	0.38	1.73	0.16

Source: EM-DAT 2011, Lawrence and Williamson 2011, UNU-CRIS RIKS 2011, UNSTATS 2011, author's own calculations[153]

The estimated costs of natural disasters in each region has been collated for the period 1970-2010 in order to measure the level of expectations from the moment a regional organization decides to cooperate up to more advanced stages of cooperation.[154] The raw figures presented as a percentage of regional GDP lost due to natural disasters are presented in Table 3.4.

The main source of information comes from the International Disaster Database (EM-DAT) at the Centre for Research on the Epidemiology of Disasters (CRED), Université Catholique de Louvain. While there are certain limitations in terms of the quality and quantity of figures sourced from this database, it is nevertheless considered the best source of information currently available.[155] Furthermore, as the data is used over a long period of time, general trends ought to represent a good approximation of the economic costs to each region. A missing or false datum for a particular year is unlikely to affect the general trend over the 40-year period. The collated fig-

[153] The annual estimated costs for each member of a regional organization was sourced from the EM-DAT database (2011), the total estimated damage for each year was then calculated. This figure was then adjusted to the current USD value in 2008 (Lawrence and Williamson 2011) and then divided by the total regional GDP (UNU-CRIS 2008, UNSTATS 2011) of a particular year, giving the percentage of regional GDP affected by natural disasters. In order to more clearly illustrate general trends, the average figure for each decade was calculated. The EM-DAT advanced search was limited to the following categories: countries of the selected regional organization, natural disasters occurring in the period 1970-2008, estimated economic damages. As the regional GDP figures were only accessible up to 2007, the average for the last period is shorter. See Annex 6.2 for a more detailed description.

[154] Here, I assume that each member state of each regional organization is sufficiently aware of its own economic history and the impact disasters have had on the region's economy, an assumption of perfect information.

[155] Some of the main limitations that EM-DAT has been criticized for include: missing information, misplaced information, and skewed data which tends to be unavoidable from some national sources. It has even been estimated that up to 70 per cent of disasters do not cover economic damages from 1996-2006. Therefore, the figures are indicative and only used to express general trends rather than specific and independent figures (ISDR 2006).

ures are limited to 'natural disasters', including drought, earthquake, epidemic, extreme temperature, flood, insect infestation, mass movement dry, mass movement wet, storm, volcano and wildfires. These disasters are entered into the database only when one or more of the following instances occur: more than 10 people are killed, more than 100 people are affected, and when a state of emergency is declared or when a call for international assistance is made (EM-DAT 2009).

Estimated economic damages includes infrastructure, crop and housing damage, as well as loss of revenues, unemployment, and market destabilization (EM-DAT 2009). These raw figures – which represent the current value of the year of the natural disasters – were adjusted to the real value in 2008 based on the Consumer Price Index (Lawrence and Williamson 2011). To see the raw figures of the estimated economic damages before adjusted to the percentage of GDP, see Annex 6.2.1.

The per cent of estimated economic damage in relation to regional GDP for each year is calculated to provide a better approximation of the importance and impact natural disasters have on each regional organization. The figures for regional GDP are sourced from the UN Statistics Office. The Regional Integration Knowledge System (RIKS) at the UN University Institute on Comparative Regional Integration Studies (UNU-CRIS) is also used, which has a pre-assembled data-set for each regional organization. The data is also adjusted to the accession status of each member within a regional organization, on the assumption that, all other things being equal, the economic impact of disasters from non-members of a regional organization will not have an effect on regional cooperation. Consequently, data for incoming members is included from the point of their entry into the regional organization.[156]

As the main source of data assesses direct economic impact, the average loss as a percentage of regional GDP is measured for each decade. Applying the average thus takes into account two indirect effects on regional economic performance. First, it takes into account the frequency of large disasters; the more disasters that affect a regional organization's economy within a 10-year period, the higher the overall figure. This is in line with the general empirical finding that the higher the frequency of disasters, the higher the long-term effect disasters have on economic performance (Benson and Clay 2004, p. 61). The other way in which the average figure will be high is if there is an extreme disaster that takes out a larger percentage of regional GDP in a

[156] Note that expulsions and suspensions, such as Fiji's suspension from the PIF in 2008, Libya's expulsion from LAS in 2011, and Seychelles' period of voluntary departure from SADC from 2003-2008, are not taken into consideration.

particular year. Again, it has been shown that the larger the economic impact of a disaster, the longer it will take for economic recovery (Mechler 2004, p. 36).

The most surprising result from Table 3.4 depicts a general decrease in expected costs for a majority of the regional organizations. This is surprising because the overall recorded economic damages caused by natural disasters and the number of natural disasters over the last century has generally increased (EM-DAT 2011a, Appendix 8.1). CARICOM is the only exception to this pattern, which has experienced an increase in economic costs from major disasters over the entire 40- year period. The high costs are particularly apparent in the period 1980-1999, when economic costs to the Caribbean region exceeded 1 per cent of regional GDP eight times, with a peak of 20.5 per cent in 1988. The main natural disaster affecting the region and accounting for these high damages is hurricanes. A series of large hurricanes – hurricane Joan, Gilbert and Debby – are presumably responsible for the peak in 1988. Other peaks, such as the loss of 2.29 per cent of regional GDP in 1998 can be attributed to hurricane Mitch and the loss of 9.72 per cent of regional GDP in 2004 can be attributed to hurricane Ivan. An example of the type of damages incurred from hurricane Ivan include the destruction of 95 per cent of homes and other buildings in the Cayman Islands, major power outages in Grenada, and damaged fishing and farm infrastructure in Cuba (Stewart 2005).

Other regional organizations have fared comparatively well, as damages have rarely exceeded 0.4 per cent of regional GDP. Major peaks near or above 1 per cent of GDP occurred principally in the period 1970-1990. Here, the EU peaks in the 1970s and 1980s may be explained by the two major earthquakes that struck Italy in 1976 and 1980.[157] The 1970s peak in the PIF is mostly due to the 1974 and 1978 storms in Australia, and the peak in the 1980s is primarily due to 1981 floods and droughts in Australia. The main natural disaster affecting the ECO region and accounting for the major peaks in the 1970s and the 1990s are floods in Pakistan and Iran, as well as the 1978 earthquake in Iran. Lastly, the peak in the 1980s in the SADC may be attributed to the 1982 droughts in Botswana, Namibia, Zimbabwe, and South Africa (EM-DAT 2011b, PreventionWeb 2012).[158] For a further review of the raw data on the estimated economic damages to regional organization from natural disasters see Annex 6.2.

[157] Significant economic damage also occurred in Spain during 1980 from the result of drought. A major storm in Germany also produced significant damage in 1976 (EM-DAT 2011).
[158] The source for this information was taken from an advanced search on the EM-DAT database (2011).

Table 3.5 Regional estimated economic damages (EXP) conversion to fuzzy values (*fv*)

Regional Organization	*1970-1979*		*1980-1989*		*1990-1999*		*2000-2009*	
	EXP	*fv* EXP	EXP	*fv* EXP	EXP	*fv* EXP	EXP	*fv* EXP
EU	0.16	0.12	0.20	0.14	0.15	0.11	0.09	0.08
ASEAN	1.27	0.99	0.26	0.19	0.45	0.43	0.27	0.20
PIF	1.01	0.96	0.88	0.91	0.29	0.22	0.13	0.10
CARICOM	0.33	0.27	3.75	1.00	1.19	0.98	1.73	1.00
Mercosur	0.82	0.87	0.85	0.89	0.08	0.07	0.09	0.08
SADC	0.22	0.16	1.41	1.00	0.06	0.07	0.08	0.07
LAS	0.39	0.34	0.97	0.94	0.19	0.13	0.13	0.10
AU	0.32	0.25	0.67	0.73	0.10	0.08	0.16	0.12
OAS	0.39	0.34	0.24	0.17	0.29	0.22	0.22	0.16
ECO	0.96	0.94	0.38	0.33	1.73	1.00	0.16	0.12

Source: EM-DAT 2011b, Lawrence and Williamson 2011, UNU-CRIS RIKS 2011, UNSTATS 2011; author's own calculations, fsQCA 2.0 software (Breakpoints: 1.00, 0.50, 0.00).

The translation of the raw data to fuzzy sets is displayed in Table 3.5. Following the same procedure for the level of interdependence – where three qualitative breakpoints are defined and justified through existing substantive and theoretical knowledge – the following breakpoints are constructed for the set of expectations. The crossover breakpoint is pegged at 0.80 per cent of regional GDP; the breakpoint for full membership in the set of expectations is 1.00 per cent of regional GDP; while the breakpoint for full nonmembership in the set of expectations is 0.10 per cent of regional GDP. These figures were chosen based on previous studies that assess the vulnerability of national economies to natural disasters. High vulnerability, for example, is set by Lino Brigigulio at the loss of 1 per cent of national GDP (1995, p. 1620, cf. Beson and Clay 2004, p. 20). As the figures in Table 3.5 are averages of the total amount of economic damages within a decade, continually high levels of GDP that exceed 0.5 per cent of regional GDP are regarded as significant for motivating states to cooperate on DRM.[159] Figures of more than 1 per cent of regional GDP are regarded as severe and thus fully in the set of expectations. Conversely, when there is no loss to regional GDP it is considered highly unlikely that states will cooperate on DRM.[160]

[159] That is, more than half of what is considered highly damaging to a region.
[160] Note that even if the crossover breakpoint was shifted to a higher percentage of regional GDP such as 0.8, the resulting fuzzy values would not significantly change as there is a significant difference between regional organizations with high and low values.

3.1.3.5. Asymmetric risk

When the estimated economic damages caused by natural disasters are consistently asymmetrical, it is hypothesized that states will be more likely to cooperate on regional DRM. That is, 'insurance regimes' will only emerge if there is a high degree of diversity throughout the region in terms of transboundary disasters (Keohane 1989, p. 123, cf. Snidal 1985, p. 929). In order to prevent one state gaining relative to another by not being exposed to a natural disaster, all states will be likely to invest in a common insurance scheme. This scheme will help to mitigate the effects of a disaster if the costs of disasters are asymmetrical for all member states (Jervis, cited in Keohane 1989, p. 130).

Table 3.6 The coefficient of variation of estimated economic damages: 1970-2009

Regional Organization	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2009*
EU	212	236	115	194
ASEAN	121	130	172	137
PIF	395	362	348	366
CARICOM	228	193	166	160
Mercosur	192	113	132	123
SADC	316	310	157	183
LAS	236	305	203	259
AU	306	444	354	452
OAS	337	317	466	520
ECO	157	125	203	210

Source: author's own calculations, cf. Annex 6.5, Table 3.5[161]

Presented as the coefficient of variation of estimated economic costs, the extent to which each regional organization has a history of asymmetrical natural disasters is depicted in Table 3.6. The coefficient of variation of estimated economic damages in the 10 regional organizations can be interpreted in the following manner: the higher the value, the more asymmetrical is the estimated economic damages of a particular region. Conversely, the lower the values, the more symmetrical are the estimated economic damages across member states of a regional organization. To be clear, this does not take into account the number of natural disasters affecting a regional organization, but the estimated economic damages caused by natural disasters over a 10-year period. By drawing on the data set for the expectation hypothesis, the Standard Deviation (SD) is first calculated, and is then divided by the mean to produce a coefficient of variation (CV). The SD is helpful for showing the distribution of economic

[161] These figures were calculated from the data set for the expectations hypothesis (Table 3.4, cf. Annex 6.5).

costs within a region in relation to the mean; the larger the SD the wider the distribution. The CV expresses the ratio of the SD to the mean, which provides for a more coherent comparison between regions as the CV does not rely on a single mean (cf. UCLA 2012). In order to establish a general pattern of (a)symmetrical risk across time, the total economic damage from each country in a regional organization is calculated for each decade. The CV is then calculated for each decade from the 1970s to the 2000s. For a more comprehensive overview of how the CV was calculated see Annex 6.5.

The general trend for all regional organizations is that they share asymmetrical risk. This is particularly the case for regional organizations that have a high number of member states, such as the AU and the OAS. It is also interesting to note that the principal reason for the high asymmetries in most regional organizations is often due to one or two countries that take up a majority of the estimated costs in a region. In the last two decades, for example, Iran, Pakistan, and Turkey account for 95 per cent of estimated economic damages for ECO; the US accounts for 86 per cent in the OAS; Algeria and Egypt account for 56 per cent in the AU; South Africa and Mozambique account for 58 per cent in SADC; Australia accounts for 90 per cent in the PIF; Argentina and Brazil account for 96 per cent in Mercosur; Italy, France and Germany account for 55 per cent in the EU; South Yemen, Algeria, Oman and Egypt account for 63 per cent in LAS; the Philippines and Indonesia account for 63 per cent in ASEAN; and the Bahamas, Jamaica, and St Kitts and Nevis account for 62 per cent in CARICOM (cf. Annex 6.5).

It is also worth pointing out that many of these countries tend to be highly active in instigating regional DRM. This phenomenon correlates with the theoretical assumption that insurance regimes will emerge with high asymmetries, where a country will attempt to share risk in order to reduce economic costs (Keohane 1989, p. 123). For example, Italy takes up an astounding 44 per cent of the total economic costs from natural disasters in the EU over the last 40 years. It is also Italy that has been the main protagonist in creating the EU community mechanism on civil protection (Wendling 2011) and has also been one of the most proactive members to cooperate on civil protection training and operations (Hollis 2010, pp. 58, 75). ECO also offers a similar example, where Iran has taken a leading role in creating the Regional Centre for Risk Management (ECO 2008c). This additional observation is addressed in the following explanation on power disparity.

Table 3.7 Asymmetric risk (AYS) conversion to fuzzy values (*fv*)

Regional Organization	*1970-1979*		*1980-1989*		*1990-1999*		*2000-2009*	
	AYS	*fv* AYS	AYS	*fv* AYS	AYS	*fv* AYS	AYS	*fv* AYS
EU	212	0.72	236	0.76	115	0.54	194	0.69
ASEAN	122	0.55	130	0.57	172	0.65	137	0.58
PIF	395	0.92	362	0.90	348	0.89	366	0.90
CARICOM	228	0.75	193	0.69	166	0.64	160	0.63
Mercosur	192	0.69	113	0.53	132	0.57	123	0.55
SADC	316	0.86	310	0.85	157	0.62	183	0.67
LAS	236	0.76	305	0.85	203	0.71	259	0.79
AU	306	0.85	444	0.95	354	0.89	452	0.95
OAS	337	0.88	317	0.86	466	0.96	520	0.97
ECO	157	0.62	125	0.56	203	0.71	210	0.72

Source: fsQCA 2.0 software (Breakpoints: 458, 98, 0), cf. Table 3.6.

The fuzzy values for the set of asymmetrical risk are presented in Table 3.7. The conversion from the raw data set in Table 3.6 is determined by three qualitative breakpoints: full membership, the cross over point and full nonmembership in the set of asymmetric risk. The following hypothetical scenario helps to explain and justify these breakpoints. If a regional organization has 21 member states – the average number of the 10 cases examined in this thesis – and if one of the member states accounted for 100 per cent of the total regional estimated economic damage, the CV would be 458 per cent.[162] This is representative of very high asymmetries and consequently marks the breakpoint for full membership in the set of asymmetries. At the other extreme, if more than half of the member states (11 out of 21) equally share the total regional estimated economic costs from natural disasters, a CV of 98 per cent is produced. Based on the theoretical assumption that if all members of a regional organization are equally affected by a catastrophic event there will be no motivation to cooperate (Keohane 1989, p. 123), 98 per cent represents the crossover point. As any figure below 98 will be more symmetrical than asymmetrical it qualifies as being more out than in the set of asymmetrical risks. A CV of 0 per cent consequently represents the breakpoint for non membership in the fuzzy set.

3.1.3.6. Intra-regional power disparity

If the relationship between power and interdependence is an important determinant for international cooperation (Keohane 1989, p. 105), it follows that the power ine-

[162] This would change slightly depending on the values of the other member states. Here, 10 other member states account for 1 per cent each and the remaining states account for 0 per cent.

qualities nested within a regional organization will also have an effect on the outcome. This idea was popularized by Walter Mattli who talks of 'regional paymasters' that provide the capacity and leadership for regional policy implementation (1999). By incorporating this notion into regional DRM cooperation, it is posited that when a powerful country within a regional organization has a high incentive to cooperate on DRM, cooperation will be more likely (cf. Stone 2009, p. 33). This also means that when there is no regional paymaster or when there is a regional paymaster that has a low incentive to cooperate on regional DRM, the likelihood of cooperation is low.[163]

Table 3.8 Intra-regional Power Disparity (IPD): 1970-2008

Regional organization	*Multiplication of regional share of GDP and per cent of estimated economic damages*			
	1970-1979	1980-1989	1990-1999	2000-2008
EU	2036	1562	1314	1276
ASEAN	2252	2050	2305	1885
PIF	8413	7795	7525	7969
CARICOM	489	1018	800	1158
Mercosur	6696	4901	3431	5732
SADC	6	1730	2744	2662
LAS	491	816	579	562
AU	168	1221	934	913
OAS	5168	4883	6295	6933
ECO	1540	4542	3252	1523

Source: EM-DAT 2011b, World Bank 2012, cf. Annex 6.6.

Based on these theoretical assumptions, the indicator for assessing the asymmetry of intra-regional power is based on the multiplication of the percentage share of a member state's GDP (power) and the percentage share of economic damages caused by natural disasters (incentive). By multiplying these percentages together, a final score is given that reflects the extent to which both power and a high incentive base are located within a minority of countries. The higher the score, the more power is concentrated in one country. For example, the regional paymaster in the OAS is the US, which accounts for 91 per cent of economic damages in the region and 76 per cent of regional GDP (2000s). The US thus contributes to 99.6 per cent of the total score of 6933 for the OAS. On the other extreme is LAS, where power is more evenly spread out. The highest percentage of economic damage from natural disasters is contributed to Algeria, which accounts for approximately 9 per cent of the region's GDP, while

[163] Keohane argues that these entrepreneurs are necessary for international cooperation in regimes. However, this will only come about if (1) the entrepreneur gains through cooperation and (2) the organizational costs to the entrepreneur will be lower than the anticipated gains (Keoahne 1989, p. 112).

Qatar has the highest percentage of GDP but has not incurred any recorded costs from natural disasters. The League of Arab States receives a total score of 562 in the 2000s period. These and other values can be viewed in Table 3.8 and a full county-specific overview of intra-regional power disparities in Annex 6.6.

The percentage of GDP is taken from the World Bank's online database, which lists all country-specific GDP data from 1970 to 2008. Using the GDP as an indicator for power is particularly useful as this not only provides an indicator of material-based power, but also provides some indication as to the possible material capacity a regional organization will have in DRM cooperation. In order to match this power against country-specific motivation for cooperating on DRM, the percentage of economic damage caused by natural disasters is sourced from the EM-DAT database. As with the previous asymmetries condition, the estimated damages for each country within a region is selected and the percentage for each country calculated. The average for each decade was then calculated to provide recognizable trends. For a more comprehensive overview of these calculations see Annex 6.6.

The raw values represented in Table 3.8 emphasize three regional organizations that clearly have a regional paymaster: the OAS, PIF and Mercosur. As briefly discussed above, the US is the major power holder in the OAS. Australia is the main power holder in the PIF and accounts for approximately 86 per cent of regional GDP and 91.9 per cent of estimated economic damages in the period 2000-2008. In Mercosur, Brazil takes up the lion's share of 79 per cent of regional GDP and 64.6 per cent of economic damages. At the other end of the extreme are LAS and CARICOM that hold fairly low scores over the 40 year period. In the middle are the EU, ECO, ASEAN, and SADC, which either contain rising paymasters or small coalitions of powerful states.

It is worth noting that if small coalitions were possible between a minority of countries instead of a single paymaster, the EU, ECO, and ASEAN would receive considerably larger values. The combination of the UK, France, Germany, and Italy, for example, accounts for approximately 72.9 per cent of estimated damages and 63.3 per cent of regional GDP in the EU in the period 2000-2008. The Philippines, Thailand and Indonesia in ASEAN account for higher combined values of 59.7 per cent of economic damage and 64 per cent of regional GDP. Finally, Turkey and Iran combine to produce a total of 76.4 per cent of estimated costs and 63.1 per cent of regional GDP. SADC, on the other hand, has a more evenly spread of GDP and economic disasters, although South Africa is certainly a rising paymaster as it holds 39 per cent of economic damages and accounts for 64.9 per cent of regional GDP.

Table 3.9 Intra-regional Power Disparity (IPD) conversion to fuzzy values (*fv*)

Regional organization	1970-1979		1980-1989		1990-1999		2000-2008	
	Multi	*fv* IPD	Multi	*fv* IPD	Multi	*fv* IPD	Multi	*fv* IPD
EU	2036	*0.36*	1562	*0.24*	1314	*0.19*	1276	*0.18*
ASEAN	2252	*0.42*	2050	*0.36*	2305	*0.44*	1885	*0.32*
PIF	8413	*0.96*	7795	*0.94*	7525	*0.94*	7969	*0.95*
CARICOM	489	*0.07*	1018	*0.14*	800	*0.11*	1158	*0.16*
Mercosur	6696	*0.90*	4901	*0.78*	3431	*0.62*	5732	*0.85*
SADC	6	*0.04*	1730	*0.28*	2744	*0.53*	2662	*0.52*
LAS	491	*0.08*	816	*0.11*	579	*0.08*	562	*0.08*
AU	168	*0.05*	1221	*0.17*	934	*0.12*	913	*0.12*
OAS	5168	*0.81*	4883	*0.78*	6295	*0.88*	6933	*0.91*
ECO	1540	*0.23*	4542	*0.75*	3252	*0.60*	1523	*0.23*

Source: fsQCA 2.0 software (Breakpoints: 8100, 2500, 100), cf. Table 3.8, Annex 6.6. Multi = Multiplication.

As with the other conditions assessed in this thesis, the extent to which each region holds a favourable systemic environment for DRM cooperation is translated into fuzzy values by establishing three breakpoints between full membership, crossover, and full non membership in the set of intra-regional power asymmetries. The breakpoint that determines full membership in this set is a value of 8,100. This is based on the hypothetical situation were one country holds 90 per cent of a region's GDP and the percentage of economic damages caused from natural disasters. Instead of 100 per cent, 90 per cent was chosen because it is highly unrealistic that a regional organization would exist if only one member was contributing the full amount of GDP. The crossover point is pegged at a value of 2,500, which is derived from a condition in which more than 50 per cent of GDP and estimated costs are invested in a minority of countries within a regional organization. Full nonmembership is pegged at 100. This represents a condition where countries within a regional organization contribute less than 10 per cent of regional GDP and estimated damages. Again, 0 was not chosen, as this would be highly unlikely for a functioning regional organization. These values are displayed in Table 3.9.

3.2. Testing the edifice

The results of this study begin with an individual summary and analysis of the four explanatory conditions, their relationship to the outcome, and whether they corroborate with the hypotheses as independent conditions. As this section makes clear, none

of the conditions are necessary for the emergence of regional disaster risk cooperation. This finding directs attention to what combination of conditions are sufficient for the outcome; hence, the possibility of an INUS condition. These issues are addressed for emerging or nascent DRM cooperation after 1975, and advanced cooperation on regional DRM cooperation. The differences between the two time periods are then examined in order to critically assess the robustness of the selected causal conditions, as the level of the causal conditions ought to correspond to the increase in DRM cooperation.

3.2.1. An independent comparison of the explanatory and outcome conditions

The following section analyses each hypothesis independently by comparing each explanatory condition against the outcome condition. This procedure helps to identify any fully necessary of sufficient conditions that can explain the emergence of regional DRM cooperation.

3.2.1.1. Interdependence and regional DRM

To what extent does the interdependence hypothesis corroborate with the outcome condition (DRM)? The hypothesis states that: *when regional interdependence is high, DRM cooperation will be more highly developed*. The empirical findings question the explanatory value of interdependence as an independent condition, but stop short of rejecting it, as it still holds potential value in a configurational analysis and offers some insight into regional DRM cooperation in last period of investigation (2000-2009).

Table 3.10 Fuzzy-set comparison of interdependence (STI) and DRM: 1970-2009

Regional Organization	*1970-1979*		*1980-1989*		*1990-1999*		*2000-2009*	
	STI	DRM	STI	DRM	STI	DRM	STI	DRM
EU	0.66	0.00	0.61	0.40	0.87	0.65	0.89	0.90
ASEAN	0.88	0.30	0.85	0.30	0.80	0.30	0.87	0.90
PIF	0.87	0.35	0.88	0.35	0.91	0.35	0.91	0.65
CARICOM	0.95	0.00	0.94	0.00	0.97	0.70	0.97	0.90
Mercosur	0.82	0.00	0.86	0.00	0.95	0.00	0.95	0.25
SADC	0.65	0.00	0.22	0.00	0.93	0.30	0.96	0.70
LAS	0.16	0.00	0.16	0.45	0.73	0.45	0.66	0.80
AU	0.06	0.00	0.11	0.30	0.87	0.30	0.92	0.65
OAS	0.83	0.00	0.77	0.00	0.86	0.55	0.88	0.75
ECO	0.02	0.00	0.91	0.00	0.77	0.00	0.66	0.45

Source: UNU-CRIS RISK 2011, cf. Table 3.1, 3.3, Annex 6.2.3, 6.3.

Table 3.10 provides a comparison between the interdependence condition (STI) and the outcome condition (DRM). The outcome condition is based on a cost-benefit calculation and is measured through five indicators of ascending cooperation, beginning with collective declarations and knowledge sharing activities (nascent cooperation), and ending with regional operational capacities and collective asset sharing (advanced cooperation).[164] The interdependence variable is based on the regional Symmetric Introversion Trade (STI) index which measures the relative intensity of trade within a region and whether there is a bias to intra- or extra-regional trade (cf. UNU-CRIS RIKS 2011).

The main outcome from the initial comparison between interdependence and regional DRM is that interdependence is a trivial necessary condition for the emergence of regional DRM in the period 1970-2000. In the last decade, however, interdependence provides a stronger correlation with the level of DRM cooperation as a sufficient condition. The interdependence condition is necessary in the period 1970-2000 because the STI fuzzy values (interdependence) are predominantly higher than the outcome condition, i.e., it is always present when the outcome occurs. It is trivial because the distance between the STI fuzzy value and the outcome condition is particularly large. This means that the *coverage*, or the extent to which the explanatory condition explains the outcome, is low. Indeed, a majority of cases in the period 1970-2000 run against the expectation that if interdependence is high, then the level of regional DRM cooperation will also be high. This is most clearly represented in the 1970s when a minority of regional organizations cooperate on DRM, yet a majority have a strong bias toward intra-regional trade.

[164] For a more comprehensive overview of the five categories of cooperation and the outcome values see Annex 6.3.

Viewed in isolation, the 2000s are a more convincing time period, where a majority of regional organizations provide fuzzy values that are more in than out of the sets of DRM cooperation and interdependence. In comparison to the 1970s, which have a consistency rate of 100 per cent and a coverage of 11 per cent, the fuzzy value comparison of this period provides a consistency rate of 88 per cent and a coverage of 82 per cent. Consistency is defined as 'the *degree* to which the empirical evidence is consistent with the set theoretic relation in question' (Ragin 2009, p. 108, original emphasis).[165] Coverage is defined as the proportion of membership of the outcome condition that can be explained by the explanatory condition (Ragin 2008b, p. 86).[166] The high consistency and coverage rates mean that interdependence can moderately explain why regional DRM cooperation generally increased to an advanced level in the 2000 period, but provides an unsatisfactory explanation for the previous three decades of DRM cooperation.

The outliers to this general pattern – LAS and the AU in the 1980s, and the EU, LAS and ASEAN in the 2000s – show lower levels of interdependence than the expected level of cooperation: a sufficient but not necessary condition for the outcome. As the difference in fuzzy values between DRM and interdependence is marginal for the EU and ASEAN, these cases are not considered problematic outliers, but closer to a sufficient and necessary condition for DRM cooperation. The 2000s fuzzy values for LAS, and the fuzzy values for the AU and LAS in the 1980s, are more difficult to explain because there is a greater distance between the level of DRM cooperation and expected levels of interdependence. While interdependence only appears as a sufficient condition in three out of the 40 cases (4 time periods times 10 regional organizations), it does question why these regional organizations would invest in a higher level of DRM cooperation when there is a relatively smaller incentive (informed through interdependence). Taking this into consideration, and its general lack of explanatory power, interdependence is disqualified as a fully necessary condition as it does not satisfactorily explain the emergence of regional DRM independently. To be sure, this does not mean that it ought to be rejected as an explanatory condition, as it can still play an important role in a configurational analysis as a possible INUS condition. The remaining three conditions outlined in this chapter are now turned to.

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[165] Consistency is expressed in the following formula: $(Xi \leq Yi) = \sum [\min Xi, Yi] \sum (Xi)$. The operator 'min' stands for the lower of the two values; Xi stands for the degree of membership in the causal combination; and Yi is the degree of membership of the outcome condition (Ragin 2008a, p. 134). The function of assessing necessary conditions in the fsQCA 2.0 software was used as a more efficient manner to arrive at these values.

[166] Coverage is calculated by 'dividing the sum of consistent membership in the solution term by the sum of membership in the outcome' (Ragin 2008b, p. 86).

3.2.1.2. Expectations and regional DRM

'Expectations' is a condition designed to portray the economic costs of major natural disasters in the region. It is assumed that when expectations increase the level of co-operation on DRM ought to follow. This is expressed in the following hypothesis: *when the expected costs of future natural disasters are high, DRM cooperation will be highly developed*. The findings do not agree with the level of expectations. In contrast to the interdependence condition, expectations tend to explain more in the 1970s and the 1980s than the 1990s and 2000s. Its explanatory value generally decreases over time.

Table 3.11 Fuzzy-set comparison of expectations and DRM: 1970-2009

Regional Organization	*1970-1979*		*1980-1989*		*1990-1999*		*2000-2009*	
	EXP	DRM	EXP	DRM	EXP	DRM	EXP	DRM
EU	0.12	0.00	0.14	0.40	0.11	0.65	0.08	0.90
ASEAN	0.99	0.30	0.19	0.30	0.43	0.30	0.20	0.90
PIF	0.96	0.35	0.91	0.35	0.22	0.35	0.10	0.65
CARICOM	0.27	0.00	1.00	0.00	0.98	0.70	1.00	0.90
Mercosur	0.87	0.00	0.89	0.00	0.07	0.00	0.08	0.25
SADC	0.16	0.00	1.00	0.00	0.07	0.30	0.07	0.70
LAS	0.34	0.00	0.94	0.45	0.13	0.45	0.10	0.80
AU	0.25	0.00	0.73	0.30	0.08	0.30	0.12	0.65
OAS	0.34	0.00	0.17	0.00	0.22	0.55	0.16	0.75
ECO	0.94	0.00	0.33	0.00	1.00	0.00	0.12	0.45

Source: EM-DAT 2011, Lawrence and Williamson 2011, UNU-CRIS RIKS 2011, UNSTATS 2011, fsQCA 2.0 software (Breakpoints: 1.00, 0.50, 0.00), cf. Tables 3.1 and 3.5, Annex 6.3, 6.2.3.

Table 3.11 provides a comparison between the expectations conditions (EXP) and the outcome condition (DRM). The raw data used to express the level of expectations are based on the percentage of previous estimated economic damages caused by natural disasters as a percentage of regional GDP. Once collated these figures were then translated into fuzzy values by re-organizing the raw figures according to three qualitative breakpoints reflecting whether a regional organizations is in, out, or on the threshold of, the set of expectations.[167] The fuzzy values for the outcome condition are based on five quantitative thresholds that are informed through a cost-benefit logic; each threshold represents a cumulative cost to the member state (cf. Annex 6.3).

[167] Determined by empirical and theoretical knowledge, the breakpoint for full membership in the set of expectations is pegged at 1 per cent of regional GDP, the breakpoint for the crossover point is pegged at 0.5 per cent, and the breakpoint for full non membership is pegged at 0 per cent. For a comprehensive overview of the fuzzy values for DRM see Annex 6.3.

The correspondence between expectations and DRM in the period 1970-1979 is moderately good, whereby 6 out of 10 cases provide a close match between the level of DRM cooperation and expected levels of expectations. That is, the EU, CARICOM, SADC, LAS, the AU, and the OAS have a low level of expectations and low or non-existing levels of DRM cooperation. While expectations is a fully necessary condition for this period (100 per cent consistency rate), it has a trivial coverage of 12 per cent.[168] Put differently, four cases – ASEAN, PIF, Mercosur, and ECO – have very high levels of expectations, but exhibit low or non-existing levels of DRM cooperation. In the following three decades the expectations condition generally decreases as co-operation in DRM increases. This means that the expectations condition turns from a trivial necessary condition in the 1970s to a trivial sufficient condition in the 2000s. Indeed, the triviality – understood as large distances between the explanatory and outcome condition – is a common feature throughout the entire period of investigation. Six cases in the 1980s depict very high levels of expectations and low levels of DRM cooperation. CARICOM, PICAB (Mercosur's predecessor), and SADCC have EXP fuzzy values between 0.89 and 1.00 and no DRM cooperation. While there were relatively less inconstancies in the 1990s, in the 2000s a majority of cases depict high levels of DRM cooperation and low levels of expectations.

The main finding is that expectations is not a fully necessary or fully sufficient condition to independently explain the outcome. This directs attentions to the value, and possible combinations of, other conditions that may provide for sufficient or necessary conditions.

3.2.1.3. Asymmetric risk and regional DRM

The extent to which each member state of a regional organization incurs economic damages from natural disasters over time is assumed to motivate states to cooperate on DRM. This statement is based on the following hypothesis: *when the intra-regional diversity of natural crises is high, DRM cooperation will be highly developed.* The main findings show that asymmetries are a necessary yet trivial condition for the period 1970-1990. The following two decades, however, reveal that its explanatory power increases.

[168] As noted in the previous section, coverage indicates how much of the outcome can be explained by each solution term (Ragin 2008b, p. 85) and consistency is the '*degree* to which the empirical evidence is consistent with the set theoretic relation in question' (Ragin 2009, p. 108, original emphasis).

Table 3.12 Fuzzy-set comparison of asymmetric risk and DRM: 1970-2009

Regional Organization	*1970-1979*		*1980-1989*		*1990-1999*		*2000-2009*	
	AYS	DRM	AYS	DRM	AYS	DRM	AYS	DRM
EU	0.72	0.00	0.76	0.40	0.54	0.65	0.69	0.90
ASEAN	0.55	0.30	0.57	0.30	0.65	0.30	0.58	0.90
PIF	0.92	0.35	0.90	0.35	0.89	0.35	0.90	0.65
CARICOM	0.75	0.00	0.69	0.00	0.64	0.70	0.63	0.90
Mercosur	0.69	0.00	0.53	0.00	0.57	0.00	0.55	0.25
SADC	0.86	0.00	0.85	0.00	0.62	0.30	0.67	0.70
LAS	0.76	0.00	0.85	0.45	0.71	0.45	0.79	0.80
AU	0.85	0.00	0.95	0.30	0.89	0.30	0.95	0.65
OAS	0.88	0.00	0.86	0.00	0.96	0.55	0.97	0.75
ECO	0.62	0.00	0.56	0.00	0.71	0.00	0.72	0.45

Source: fsQCA 2.0 software (Breakpoints: 458, 98, 0), cf. Table 3.7, Annex 6.3; 6.5.

Table 3.12 compares the asymmetry condition (AYS) and the outcome condition (DRM) as fuzzy values. The asymmetry condition is measured by calculating the coefficient of variation from the estimated economic damage incurred from each member of a regional organization. The higher the value the more asymmetric the financial risk. These raw figures were then translated into fuzzy values based on three qualitative breakpoints that determine the extent to which a regional organization is in, out, or near the threshold of, the set of asymmetrical risk. The outcome condition is based on five quantitative thresholds that reflect an increasing cost to the member states (cf. Annex 6.3).

The first two decades under review depict asymmetries as a strong necessary condition. However, as all cases are more in than out of the set of asymmetries, and more out than in the set of regional DRM cooperation, the explanatory condition is trivial. The 1990s and the 2000s reveal an increase in the coverage of asymmetric risk, which means that it can more accurately explain DRM cooperation.[169] While some consistency is lost – such as the EU and CARICOM in the 1990s – it remains at a fairly high level: 98 per cent in the 1990s and 88 per cent in the 2000s. The results from the final two decades under investigation disqualify asymmetrical risk as a fully necessary condition. Furthermore, as asymmetries have not dramatically increased or decreased over the last 40 years its triviality in the 1970s and 1980s questions its correlational strength to regional DRM. Keeping this in mind, asymmetric risk can still have an important explanatory power in a configurational explanation.

[169] The coverage increased from 48 per cent in the 1990s to 82 per cent in the 2000s.

3.2.1.4. Intra-regional power disparity and regional DRM

This explanatory condition is based on the presumption that a certain amount of capacity in terms of material wealth must be relatively located in one member of a regional organization (paymaster). When this member state also has a high incentive to cooperate on DRM, the likelihood that cooperation will emerge is high. This is formulated in the following hypothesis: *When intra-regional power disparities are high, DRM cooperation will be highly developed*. The general findings show that intra-regional power disparity is not a fully necessary or sufficient condition for the emergence of regional DRM cooperation.

Table 3.13 Fuzzy-set comparison of Intra-regional Power Disparities (IPD) and DRM: 2000-2009

Regional Organization	*1970-1979*		*1980-1989*		*1990-1999*		*2000-2009*	
	IPD	DRM	IPD	DRM	IPD	DRM	IPD	DRM
EU	0.36	0.00	0.24	0.40	0.19	0.65	0.18	0.90
ASEAN	0.42	0.30	0.36	0.30	0.44	0.30	0.32	0.90
PIF	0.96	0.35	0.94	0.35	0.94	0.35	0.95	0.65
CARICOM	0.07	0.00	0.14	0.00	0.11	0.70	0.16	0.90
Mercosur	0.90	0.00	0.78	0.00	0.62	0.00	0.85	0.25
SADC	0.04	0.00	0.28	0.00	0.53	0.30	0.52	0.70
LAS	0.08	0.00	0.11	0.45	0.08	0.45	0.08	0.80
AU	0.05	0.00	0.17	0.30	0.12	0.30	0.12	0.65
OAS	0.81	0.00	0.78	0.00	0.88	0.55	0.91	0.75
ECO	0.23	0.00	0.75	0.00	0.60	0.00	0.23	0.45

Source: EM-DAT 2011, World Bank 2012, cf. Tables 3.8, 3.9, Annex 6.6.

Table 3.13 compares Intra-Regional Power (IPD) disparities with the level of DRM cooperation (DRM). In order to measure the level of IPD the percentage of estimated economic costs from each member of a regional organization was multiplied by their percentage share of regional GDP. The higher the value the more that material power and the incentive to cooperate on DRM are located in a minority of countries. These raw figures were then translated into fuzzy values based on three qualitative benchmarks that determine the extent to which a regional organization is in or out of the set of intra-regional power disparities. The outcome condition is constructed through a careful analysis of regional DRM agreements according to five qualitative thresholds that reflect the increasing costs of cooperation for member states. The higher the fuzzy value, the more it costs for member states to cooperate.

The full period of investigation, from 1970 to 2009, reveals a high number of inconsistencies between the explanatory and outcome condition. This is most apparent in the 1990s and 2000s when LAS, for example, had a low power disparity yet a high

level of cooperation, and Mercosur had a high level of power disparity yet a low level of DRM cooperation. A higher percentage of cases tend to confirm the hypothesis in the 1970s and 1980s. Here, LAS, the AU, ECO, and ASEAN, for example, have a low or non-existing level of DRM cooperation which also matches a low level of power disparity. Yet, a number of outliers in this period reduce its explanatory power, such as the high level of power disparity of the OAS, Mercosur, and PIF. As intra-regional power disparity is generally below accepted levels of consistency and coverage, it is neither a fully sufficient nor fully necessary condition.[170] This does not, however, disqualify it from being a part of a configurational explanation, which is turned to in the following section.

3.2.1.5. Summary

Testing the four hypotheses on an individual basis reveals a low level of corroboration. None of the explanatory conditions were fully necessary or sufficient for explaining the emergence of DRM cooperation.

Table 3.14 Number of cases that confirm the independent hypotheses

Time Period	*Interdependence*	*Expectations*	*Asymmetries*	*Power*
1970-1989	3	6	0	7
1980-1989	3	4	0	6
1990-1999	3	8	2	3
2000-2009	8	3	8	3
Total	17	21	14	19
Total per cent	42.5	52.5	35	47.5

Source: Tables 3.10, 3.11, 3.12, 3.13

Table 3.14 depicts the number of cases that confirm the hypotheses for each time period. When a case displays expected fuzzy values according to the level of regional DRM cooperation it can be said to have (loosely) confirmed with the hypotheses. Confirmation is thus granted when a case has a low membership in the set of regional DRM cooperation and a low membership in the set of interdependence, expectations, asymmetries, or power disparity.[171] The total number of cases that corroborate are divided by the total possible number of positive outcomes (40) to give a percentage of cases each condition could explain. This is displayed in the lower rows in Table 3.14.

[170] Generally accepted levels are above 75 per cent (Ragin 2008a, p. 136).
[171] The reverse also corroborates with the hypotheses: when a case expresses fuzzy values that are more out than in the set of regional DRM cooperation and also more out of the set of a given explanatory condition.

The overall results illustrate that the explanatory conditions can explain half or less than half of the given cases. Although the explanatory conditions in the period after 2000 tend to offer a stronger explanation – particularly interdependence and asymmetrical risk – this is still only half of the cases. Even if the conditions could fully explain DRM cooperation after 2000, it would still be difficult to understand why the previous three decades could not be appropriately explained. Given the finding that none of the explanatory conditions can independently explain the emergence of regional DRM cooperation, the following section employs a logical minimization calculus to investigate the extent to which the conditions can provide an adequate configurational explanation.

3.2.2. A configurational analysis of the explanatory and outcome conditions

It was posited earlier in this chapter that each explanatory condition would be neither necessary nor sufficient for the outcome. Instead, it was hypothesized that a combination of all four conditions was 'an insufficient but necessary part of a condition which is itself unnecessary but sufficient for the result' (Mackie 1965, cited in Mahoney *et al.* 2008, p. 125). This so-called INUS condition translates into the following proposition: cooperation on regional DRM (Y) is possible if interdependencies (Xi), expectations (Xii); asymmetries (Xiii) and power (Xiv) are present. This is expressed in the formula Y→ Xi∗Xii∗Xiii∗Xiv.[172] Translated into the causal and outcome conditions this formula is: DRM→ STI∗EXP∗ASY∗IPD.

The INUS condition is tested in this section by (1) analysing the possible combinations of conditions when each regional organization began to cooperate on DRM and (2) analysing the possible combination of conditions when each regional organization reached an advanced level of cooperation, i.e., when each regional organization crosses the threshold to being more in than out of the set of DRM cooperation. It is assumed that the explanatory conditions will increase in value with the outcome.

According to fuzzy-set logic, the following calculus is made in order to determine and verify how a combination of conditions can provide an explanation for the outcome. First, in order to determine the extent to which a combination of explanatory conditions is a subset or a superset of the outcome all possible combinations are listed

[172] The signifier (Y) represents the outcome; (Xi-iv) represents the conditions; (→) represents the correlation pathway; and the operator (∗) represents the logical AND function.

in rows. For this analysis, which includes both the presence and absence of the four explanatory conditions, a total of 16 rows are possible.

Second, the empirically relevant combinations are identified.[173] When the values of the explanatory combination are consistently more than the outcome condition, they can be said to be a superset of, or a necessary condition for, the outcome. The necessary condition is only valid, however, when the distance between the outcome values and the explanatory combination is small; the greater the distance, the more trivial the condition is for explaining the outcome.[174] In other words, when the *coverage* is low it can explain much but is unspecific. The sufficiency of the combinations can also be assessed by identifying combinations that hold values that are consistently lower than the outcome condition, that is, a subset of the outcome. When the consistency scores are high they are said to pass the set-theoretic consistency cut-off point (Ibid, p. 135).[175] A substantial consistency score is considered to be more than 75 per cent (Ragin 2008a, p. 136).

Third, the combinations that are consistent are then simplified using Boolean algebra to produce a solution for the outcome.[176] This process of Boolean minimization is based on the following rule:

> If two Boolean expressions differ in only one causal condition yet produce the same outcome, then the causal condition that distinguishes the two expressions can be considered irrelevant and can be removed to create a simpler, combined expression.
>
> Ragin (2008b, p. 38)

The strategy one takes when dealing with logical remainders – the possible conditions that are not accounted for empirically – determines the complexity or parsimony of the outcome. When the logical remainders are not included in an analysis the 'most complex solution' is achieved, and when logical remainders are subject to coun-

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[173] With 10 cases and 4 explanatory conditions, it is difficult to fill all possible combinations of conditions. The logical remainders can be dealt with either through a counterfactual analysis – which produces parsimonious and intermediate solutions – or by choosing not to incorporate the logical remainder, which produces a most complex solution.

[174] While the cut-off point for coverage ought to be drawn on a substantive and theoretical basis, any figure below 75 per cent is generally considered to be increasingly trivial (Ragin 2008a, p. 136).

[175] Consistency is expressed in the following formula: $(Xi \leq Yi) = \sum [\min Xi, Yi] \sum (Xi)$. The operator 'min' stands for the lower of the two values; Xi stands for the degree of membership in the causal combination; and Yi is the degree of membership of the outcome condition (Ragin 2008a, p. 134).

[176] For example, there might hypothetically be a consistent combination for low DRM cooperation expressed as: ~IPD∗EXP+~IPD∗~EXP ≤ ~DRM. This can be reduced to an intermediate solution (~IPD∗(EXP+~EXP) ≤ ~DRM) and finally to a simplified form: ~IPD ≤ ~DRM. In order to reduce any risk of miscalculations, the fsQCA 2.0 software performs these algebra simplifications.

terfactual analysis, a 'most parsimonious solution' is achieved. An 'easy' counterfactual is the theoretical and substantial assertion that a logically possible combination of explanatory conditions would, or would not, produce the outcome.[177] For example, it can be argued that according to the case selection criteria, a regional organization that does not have an intra-regional trade bias (not interdependent) would be unlikely to exist.[178] However, as this statement is based on a theoretical assumption – that no interdependence will make DRM cooperation highly unlikely – it would obfuscate the results of the analysis if the aim of this chapter is to test the theoretical assumptions of neoliberal institutionalism. Given this position, inserting 'easy' counterfactuals are not included. However, including all logical remainders as potential counterfactuals can still be useful for identifying a possible parsimonious solution in addition to the complex solution (cf. Ragin 2008a, p. 173).

The following section is divided into three main categories. The first analyses the extent to which there is a general systemic threshold that needs to be passed in order to motivate states to cooperate on regional DRM. The explanatory conditions are thus compared to the level of cooperation when each regional organization began to cooperate on DRM, which is generally at the nascent level of cooperation. The second section repeats the same analysis for when DRM passes the threshold from a nascent to an advanced level. That is, when states agree to cooperate at the operational level in addition to information sharing (cf. Annex 6.3). The purpose of this second analysis is to test whether the explanatory conditions hold continual power in explaining the emergence of DRM cooperation from a nascent to an advanced level. This is based on the assumption that as the incentive structure changes, the level of cooperation will also increase. The third section looks at the general increase or decrease in the level of explanatory conditions over the full period of investigation, from 1970-2009. This serves the purpose of verifying and cross-checking the importance of the conditions in explaining the outcome, where it is expected that a similar trend in the outcome and explanatory conditions will occur over time.

[177] In contrast, a 'hard' counterfactual is the assertion that despite pre-given theoretical assumptions, an explanatory condition is argued to be (un)necessary for the outcome (Ragin 2008a, p. 162).
[178] The scope conditions of the selection of cases are confined to multi-dimensional regional organizations. This excludes organizations such as NATO or the Shanghai Cooperation Organization that are organized around security issues.

3.2.2.1. Nascent DRM

The nascent level of regional DRM cooperation, which corresponds to the level of DRM cooperation when each regional organization began to cooperate, is defined by the extent to which each regional organization officially declares the need to cooperate and instigates knowledge sharing and information exchanges on DRM activities. That is, the membership in the set of DRM cooperation is low (≤0.5). It is shown here that a weak combination of interdependence, expectations and asymmetrical risk can explain the outcome for a nascent level of DRM cooperation.

Table 3.15 Nascent regional disaster management cooperation

Regional Organization	Year	STI	*fv* STI	EXP	*fv* EXP	ASY	*fv* ASY	IPD	*fv* IPD	*fv* DRM
EU	1982-1987	0.60	0.73	0.08	0.07	120	0.55	1499	0.22	0.25
ASEAN	1971-1976	0.76	0.89	1.10	0.97	146	0.60	2506	0.51	0.30
PIF	1970-1975	0.72	0.86	1.18	0.98	381	0.91	8228	0.96	0.35
CARICOM	1985-1990	0.93	0.96	4.48	1.00	200	0.70	1219	0.17	0.45
Mercosur	2004-2009*	0.88	0.95	0.14	0.10	191	0.68	7908	0.95	0.25
SADC	1994-1999	0.83	0.93	0.07	0.07	225	0.74	3793	0.67	0.30
LAS	1982-1987	0.27	0.23	0.73	0.80	388	0.92	28	0.04	0.45
AU	1980-1985	-0.13	0.02	1.08	0.97	546	0.98	1237	0.17	0.30
OAS	1986-1991	0.65	0.79	0.14	0.10	423	0.94	5618	0.84	0.10
ECO	2001-2006	0.51	0.60	0.22	0.16	222	0.74	1886	0.32	0.45

Source: EM-DAT 2011b, UNU-CRIS RIKS 2011, World Bank 2012, cf. Tables 3.10, 3.11, 3.12, 3.13. * The available values for the STI, EXP and ASY are from the period 1970-2008. A smaller number of years are thus used to acquire the average for cases that include values past 2008.[179]

Table 3.15 depicts the raw figures from the four explanatory conditions and their corresponding fuzzy values according to each qualitative breakpoint.[180] The raw figures were taken from the average value of the preceding five year period before the establishment of regional DRM cooperation. The purpose of this is to provide for a more general figure that would presumably have had the most direct relevance for the

[179] The raw ITS value for AU, for example, is based on the average from 2004-2008 rather than 2004-2009.

[180] As expressed earlier in this chapter, these breakpoints are based on substantive and theoretical arguments. The breakpoints for the interdependence condition (STI) is 0.90, 0.45, 0.00. The breakpoints for the expectations condition (EXP) is 1.00, 0.50, 0.00. The breakpoints for the asymmetrical risk condition (ASY) is 458, 98, 0. The breakpoints for intra-regional power disparity (IPD) is 8100, 2500, 100.

member states of a regional organization. A period of five years also reduces possible biases from an idiosyncratic year that could potentially misconstrue the results. The main sources of information for the raw data come from the EM-DAT, UNU-CRIS RIKS, and World Bank databases. The outcome condition (DRM) is constructed by a total of five different categories of cooperation that are based on an ascending cost-benefit calculation (cf. Annex 6.3). The nascent level – representing a fuzzy value between 0 and 0.49 – is defined by whether an organization unofficially (0.1) or officially (0.2) declares the need to cooperate, and the extent to which information sharing initiatives are instigated (0.1-0.2). An additional value can be added if limited operational capacities are proposed, such as a reinsurance scheme to aid in the recovery from natural disasters (0.1-0.2). The DRM fuzzy values in the far-right column represent the level of cooperation from the moment each regional organization began to cooperate on DRM. The interdependence explanatory conditions is sourced from the STI index; the expectations condition (EXP) is sourced from the EM-DAT database and based on past estimated economic damages; asymmetrical risk (ASY) is the coefficient of variation of the estimated economic damages; and intra-regional power disparities are calculated using the percentage of regional GDP share and the percentage of costs to each member state of a regional organization.[181]

The general findings from Table 3.15 reveal that a majority of the conditions are present when regional DRM cooperation emerges, however there is little consistency or coverage throughout the cases. Asymmetrical risk is the only necessary condition for regional DRM cooperation (DRM←AYS) as all of the values are higher than the outcome condition. That is, asymmetrical risk is a super-set of the outcome conditions. However, as the coverage is only 41 per cent, its power of explanation is significantly low as it can explain much but with little specificity; it cannot independently explain DRM cooperation.

The strongest sufficient configuration reveals that low membership in DRM is a product of low membership in interdependence, expectations, asymmetrical risk, and symmetrical power:

$$\text{Most complex solution: } DRM \rightarrow STI * EXP * ASY * {\sim}IPD$$[182]

[181] For a more comprehensive overview of these conditions please refer to their individual subsections in this chapter.

[182] The direction of the arrow signifies if the condition is sufficient (DRM→) or necessary (DRM←). The sign (∗) signifies logical AND and (~) signifies the negation of a fuzzy value.

This complex formula can be further reduced if the logical remainders are subject to a minimization process, whereby the necessary condition (ASY) is removed from the equation (DRM→STI∗EXP∗~IPD). While the complex or parsimonious formula comes close to confirming the hypothesized INUS condition, it is a trivial explanation; the solution coverage is 47 per cent and the consistency is 77 per cent. In other words, there are too many inconsistencies or outliers in the configuration to provide for an adequate explanation. The main outliers that reduce the coverage and consistency below acceptable levels are ASEAN, PIF, and CARICOM. These regional organizations are more in than out of the set of interdependence, expectations, asymmetries, and power.[183] While PIF may be explained by the excessive weight Australia brings to the fuzzy values compared to the majority of small island states, and while CARICOM's position can be partly explained by its rapid development in DRM cooperation in the following year (1991), the case of ASEAN is still difficult to explain. Why would a region with high levels of interdependence, high expectations, high levels of asymmetric risk and high levels of power disparity choose to maintain a low level of regional DRM cooperation?

If the DRM fuzzy values were negated, a highly convincing combination of explanatory conditions emerges to explain DRM cooperation.[184] The most 'complex solution' – that does not use logical remainders – is expressed in the following statement: regional DRM is a product of high membership in the set of interdependence and asymmetrical risk (DRM→ STI∗ASY).[185] These conditions are sufficient but not necessary to explain the emergence of DRM cooperation. The negation of the outcome condition demonstrates that the explanatory conditions hold values that are generally too high to adequately explain DRM cooperation. This means that the hypothesized INUS condition is not only reduced to two or three explanatory conditions, but these conditions also lack significant coverage and consistency.

A further unexpected result is that power symmetries tend to explain more than power asymmetries. The independent hypothesis on power disparity posits that the more material-related power is concentrated in a member state, the more likely cooperation would eventuate. However, this is only the case if the same state also has a large incentive to cooperate based on their regional share of economic damages

[183] Note that the level of power for CARICOM does not conform to this general pattern.
[184] Negation involves the inversion of a fuzzy value. For example, a value of 0.25 would be negated to a value of 0.75.
[185] This formula has a solution coverage of 77 per cent and a consistency of 92 per cent. The 'most parsimonious' solution is that interdependence is a sufficient but not necessary condition for regional DRM cooperation (DRM→STI). This has a solution coverage of 82 per cent and a solution consistency rate of 81 per cent.

caused by natural disasters. This is not the case, as a condition favouring a wider spread of power and incentives is more likely to produce regional DRM cooperation. Instead of only including a single regional paymaster, it is also likely that a small coalition of high-risk countries will provide the appropriate conditions for DRM cooperation. Indeed, it is fairly easy to locate a small number of countries that share a majority of power and economic damages from natural disasters. This includes, for example, France, Germany, the UK, and Italy in the EU; Pakistan, Iran, and Turkey in ECO; Algeria, Zimbabwe, Nigeria, and Madagascar in the AU; and Indonesia, the Philippines, and Thailand in ASEAN.

Table 3.16 Risk coalitions in nascent regional DRM

Regional Organization		Year	IPD	*fv* IPD	*fv* DRM
Paymaster	Risk Coalition[186]				
n.a	EU	1982-1987	6023	0.87	0.25
n.a	ASEAN	1971-1976	7877	0.95	0.30
PIF	n.a	1970-1975	8228	0.96	0.35
n.a	CARICOM	1985-1990	3027	0.57	0.45
Mercosur	n.a	2004-2009	7908	0.95	0.25
SADC	n.a	1994-1999	3793	0.67	0.30
n.a	LAS	1982-1987	286	0.06	0.45
n.a	AU	1980-1985	4131	0.71	0.30
OAS	n.a	1986-1991	5618	0.84	0.10
n.a	ECO	2001-2006	8564	0.96	0.45

Source: EM-DAT 2011, World Bank 2012, fsQCA 2.0 (breakpoints: 8100; 2500; 100) cf. Annex 6.3, Table 3.1.

Table 3.16 depicts the possible coalitions that might provide a more convincing explanation for regional DRM. The Intra-Regional Power (IPD) disparity for coalitions of four or fewer countries is derived by adding the percentage of the combined share of GDP and percentage of economic costs to the three or four most affected and affluent members of a regional organization. These two percentages are then multiplied. The resulting value is then added to the values produced by repeating the same procedure individually for all other member states in a regional organization. These raw figures were then subjected to the same qualitative breakpoint classification used in the previous section on determining the membership of a regional organization in the

[186] The EU coalition consists of Germany, France, the UK and Italy. The ASEAN coalition consists of Indonesia, the Philippians and Thailand. The CARICOM coalition consists of Jamaica, St Lucia and Barbados. The LAS coalition consists of Algeria, Tunisia and Saudi Arabia. The AU coalition consists of Zimbabwe, Nigeria, Algeria and Madagascar. The ECO coalition consists of Pakistan, Turkey and Iran.

set of power disparity (8100 for full membership; 2500 for the crossover point; and 100 for full nonmembership). When the combined raw values that produce an indicator of power disparity are joined into a coalition of three or four countries, the fuzzy values increase so that all cases have a high membership in the set of power disparities (see Table 3.16). The only and major exception to this is LAS, which means that the explanatory condition cannot be claimed as a fully necessary condition for regional DRM cooperation. Indeed, even if LAS were not included, the coverage would still be too low for intra-regional power disparity to independently and convincingly explain the outcome.

In summary, neoliberal institutionalism provides a weak systemic explanation for the emergence of nascent regional DRM, as the INUS hypothesis does not fully explain the empirical results. Even an adjustment of the scope conditions of the explanatory condition on power disparities does not achieve the expected results. Keeping this in mind, a combination of interdependence, expectations and asymmetries does explain a majority of cases, albeit with a fairly low coverage.

The following section further tests the INUS condition when the level of regional DRM crosses the threshold in the set of regional DRM cooperation.

3.2.2.2. Advanced DRM

This section analyses the extent to which combinations of explanatory variables can explain why states increased DRM cooperation levels to an advanced state. That is, when a regional organization is more in than out of the set of regional DRM cooperation (≥ 0.5). This analysis is based on the assumption that if regional DRM cooperation develops from a nascent to an advanced level of cooperation, the systemic conditions hypothesized in this chapter ought also to increase. In contrast to nascent cooperation, which is primarily concerned with information sharing and joint declarations of intent, an advanced level also includes operational capacities, transboundary standardization of procedures, and the pooling of assets. The more developed the cooperation, the higher the relative costs and benefits are to each member state.

The outcome of this analysis reveals that the hypothesized INUS condition – that a combination of interdependence, expectations, asymmetrical risk, and large power disparities are necessary conditions for a sufficient explanation – is not corroborated. Instead a high membership in the set of interdependence and asymmetrical risk is consistent for providing a sufficient explanation for the development of regional DRM.

Table 3.17 Advanced regional disaster management cooperation

Regional Organization	*Year* (+5)	STI	*fv* STI	EXP	*fv* EXP	ASY	*fv* ASY	IPD	*fv* IPD	*fv* DRM
EU	1989-1994	0.71	0.85	0.15	0.11	130	0.57	1450	0.21	0.65
ASEAN	2000-2005	0.73	0.87	0.25	0.18	208	0.71	2174	0.40	0.55
PIF	2000-2005	0.80	0.91	0.16	0.12	444	0.95	7379	0.93	0.65
CARICOM	1986-1991	0.94	0.96	4.51	1.00	200	0.70	1127	0.15	0.70
SADC	1996-2001	0.88	0.95	0.14	0.10	190	0.68	2492	0.49	0.55
LAS	2006-2011	0.55	0.66	0.16	0.12	306	0.85	318	0.06	0.80
AU	2004-2009	0.80	0.91	0.05	0.06	284	0.82	858	0.11	0.65
OAS	1989-1994	0.69	0.83	0.36	0.30	548	0.98	7109	0.92	0.55

Source: EM-DAT 2011b, UNU-CRIS RIKS 2011, World Bank 2012, cf. Tables 3.10, 3.11, 3.12, 3.13, Annex 6.3.[187]

Table 3.17 depicts the raw and fuzzy values of the four explanatory conditions and the fuzzy values for the outcome condition. The explanatory conditions are based on the five years prior to the establishment of an advanced form of regional DRM cooperation in order to reduce statistical biases and inconsistencies. It is also assumed that the immediate time period leading up to the establishment of advanced DRM would be the most important for decision-makers. The main sources for constructing the raw data come from the EM-DAT (2011), UNU-CRIS RIKS (2011), and the World Bank (2012) databases. The raw data has also been adjusted to a fuzzy-set scale between 0 and 1, which is determined by substantive and theoretical based qualitative breakpoints.[188] The outcome condition is based on the first value a regional organization reaches when it crosses the threshold of 0.5. The main sources for constructing the fuzzy values for the outcome condition come from official regional agreements and texts on DRM (cf. Annex 6.3, Table 3.1). There are three conditions that determine the value of the outcome condition in an advanced state (more in than out of the set of regional DRM cooperation). The first and most important condition concerns operational activity: when a regional organization decides to directly respond to or facilitate future crises with a specific set of capacities. A value of more than 0.1 from a maximum of 0.2 determines if the regional organization crosses the threshold. The next condition is based on the extent to which DRM practices are standardized (0.1-

[187] Note that the figures for LAS are based on the percentage of estimated damages in the period 2006-2009 and the average percentage of regional GDP share from 2006-2010.
[188] The breakpoints for the interdependence condition (STI) are 0.90, 0.45, 0.00. The breakpoints for the expectations condition (EXP) are 1.00, 0.50, 0.00. The breakpoints for the asymmetrical risk condition (ASY) are 458, 98, 0. The breakpoints for intra-regional power disparity (IPD) are 8100, 2500, 100. For more on how these breakpoints were arrived at please consult the individual section on the explanatory conditions.

0.2) and the final condition concerns the extent to which a regional organization acquires pooled assets for DRM.[189]

The general results reveal that there is no observable necessary condition for the development of regional DRM as there is no consistent subset of the outcome. However, a combination of sufficient conditions can be found, which is expressed in the following formula:

Most complex solution: DRM → STI ∗ ASY ∗ ~IPD + STI ∗ ASY ∗ ~EXP[190]

This is translated as: DRM is a product of high membership in the set of interdependence (STI) and asymmetrical risk (AYS) and intra-regional power symmetry (IPD) or high membership in the set of interdependence (STI) and asymmetrical risk (AYS) and not expectations (EXP). This formula was arrived by a minimization process based on a high consistency (≥75) of empirically relevant combinations of the explanatory conditions.[191] It is clear that the hypothesized INUS condition is modified. Instead of confirming the necessity of all four conditions, the most complex solution (that admits all logical remainders) shows that interdependence and asymmetrical risks are necessary parts of a sufficient condition for regional DRM. The overall solution coverage for the abovementioned formula is 96 per cent and the solution consistency is 85 per cent.[192]

The expectation condition (EXP) is negated because the inverted values of all cases except for CARICOM would produce a more likely explanation for regional DRM. This means that states are unlikely to cooperate on regional DRM based on previous economic costs to the region. As the general level of expectations – measured as a percentage loss of regional GDP over time – has decreased over the last 40 years, this condition has become less important. As illustrated in the previous analysis on the

[189] For a comprehensive overview of the sources for each explanatory and the outcome condition please consult the individual sections above. Also see Annex 6.3.
[190] The direction of the arrow signifies if the condition is sufficient (DRM→) or necessary (DRM←). The sign (∗) signifies logical AND, (+) signifies logical OR, and (~) signifies the negation of a fuzzy value.
[191] As expressed above, the minimization process is based on the standard rule as expressed by Charles Ragin: 'If two Boolean expressions differ in only one causal condition yet produce the same outcome, then the causal condition that distinguishes the two expressions can be considered irrelevant and can be removed to create a simpler, combined expression' (Ragin 2008b, p. 38).
[192] If the formula were split into the two possibilities, the first (DRM → STI ∗ ASY ∗ ~IPD) has a raw coverage of 74 per cent and a consistency of 95 per cent. The second possibility or 'causal recipe' (DRM → STI ∗ ASY ~EXP) has a raw coverage of 82 per cent and consistency of 83 per cent. As there is little difference in these two recipes – one slightly excels in specificity and the other in coverage – and as the same two conditions are found in both, interdependence and asymmetrical risk are highlighted as the most influential conditions.

nascent level of regional DRM, expectations fared only slightly better in offering a suitable explanation, where expectations was part of a sufficient combination of conditions that had a low level of consistency and coverage. CARICOM is the only outlier, which can be explained by its particular geographical position that is regularly affected by hurricanes. The extreme economic damages that these produce, and the increase in their frequency due to global warming, provide an independent explanation for CARICOM. Viewed over the entire 40-year period under review, expectations would be classified as a necessary condition.

The intra-regional power disparity condition is also negated in the most complex formula. This tends to be a common trend across the entire 40-year period of investigation, as the previous analysis on nascent DRM illustrates. Like the former analysis, risk coalitions can also be drawn from a number of the regional organizations. A risk coalition is defined by when a minority of countries make up a majority of the estimated economic costs (incentive structure) and the regional share of GDP (power).

Table 3.18 Risk coalitions in advanced regional DRM

Regional Organization					
Paymaster	Risk Coalition[193]	Year (+5)	IPD	*fv* IPD	*fv* DRM
n.a	EU	1989-1994	5554	0.84	0.65
n.a	ASEAN	2000-2005	4890	0.78	0.55
PIF	n.a	2000-2005	7379	0.93	0.65
n.a	CARICOM	1986-1991	3204	0.59	0.70
SADC	n.a	1996-2001	2492	0.49	0.55
n.a	LAS	2006-2011	1718	0.27	0.80
n.a	AU	2004-2009	3479	0.63	0.65
OAS	n.a	1989-1994	7109	0.92	0.55

Source: EM-DAT 2011b, World Bank 2012, fsQCA 2.0 (breakpoints: 8100, 2500, 100) cf. Annex 6.3, Table 3.1.

If the regional organizations that do not have a recognizable paymaster form small coalitions between four or fewer countries that share the majority of costs from natural disasters, and if the same states also hold the capacity and power to orchestrate regional cooperation on DRM, then the importance of power as an explanatory variable increases. Table 3.18 illustrates how these figures would change from a majority of cases with a low membership in power disparities to a majority of cases with a high membership. The raw values (IPD) are calculated by first adding the combined share of GDP and percentage of economic costs from the three or four most affected and

[193] The EU coalition consists of Germany, France, the UK, and Italy. The ASEAN coalition consists of Indonesia, the Philippines, and Thailand. The CARICOM coalition consists of Jamaica, St Lucia, and Barbados. The LAS coalition consists of Algeria, Sudan, Oman, and Saudi Arabia. The AU coalition consists of Sudan, South Africa, Algeria and Madagascar.

affluent members of a regional organization. These two percentages were then multiplied to produce a value that was then added to the values produced by repeating the same procedure individually for all other member states in a regional organization. The raw figures were then reconfigured according to an ordinal scale between 0 and 1. This was done by setting three qualitative breakpoints (8100 for full membership, 2500 for the crossover point, and 100 for full non membership).[194]

The result produced from this adjustment reveal that intra-regional power disparities is not a necessary condition for DRM, but it does function as a part of a combination for a sufficient condition. The re-formulation of the minimization of empirically relevant combinations of explanatory conditions is:

Most complex solution: DRM → STI ∗ ASY ∗ ~EXP + STI ∗ ASY ∗ IPD

This formula is translated as: DRM is a product of the high membership in the set of interdependence and asymmetrical risk and not expectations or high membership in the set of interdependence, asymmetrical risk and intra-regional power disparities. As the expectations condition can be removed, the first 'causal recipe' is the most parsimonious as DRM can be explained with only two of the four explanatory conditions. However, for a slightly more accurate explanation the adjusted intra-regional power condition improves the overall solution coverage and consistency. The first causal recipe (DRM → STI ∗ ASY) has a coverage of 82 per cent and a consistency rate of 83 per cent. The second recipe (DRM → STI ∗ ASY ∗ IPD) has a coverage of 84 per cent and a consistency rate of 86 per cent. While both causal pathways lead to the outcome, the inclusion of intra-regional power disparities is useful for increasing the accuracy of the causal configuration. Keeping this in mind, intra-regional power disparities are not a necessary part of the combination of interdependence and asymmetrical risk for explaining DRM.

In summary, the evaluation of a more fully developed form of regional DRM cooperation is more in tune with theoretical expectations. While the empirical findings do not corroborate with the hypothesized INUS condition, a more parsimonious INUS condition emerges that emphasizes the combination of interdependence and asymmetrical risk as necessary parts of a sufficient condition for the outcome. The adjustment to the power disparity condition to include risk coalitions also provides an alternative causal pathway. Finally, the level of expectations fails to explain cooperation.

[194] The raw figures for the percentage of economic costs can be reviewed in Annex 6.2.3 and the GDP statistics can be retrieved from World Bank (2012).

If both the nascent and the advanced analyses on DRM cooperation are considered, then the interdependence and the asymmetrical risk explanatory conditions prove to be the most consistent over the entire 40 year period. However, as these two conditions were below acceptable consistency and coverage levels for the analysis on the nascent level of cooperation, it is also important to take the growth or decline of these explanatory conditions into consideration.

3.2.2.3. Time and causal conditions

This section assesses the extent to which the explanatory conditions increased or decreased over the period of investigation. This exercise helps to confirm whether the combination of interdependence and asymmetrical risk are sufficient conditions for regional DRM cooperation. If, for example, the level of these explanatory conditions does not increase or decrease over time, their power of explanation is significantly reduced as the conditions ought to be able to explain the full emergence of DRM cooperation. The added value of this sub-section thus highlights the extent to which each case can be explained by the conditions over time.

Table 3.19 Increase in the explanatory values from nascent to advanced regional DRM cooperation

RO	Year	*fv* STI			*fv* EXP			*fv* ASY			*fv* IPD		
		N	A	%	N	A	%	N	A	%	N	A	%
EU	1982-1989	.73	.85	16.4	.07	.11	57.1	.55	.57	3.6	.22	.21	-4.6
ASEAN	1971-2000	.89	.87	-2.3	.97	.18	-81.4	.60	.71	18.3	.51	.22	-56.9
PIF	1970-2000	.86	.91	5.8	.98	.12	-87.8	.91	.95	4.4	.96	.93	-3.1
CARICOM	1985-1986	.96	.96	.0	1.0	1.0	.0	.70	.70	.0	.17	.15	-11.8
SADC	1994-1996	.93	.95	2.2	.07	.10	42.9	.74	.68	-8.1	.67	.49	-26.9
LAS	1982-2006	.23	.66	187	.80	.12	-85	.92	.85	-7.6	.04	.06	50
AU	1980-2004	.02	.91	4450	.97	.06	-93.8	.98	.82	-16.3	.17	.11	-35.3
OAS	1986-1989	.79	.83	5	.10	.30	200	.94	.98	4.3	.84	.92	9.5
Total mean percentage between nascent and advanced DRM				583.0			-6.0			-0.2			-10.0
Total mean percentage from 1970s-2000s				230.0			-20.6			-1.6			175.8

Source: Annex 6.7, Tables 3.15, 3.17. Note: RO signifies Regional Organization; N signifies the Nascent level of DRM cooperation; A signified Advanced level of DRM cooperation; % signifies the percentage change between N and A (rounded to third decimal place).

If the combination of interdependence and asymmetrical risk are sufficient conditions for the development of (advanced) regional DRM, it is presumed that these conditions would have had to increase from a nascent level of DRM cooperation. In order to test this assumption, the percentage difference of the conditions between nascent and advanced forms of cooperation has been calculated (Table 3.19). The percentage difference is derived from the fuzzy values in Tables 3.15 and 3.17. The fuzzy values are prioritized over the raw data because it has a single numerical dimension between 0 to 1 and covers a general trend between decades, limiting biased or idiosyncratic results that could emerge with raw data. Mercosur and ECO are not included, as they have not yet reached an advanced stage of regional DRM cooperation. The total mean percentage of all cases is displayed in the lower row of Table 3.19 and the total mean percentage change of the conditions from the 1970s to the 2000s is displayed in the lowest row in Table 3.19. The calculation and raw figures for the latter percentages can be viewed in Annex 6.7.

The findings reveal that interdependence is the most robust condition for explaining regional DRM in conjunction with asymmetrical risk. All cases either remain or crossover the threshold of high membership in the set of interdependence, which produces a percentage increase of 583 per cent between nascent and advanced level of DRM cooperation. Put differently, interdependence becomes more important over time for explaining DRM cooperation in conjunction with asymmetrical risk. The latter condition remains a necessary part of a sufficient condition (INUS) for the outcome, however it is generally weaker or has a lower coverage for explaining the outcome. There is no strong correlation with the rise of DRM and asymmetrical risk. It should be noted that the AU and the OAS also over-determine the increase in interdependence over time. If these two cases were hypothetically removed, a more constant trend would result, which would mean that, while important, the INUS condition (DRM → STI ∗ ASY) becomes more trivial for explaining regional DRM. Keeping this in mind, an increase in the interdependence condition over the entire 40-year period of investigation does convey a substantial increase of 230 per cent. This correlation, between the rise of DRM cooperation and the general rise of regional interdependence in most cases, tends to confirm the explanatory power of interdependence.

The expectation condition fares less well as it suffers from a decrease of 6 per cent from a nascent to an advanced level of regional DRM and a general decrease of 20.6 per cent over the 40-year period of investigation. If expectations based on the prior economic costs to a region generally decrease over time, it is surprising that states would choose to cooperate on regional DRM if the perceived benefits continually de-

preciate. This finding agrees with the fuzzy-set analyses on advanced regional DRM cooperation, generally disconfirming the importance of the condition for the emergence of DRM. If there is an inverse correlation between the development of DRM cooperation and expectations, then the limited explanatory power of expectations for the emergence of DRM is confirmed.

The decrease in the power disparity condition between the nascent and advanced level of DRM cooperation also goes against theoretical expectations. Instead of decreasing, it was expected that the development of DRM cooperation would be partly the result of a clear intra-regional power disparity. While this is the case for some regional organizations, it does not explain all cases. However, if the percentage changes of the adjusted fuzzy values of risk coalitions are included, a general increase of 38 per cent results.[195] This means that a correlation can be observed between the development of regional DRM and power disparities that include both paymasters and risk coalitions.

3.2.2.4. Explaining expectations

The simultaneous decrease in the relative estimated economic costs to regional organizations and the increase in regional DRM cooperation is the most surprising result of this study. Why did states not cooperate through established regional organizations, such as LAS or the ECC, when there was greater functional demand? LAS, for example, lost an average of 0.64 per cent of its regional GDP during the 1980s compared to 0.18 per cent in the 2000s (Annex 6.2.3). Yet, it only began to cooperate on DRM in 2008 when the economic costs from natural disasters were at their lowest point in 40 years (Ibid, LAS 2011). Why did states choose not to cooperate through regional organizations when the perceived benefits were high, and what caused them to decide to cooperate when the perceived benefits were low? Two possible explanations seem tenable. First, the assumption that states have perfect information can be relaxed. By deflating the 'consistency of the utility function' of states, it can be supposed that states are motivated by incomplete or incorrect information (Simon 1995, p. 49). The general increase in the costs from natural disasters that are unadjusted for inflation (Appendix 8.1) would, for example, explain why states have recently begun to cooperation on regional DRM. This option conceptually stretches the scope condition of neoliberal institutionalism by introducing increased complexity. The second

[195] This sum was calculated by finding the average of the percentage change between the IPD fuzzy values in Tables 3.18 and 3.16.

option to tentatively posture an additional causal condition based on gaining legitimacy that emerges through the following 'cultural explanation' in chapter 4. This possibility is discussed in the concluding chapter.

3.3. Conclusion

This chapter applies a rational explanation for why states are motivated to cooperate on regional DRM, which is performed through the application of neoliberal institutionalism with the aid of an fsQCA analysis. Neoliberal institutionalism is chosen because a number of its expectations do not meet empirical observations. Some of these include: that an increasing number of regional organizations cooperate on DRM as the relative costs from natural disasters have only marginally increased; that there are high similarities in the content of regional DRM agreements; and that the emergence of DRM cooperation is confined to a small period of time. Neoliberal institutionalism was thus employed to explain these anomalies in order to question its scope conditions.

Four hypotheses were subsequently constructed from core functional arguments found in neoliberal institutionalism: interdependence, expectations, asymmetrical risk, and power disparities. It was posited that these structural-based causal conditions were necessary parts of a sufficient condition for the outcome.

The results reveal that interdependence (measured by the intensity of intra-regional trade) and asymmetrical risk (measured by the disparity of estimated economic damages in a regional organization) are necessary parts of a sufficient condition to explain the emergence of regional DRM. This solution does not come without some important caveats, however. First, the consistency and coverage of this causal configuration are fairly low when regional organizations began to cooperate on DRM (nascent level); it was only when cooperation developed that a stronger explanation using this configuration could be made. Second, it was illustrated that while asymmetrical risk is an important part of the causal recipe, interdependence is the stronger condition. This is particularly apparent in the assessment on the growth of this causal condition over time, which correlates best with rise of regional DRM cooperation.

Another finding showed that intra-regional power disparities (the concentration of material power and high incentives to cooperate on DRM) are not a necessary or sufficient condition for the outcome. However, an adjustment to its scope conditions, to include the possibility of small 'risk coalitions', does provide an alternative causal

recipe – in addition to interdependence and asymmetrical risk – for the emergence of regional DRM.

In contrast to the other explanatory conditions, the level of expectations does not confirm the empirical findings. This causal condition is defined as the relative costs from natural disasters as a percentage of regional GDP. As this is informed by a cost-benefit calculus, which is a central aspect of neoliberal institutionalism, it is surprising that the very inversion of the expectations hypothesis provides a better explanation. This discrepancy in revisited in Chapter 4, which asks the same research question from the perspective of world society theory.

4. A cultural explanation

Volcanic eruptions in Iceland and Chile, earthquakes in Japan and New Zealand, droughts in East Africa and China, and floods in Thailand reflect only a few of the many disasters that befell states during 2011. These and other natural disasters incurred an estimated damage of 249.68 billion USD, affected 80.8 million people, and cost approximately 28,000 lives (EM-DAT 2011b).[196] According to these figures the incentives for states to prevent, prepare, and respond to such disasters ought to be clear. The protection of citizens not only ensures state sovereignty, but it is also in its interest to invest in DRM in order to reap financial gains and reduce social instability. An increasingly interdependent world and a general rise in natural disasters due to global warming strengthens this rationale and ought to encourage states to cooperate on DRM at the regional level.

Despite the persisting character of natural disasters, regional cooperation on DRM is a recent phenomenon. As illustrated in the previous chapter, a gradual development of regional DRM cooperation began from the early 1970s to the late 1990s. Despite the increasing number of natural disasters set against a backdrop of an increasingly interdependent world, most regional agreements remained negligible; declarations were mostly limited to an acknowledgement of the impact of natural disasters and the need for cooperation. This cautionary approach is not surprising as a state would naturally prefer to limit any cooperative endeavours that infringe upon its responsibility to protect its citizens.

Yet, since the late 1990s a surge in DRM cooperation from a nascent to an advanced level spread across the globe. Declarations of intent and information sharing activities were upgraded to the inclusion of operational activity and the harmonization of national DRM policies. Within a short time-span up to 26 regional organizations had developed explicit agreements on DRM cooperation (Annex 6.1). Added to this odd turn of events is the type of agreements that have been produced; despite the variation in political systems, local histories of natural disasters, and cultural perceptions, similarities in the aims and methods of the regional agreements are the rule

[196] The figures were located through an advanced search on the EM-DAT database (2012) for estimated economic damages from all natural disasters in all world regions for the period 2011.

rather than the exception. Within a period of only 10 years at least 13 regional organizations created similar DRM action plans to prepare, prevent and respond to major natural disasters (Ibid).

The increase in natural disasters over the last 40 years cannot explain the incentive structure for state cooperation in DRM. As the previous chapter has shown, the estimated damage incurred from natural disasters as a percentage of regional GDP has continually decreased over the period of investigation. If the social costs are analysed, a similar pattern is revealed: the number of lives lost due to natural disasters has also continued to decrease (Appendix 8.2). While the previous chapter does provide an explanation for what motivated states to cooperate on regional DRM – based on a combination of interdependence and asymmetrical risk – its explanatory strength is questionable, particularly when the causal combination is assessed over time. Furthermore, this rational approach was unable to convincingly explain why regional organizations would legitimize cooperation on regional DRM with growing financial costs, when the costs as a percentage of GDP have been decreasing over time.

What then has caused states to cooperate only recently on regional DRM and, in particular, why have a majority of states in the world created advanced forms of regional DRM cooperation within the last decade? This chapter attempts to resolve this anomaly by explaining the incentive structure that motivates states to cooperate on regional DRM in the period 1975-2011. According to world society theory, state cooperation on regional DRM cannot be understood without reference to the normative context that constitutes the interests of the state. The emphasis of this inquiry is thus concerned with offering an intentional explanation, suggesting that regional organizations are constructed and externally legitimated by world culture.[197] The reiterated research question is thus: w*hat motivated states to cooperate on regional DRM in the period 1975-2011?*

I argue in this chapter that state incentives to cooperate on regional DRM are shaped by the global normative context. This is achieved by establishing and working through three ideal types derived from world society theory: the standardization, the (re)production, and the diffusion of a global DRM model.[198] These purposively ab-

[197] I use the word 'intentional' in its philosophical sense, whereby the mind has the power to be 'about, to represent, or to stand for, things, properties and states of affairs' (Jacob 2010, cf. Searle 1983). In other words, action is motivated through an inter-subjective process with the world; what is considered legitimate action is performed by individuals (Jackson 2011).

[198] As noted in detail in chapter 2, p. 33, world society theory is selected as a highly relevant theory for the research question for the following main reasons. First, its decidedly structural bias set it apart from other mid-range constructivist theories that are based on the mutual constitution of agency and structure. This provides for a useful representative theory of the

stract and idealistic concepts act as a catalyst for uncovering inconsistencies between what is proposed and what is produced; through this ambiguity causal processes emerge that can help to explain a unique event. The ideal types are thus designed to elucidate the role of global norms on state interests by (1) revealing the high level of standardization in regional DRM agreements, (2) investigating the ideational roles of regional organizations, and (3) exposing the important role of international organizations in the diffusion of norms. The ideal types are furthermore understood to provide a configurational explanation whereby the first ideal type helps to explain and give meaning to the second and third ideal types, and vice versa. To be certain, this does not mean that norms explain state action; instead it is claimed that norms influence state interests and these interests can inform action (Finnemore 1996).

The outcome reveals the importance of the UN and the international community in successfully imposing a set of DRM norms on most regional organizations in the world within a short period of time. A specific global DRM model is consequently identified in most regional organizations across the globe. This phenomenon has been achieved through relational and cultural diffusion. The former is often emphasized in the literature as an important causal feature of diffusion, such as inter-organizational cooperation. This chapter adds to this explanation by emphasizing the importance of cultural diffusion. This is highly important not only for the rapid diffusion of norms but also for the reification of a particular set of norms by grafting common cultural categories into regional and state apparatuses. These may include, for example, the injection of larger normative models, such as scientific progress, into the global DRM model to increase its legitimacy. Instances of norm standardization, (re)production, and diffusion thus help to substantiate the proposition that states' interests are influenced by the global normative environment. This argument is substantially bolstered by the findings of the previous chapter that could only partially explain why states were motivated to cooperate on regional DRM through a rational explanation.

This chapter is divided into three interlocking sections. First, the research design is elaborated by describing the process of ideal typification, the theoretical basis of the constructed ideal types and the methods of data collection and analysis. Second, the empirical investigation of the ideal types is operationalized. The first ideal type un-

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two main epistemological streams identified in the state of the art (cf. chapter 1, 18). Second,unlike many constructivist explanations that stress the importance of norms in local and national settings – and thereby place attention on the particularities and differences in the national adoption of norms – world society theory stresses the similarities across diverse political cultures that are caused by global cultural models. This substantive emphasis agrees with the requirements of theory selection according to the analytical methodology laid out in Chapter 2, p. 36, which requires a similar empirical observation to a theoretical explanation.

covers the standardized features of regional DRM with a focus on the content, concepts and values stated in DRM agreements. The second ideal type investigates how a teacher-student relationship fosters and reifies global norms. The third ideal type begins with a quantitative overview of the growth and geographical spread of DRM organizations and continues with an elaboration of the various relational and cultural diffusion mechanism used by the international community. The final section provides a summary of the ideal types and underlines the main argument that they are designed to collectively support: that states are motivated to cooperate on regional DRM through a set of global norms.

4.1. Research design

Stemming from an analytical methodology, ideal types are used as a tool to explain the incentive structure that motivates states to cooperate on regional DRM. The methods used to collate evidence are selected on the basis that the chosen techniques can produce significant empirical detail according to each ideal type.[199] In other words, methods are selected based on what is most *useful* for a particular purpose that may include both quantitative and qualitative techniques. The following section is split into three categories. First, the unit of analysis seen through the lens of anlayticism is described. Second, ideal typification is elaborated upon and the criteria for the assessment of causality are outlined. Third, three ideal types are constructed from some of the main assumptions that constitute world society theory. Note that these theoretical assumptions are detailed more extensively in the empirical section according to each ideal type. The particular methods for collating data according to these ideal types are also explained in this section.

4.1.1. Global regional DRM: an 'outside-in' perspective

Analytical studies are concerned with a singular causal process defined by a particular social and temporal setting. This often translates into a single case narrative that emphasizes the uniqueness of the case and its corresponding explanation. *Prima facie*, the application of several cases from across the globe might appear contradictory and can easily induce conceptual confusion. However, the case under investigation is re-

[199] As noted previously 'method' should not be confused with 'methodology'. The former describes the techniques for the collection and analysis of evidence and the latter describes the 'principles underlying a practice of knowledge' (Gunnell 2010, p. 15).

gional DRM *globally,* and is is understood as a contingent and unique phenomenon within, and a part of, the contextual parameters of the current cultural, political, and geographical environment.[200] This is clearly within the bounds of creating an ideal type, which is a means for analysing a 'unique configuration or their individual components' (Weber [1949] 2011, p. 93). Thus, the use of many regional organizations as a particular (intergovernmental) type of cooperation between states is used as the main referent point of inquiry that is a subset of a particular case, namely global DRM. Including all regional organizations is clearly too ambitious. Instead, a representative sample of the globalized regional DRM model has been taken. The following selection of regional organizations that began cooperation on regional DRM in the period 1975-2011 includes the EU, ASEAN, PIF, CARICOM, SADC, LAS, AU, OAS, Mercosur, and ECO. These regional organizations are viewed through three ideal types derived from world society theory with the goal of surfacing causal processes made clear by the ambiguity created through the comparison of an ideal type with empirical reality.

4.1.2. Ideal typification

The purpose of ideal types as an over-simplified explanatory model is to create ambiguity between its artificial construct and reality; it is through this tension that useful knowledge is produced that can provide an explanation for the outcome.[201] As Max Weber notes, ideal types contrast against 'empirical reality in order to establish its divergences or similarities, to describe them with the *most unambiguously intelligible concepts*, and to understand and explain them causally' ([1949] 2011, p. 43). The construction of an ideal type is usually based on a rational and logical foundation – such as economic theory; that is, however, only one logical construct amongst others. While not as common, irrational based concepts relying on 'incorrect inference' or 'self-defeating action' can also serve as the foundations of an ideal type (Ibid, p. 42). This highlights the *function* rather than the 'normative correctness' of ideal types, which ought to: (1) reveal 'concrete cultural phenomena in their interdependence', (2) reveal causal conditions, and (3) have practical significance (Ibid, pp. 92, 94). Thus,

[200] Regional DRM is a process by which a group of states agree to cooperate on reducing the vulnerability of their regional community from natural hazards. See Chapter 1, p. 6, for a more extensive definition of regional DRM.

[201] The process and epistemology behind the construction of ideal types is introduced elaborated upon in Chapter 2, page 46. At the risk of repetition, the essential properties of ideal types are summarized here, which ushers in and explains the reasons for the selection of the three ideal types used in this chapter. Repetition is thus used with the intent of clarification.

the validity of an ideal type is based on the usefulness of the construct to explain a particular phenomenon from the perspective of a particular reality. Even if the normative aspect is played down, it is nevertheless crucial for the researcher to lay bare his or her own value commitments as well as the values that underpin the ideal type if they differ from the researcher's.[202] In this chapter I use world society theory to help draw out pre-fabricated ideal types that were originally derived from historical empirical experiences and observations.[203] To be clear, this study is not about *constructing* but *using* ideal types. In this sense, I essentially act within and out of the assumptions that constitute world society theory. This does not mean that my own value judgments are bracketed. Instead, they inform the overall trajectory of this chapter and thus influence my interpretation of world society theory. These value judgements are defined by an interest in the impact of globalization on societal action and regional capacities to create a more resilient society against natural disasters. This is conjoined to a further commitment to extrapolate and compare different research traditions more broadly for the purpose of creating useful knowledge. It is furthermore recognized that these value statements reify and contribute to the world culture of DRM.

Table 4.1 Causal classification system for the application of ideal types

Causal classification	*Process of counterfactual reasoning*
Adequate	When an explanatory condition as part of an ideal type cannot be imagined without the outcome
Coincidental	When an explanatory condition that is not part of an ideal type cannot be imagined without the outcome
Incidental	When an explanatory condition can be imagined without the outcome

Source: Jackson (2011, pp. 150-1)

The ambiguity created by ideal types, and the tensions created through their interrelations, produce a particular configurational explanation of an event. This is principally achieved through a counterfactual process whereby three categories of causal

[202] As an ideal type claims empirical validity, it can easily merge into evaluative interpretation or the inclusion of value judgements. This is why Weber strongly urges a clear separation between logical ideal types and ideals ([1949] 2011, p. 98). For example, 'liberalism' used as an ideal type is not a value judgement but an 'objectively possible' and logical construct (Ibid, p. 92). To be sure, the cultural values that act as the foundations of an ideal type are important from an ontological point of view as it reflects a monist commitment inherent in analyticsm: a *useful* outcome from an ideal type is related to the values of the researcher, or applied theory. Cultural values constitute the researcher (Jackson 2010, p. 12) and, thus, have an effect on the outcome.

[203] This is what Max Weber refers to as the 'rationalizing reconstructions of a particular kind of behaviour', which is here informed through propositions made by world society theory (Coser 1977, pp. 223-4). Furthermore, three different kinds of ideal types are distinguished by Max Weber. The first is based on 'historical particularities', the second on 'abstract elements of social reality', and the third on 'rationalizing reconstructions of a particular kind of behaviour' (Ibid). The latter form is used in this dissertation.

factors can be distinguished.[204] These categories are displayed in Table 4.1. When a condition is *adequately* causal, the outcome cannot be imagined without its existence. When a condition is *coincidentally* causal, the outcome cannot be imagined without its existence even though the condition is not part of the ideal type. The third category is *incidental*, which means that an outcome can be imagined without a causal property (Jackson 2011, pp. 150-1). This causal classification system is applied to the empirical analysis of this chapter. The following methods are used to extrapolate empirical data based on the constructed ideal types with the purpose of establishing an analytical narrative that intentionally provides a causal explanation. With this in mind, the construction of ideal types is now addressed.

4.1.3. Constructed ideal types via world society theory

The three ideal types used in this thesis are informed through a number of central arguments of world society theory. In particular, emphasis is focused on the 'rise of world models' (Meyer 2009, pp. 48-49) and 'expanded modern actorhood' (Ibid., pp. 55-56) via relational and cultural diffusion (Strand and Meyer [1993] 2009). These substantive pillars of world society are translated into the following ideal types that are expanded upon below and in the individual empirical sections.

IT1.	Regional DRM is *standardized* by a global set of norms
IT2.	Regional and international organizations *(re)produce* a global model of DRM
IT3.	The DRM model is *diffused* by international organizations

These ideal types are designed to elucidate a particular feature of how norms legitimize state action in regional DRM cooperation. It ought to be emphasized that these ideal types are not independent causal conditions, but should be seen as separate parts of a larger explanation of how global norms influence states action on DRM.

The first ideal type suggests that regional DRM is standardized across regional organizations. This means that the type of cooperation identified in regional DRM agreements, definitions of terms, or the types of values promoted, ought to reveal similarities. The reason that diverse regions would display similarities is based on the theoretical claim by world society theorists that global norms of rationality, progress, and individualism – the world script – act as the basis for the formation of specific global models of appropriate behaviour, such as world-wide education (Frank *et al.*

[204] The following classification of causality is taken from Max Weber and clarified by Jackson (2011).

1999) or the Olympic Games (Lechner and Boli 2005). As the adoption of these and other models also adorn states with legitimacy (Finnemore 1993), it is posited that DRM is a global model that states will attempt to enact. DRM is thus posited as a particular global model that is based on the world cultural script. The aim of the first ideal type is to substantiate the extent to which regional DRM is an enacted script; the more we see that DRM is a global model, the stronger the argument becomes that states are motivated by an external or global set of norms.

The second ideal type implies that regional organizations will not only adopt this global model of DRM, but that they will also (re)produce the global model through inter-subjective exchanges between regional and international organizations. This argument is grounded on the proposition that when an agent transcends the 'Self' to become the 'Other', it gains the ultimate form of legitimacy as its actions are no longer motivated from self-interest but through universal values and scientific authority (Meyer 2010, p. 7). A state or regional organization is thus inclined to promote and even teach other states appropriate DRM behaviour as this shifts their identity toward the centre of the world script. The more a state or regional organization becomes a teacher rather than a student of global DRM norms the more its legitimacy is confirmed as the Other. The aim of the second ideal type is thus to examine the extent to which the DRM script is reproduced by regional organizations; the stronger the finding that regional organizations are students or teachers of a DRM script, the stronger the proposition that states are motivated by an external set of global DRM norms.

The third ideal type illustrates how the DRM model is diffused by international organizations. If regional organizations enact, reify, and reproduce a global DRM model, a worldwide diffusion of profession and organizations is consequently produced (Meyer 2010, pp. 11-12). This diffusion is carried out through cultural and relational links. The former creates a link between individuals through a common social category (Strand and Meyer [1993] 2009, p. 139) and the latter creates a link between individuals through inter-subjective exchange through networks (Meyer and Rowan [1977] 2009, p. 95, cf. Boli & Thomas 1999).[205] The aim of the third ideal type is to emphasize the extent to which the global DRM model is diffused; the higher the cultural and relational activity, the clearer it becomes that state action in DRM is influenced by a global normative framework.

[205] Rationalization is a central term used in world society theory that is defined as 'the structuring of everyday life within standardized impersonal rules that constitute social organization as a means to collective purpose' (Meyer, Boli and Thomas [1987] 2009, p. 76).

The three ideal types briefly presented here are expanded upon in the following sections. As noted, the ideal types are not independent from each other, but provide the basis for a configurational explanation for why states are motivated to cooperate on regional DRM. By configurational I mean that each ideal type provides a particular insight into how and why states are guided by global norms. Taken together, they provide a fuller picture of this global process. Furthermore, the various aspects that each ideal type emphasize are interrelated. It is expected that if regional organizations reproduce a common script, it will also be standardized and diffused through various transnational agents. The value of analytically separating this phenomenon into individual parts is to form a deeper knowledge of norm diffusion and reification in the area of regional DRM. The ideal types are thus designed to illustrate the importance of the normative context that constitutes the interests of states to cooperate on regional DRM. They are not testable hypotheses, but idealized claims designed to produce ambiguity, complexity, and causal statements.

4.1.4. Methods of data collection and analysis

Different methods of data collection and analysis are used according to the requirements set by each ideal type. That is, the chosen method is considered the most appropriate for revealing the most central aspects of a particular ideal type. A content analysis is used, for example, to determine the extent to which regional DRM is standardized across regions (Ideal Type 1). A discourse analysis is used to reveal the extent to which identities are created, and re-formed through a relational process (Ideal Type 2). And a large database on international organizations (YIO 2011) is used in a quantitative method to examine the existence and number of transnational networks on DRM (Ideal Type 3). Instead of outlining each method in detail here, a discussion on theory and methods is incorporated into the following empirical sections.

Table 4.2 Summary of research design

	Ideal Type	*Foci*	*Method*
I	Regional DRM is standardized	Regional cooperative agreements	Content analysis
II	Regional organizations (re)produce the global model of DRM	Regional identity construction via speeches	Discourse analysis
III	The DRM model is diffused by international organizations	International organizations; Civil Society; Regional organizations	Quantitative and historical analysis

Table 4.2 summarizes the various foci according to the ideal types and also lists the employed methods. While the summary may appear somewhat idiosyncratic, they share a common feature in shedding a particular light on the external influence DRM norms have on state action.

4.2. Ideal Type 1: The standardization of regional DRM

The first ideal type – that *regional DRM is standardized by a global set of norms* – is designed to express the standardization of DRM across regional organizations. The purpose of elaborating this ideal type is to provide evidence for the influence of global norms on constructing national interests in the field of regional DRM cooperation. If DRM is standardized, one would expect to see similarities in how regional organizations construct their agreements on DRM, the type of language they use and the values they promote.

In the following sections I will concentrate on three of the most important features of this ideal type. First, I examine the standardization of the content of regional DRM cooperative agreements. This includes stated aims and goals, common motivation for cooperation, and the extent to which external references are included in order to legitimize cooperation. It is revealed that a high level of standardization exists. An important finding that emerges when examining common explanations for what motivates states to cooperate on regional DRM is that a majority of regional organizations emphasize the growing costs of natural disasters. However, as we saw in the previous chapter, the actual costs as a percentage of GDP have been constantly falling over the last 40 years. If this is the case, then it is more likely that state motivation is driven more from an external supply rather than local demand.

Second, I examine the extent to which DRM terminology and definitions are similar across regional organizations. The results reveal that there is a high level of standardization; indeed, some terminology is copied verbatim from a single source located in the UNDP. Third, I examine the referent points of protection that provide the fundamental reason for cooperation. Here, all regional organizations express identical values. Despite some variation, the general findings from this empirical section substantiate that there is a high degree of standardization across many regional organizations; the global normative structure is understood as an adequate cause for the emergence of regional DRM and the presence of the UN as a global normative agent is

a coincidental cause.[206] This empirical analysis is introduced by a brief revision of the theoretical foundations of the ideal type as well as a description of the employed methods.

4.2.1. Theoretical foundations and applied methods

World society theory is based on the analytical proposition that state action is constructed by a number of global models that contain particular recipes for appropriate behaviour. Enacting these recipes is not only understood as the most appropriate action of the state – what the state ought to do – but also awards the state with legitimacy in the eyes of the other (Finnemore 1993). Examples of these models include the state (Meyer *et al.* [1997] 2009), the environment (Hironaka 2002) and education (Meyer and Ramirez [2000] 2009). As these global models are informed by world culture, which is 'highly rationalized and universalistic' (Meyer *et al.* [1997] 2009, p. 181), the individual, state, or regional organization become rational and responsible actors. If states organize themselves according to this global culture it is expected that high similarities in state activity will be apparent. Assuming that DRM is also a particular global model that states ought to promote through regional organizations (cf. Börzel 2012), it is expected that the content of agreements, the language used and the values promoted will be also be highly similar. Following a standard world society definition of 'institutionalization', a global DRM model is a 'set of cultural rules' on the preparedness, prevention, response and recovery to natural disasters 'that give[s] generalized meaning to social activity' for states, regional and international organizations 'and regulate[s] it in a patterned way… [it] involves processes that make such sets of rules seem natural and taken for granted while eliminating alternative interpretations and regulations' (Meyer, Boli and Thomas [1987] 2009, p. 85).

A standard content analysis is used as the main method to retrieve empirical data on the extent to which regional DRM is standardized. If regional DRM is a global model that states attempt to replicate, there are a number of features of DRM that ought to appear in a majority of the regional organizations under investigation. While the standardization of regional DRM can be observed in many forms, three of the most important areas of DRM cooperation are highlighted: the content of regional DRM agreements that includes the aims and methods of cooperation, the concepts or

[206] As mentioned above, an adequate cause is when the outcome cannot be imagined without its existence and a coincidental cause is when the outcome cannot be imagined without its existence even though the condition is not part of the ideal type (Jackson 2011, pp. 150-1).

type of language used in the agreements, and the types of values propagated in the agreements. Loosely based on a standard content analysis (Neuendorf 2001), these three 'operationalizing measures' are assessed according the degree to which they display similarities with other regional organizations. If these categories reflect a high degree of homogeneity, a stronger case can be made for the importance of the global normative context on regional activity.

The content of the agreements establishing cooperation on DRM are expected to show similarities in terms of (1) stated aspirations, (2) stated motivations for action, and (3) references to global sources to legitimate local action. Each of these categories captures a fundamental aspect of the content of regional DRM agreements. 'Stated aspirations' entails a comparison of the goals and aims of regional DRM framework agreements. The 'stated motivations for action' entails a comparison of the reasons given in the agreements for cooperation, and 'references' include any other organization or affiliation that is cited in order to further strengthen the rationale for cooperation; by paying homage to the disinterested 'other', regional organizations are able to increase their status through recognition.

Concepts in regional DRM agreements refer to the type of language used. If world scripts rely on language as its fundamental mode of exchange (cf. Berger and Luckmann 1967, p. 22), it is expected that DRM concepts and their definitions will be similar. By defining key concepts of DRM similarly, the global social order of DRM becomes more concrete and more habitualized. Key definitions used in DRM discourse, such as 'disaster', 'response', and 'early warning' are accordingly compared.

Values of an expanding world culture – such as human rights, the environment or the empowerment of women – are also expected to be embedded in framework agreements. In close association with the previous category, it is expected that the object of protection will also be similar to what world society prioritizes as the most fundamental values worth protecting. For example, in a speech at the second world conference on disaster reduction, the UN's Under-Secretary General for Humanitarian Affairs noted: 'Disaster reduction efforts represent not only an opportunity and an investment, but also a moral imperative' (Egeland 2005, p. 123). This statement neatly captures a central aspect of world society theory: that the global models emanating out of a rationalized ('investment') world culture prioritize values ('moral imperative') that warrant legitimate action.

The following empirical analysis focuses on the content, concepts, and values represented in DRM agreements. Identifying the standardized substance of this model sheds light on its constitutive role on state interests.

4.2.2. Content

The analysis of the content of regional DRM agreements is divided into three additional sections. The first section identifies the extent to which the aspirations or the goals and aims of regional organizations share similarities. The second section identifies if regional organizations proclaim similar motivations for cooperating on regional DRM. The third section analyses the extent to which each regional organization references the same external institutions to legitimate local action.

4.2.2.1. Aspiration

A majority of regional organizations that produce official agreements on DRM have structured their aims and goals in remarkably similar ways. The general goals in many regional agreements, for example, are structured in a standardized fashion along five particular themes. These include: (1) strengthening disaster risk reduction in national and local areas, (2) assessing disaster risks and enhance early warning, (3) building a culture of protection through education and knowledge sharing, (4) reducing underlying risk, and (5) strengthening preparedness and effective response. The AU, SADC, CARICOM, PIF, and LAS, for example, have inserted these goals into their framework agreements.[207] A possible source of the aims of the agreements and their timeframes can be found in the UN's Hyogo Framework for Action (HFA) priorities for action 2005-2015 (UNISDR 2005, pp. 13-20). The HFA list of priorities, aims, and general timeframes of the regional agreements, are a near-perfect match. Indeed, some organizations such as LAS (2011) and SADC (2006) have even copied parts or all of the HFA priorities for action verbatim. The EU, OAS, and ASEAN agreements, on the other hand, do not match to the HFA goals as closely but, nevertheless, provide a family resemblance and supply direct references to the HFA in their preambles.

4.2.2.2. Motivation

If DRM is a global model then it must also reflect signs of habitualized action under a 'relevant' and 'common situation' (Berger and Luckmann 1967, p. 57). Reformulating on this notion, John Meyer and Brian Rowan note that as such action becomes institutionalized over time it is important that an explanation that legitimates on-going social action is 'consistent and comprehensive to…carry conviction' ([1977] 2009, 97,

[207] Interestingly, these agreements – including ASEAN and excluding LAS and SADC – also tend to converge in their envisioned timeframes. All aim to be fulfilled by 2015.

Berger & Luckmann 1967 61). Based on this proposition, it would be expected that a common situation is also reflected in regional DRM agreements. This is the case for a majority of regional organizations that not only base their reasons for cooperation on the existence of major transboundary disasters, but that they are increasing. The following excerpts from regional framework agreements and speeches support this claim:[208]

Table 4.3 Motivation for regional DRM cooperation

Regional organization	*Excerpts from regional framework agreements or speeches*	*References*
OAS	The decade of 2001-2010 was marked in the Americas by devastating disasters – there were almost 200 more disasters than in the previous decade, affecting more than twice the number of people, with a doubling of the costs	González 2011, p. 2
AU	Disasters in Africa, as in a number of other regions, are increasing in frequency and severity	Tumusiime 2011, p. 2
EU	Recent years have witnessed a significant increase in the occurrence and severity of natural and man-made disasters	European Council 2007b §(3)
PIF	There is ongoing and increasing vulnerability of Pacific Island nations and communities to the impacts of disasters	PIF 2005, Art.1
ASEAN	Concerned by the increasing frequency and scale of disasters in the ASEAN region and their damaging impacts both short-term and long-term	ASEAN 2005a

The quotes in Table 4.3 demonstrate a similar rationalized motivation for regional DRM cooperation based on a 'common situation'. However, as illustrated in chapter 3, even if the numbers of disasters are increasing the economic costs as a percentage of regional GDP are continually decreasing (Annex 6.2.3). The apparent similarity in the stated motivation thus suggests that states are less motivated by the expectations from previous economic damages from disasters and more on the global normative structure that expresses the most appropriate method of legitimating regional DRM cooperation. This common situation – sourced from a real concern – is thus necessarily idealized in order to be coherent, comprehensive, and thus travel more easily. Hence, the original motivation remains concerned with brute facts and functional cooperation, but the necessary conditions for the diffusion of such motivations risk transcending the functional realm where ideas trump facts. Legitimacy of action may be achieved through a common story, yet not without a subtle cost to functional cooperation.

[208] For other examples that include LAS see El Mallah (2011a, 2011b); H.R.H. Turki Bin Nasser Bin Abdulaziz (2009), and for SADC see SADC (2010).

4.2.2.3. External legitimization

All regional organizations under review make official references to the UN, which are often matched by listing previous agreements made by the regional organizations.[209] This can be viewed as internal and external sources of legitimization. Internally, they are able to build on an historical base; while externally, they are able to demonstrate their activity to a disinterested 'other'.[210] While the UN is mentioned by all organizations, other International Governmental Organizations (IGOs) and International Non-Governmental Organizations (INGOs) are also listed such as SOPAC by the PIF (2005, §60), the Red Cross and Red Crescent Societies by LAS (2011, p. 5) and a host of other organizations by ASEAN (2004, p. 15). Interestingly, LAS is the only organization under review that explicitly notes and takes into consideration existing regional strategies on DRM, citing: the AU; APEC; ASEAN; the Euro-Mediterranean Programme for Prevention, Preparedness and Response to Disasters (PPRD); and the Organization of Islamic Conference (OIC) (Ibid). Considering LAS holds the most recent DRM agreement examined in this study (2011), its citing of other regional DRM cooperation could indicate the growing importance of inter-regional dialogue and the heightened awareness of regional organizations. These external references tentatively hint towards the UN as a major contributor of a DRM script and the importance of citing external actors for legitimizing national or regional activity.

An external normative structure is considered an adequate causal condition for the high degree of standardization in the content, aspirations and referents to external sources of legitimization in regional DRM agreements. That is, it is difficult to imagine these highly standardized features without an external normative context. Based on this brief empirical overview of the content of DRM agreements, it also appears that the importance of an external normative agent – expressed through the UN – is also critical for the maintenance and production of this normative model on DRM. This is particularly apparent in the aspirations and external sources of legitimation. The UN is thus tentatively understood as a coincidental cause – a cause that cannot be imagined without the outcome yet is not part of the ideal type – that is further solidified in the following analyses on the concepts and values of regional DRM.

[209] These regional organizations include the OAS, the EU, ASEAN, the PIF and CARICOM.
[210] The UN is assumed as the 'other' in this case as all regional organizations have references to the UN, a similarity not shared with any other organization.

4.2.3. Concepts

If regional organizations enact a global DRM model, the type of language used ought to convey a family resemblance that is indicative of a rationalized world culture: 'language provides the fundamental superimposition of logic on the objectivated social world. The edifice of legitimations is built upon language and uses language as its principal instrumentality' (Berger and Luckmann 1967, p. 64). Out of the 10 regional organizations under review, 8 have published a framework agreement and 4 provide definitions of key terms on DRM.[211] The terms are 'disaster', 'response', 'preparedness', 'early warning', 'disaster risk management', and 'disaster risk reduction'. When compared, the definitions for these terms are either identical or closely resemble the definitions in other regional organizations, such as the EU, ASEAN, and CARICOM (cf. Annex 6.8). The European Union, for example, shows signs of aligning to a global model of DRM which is apparent in its definitions of key terms such as 'preparedness', 'early warning' and 'response'. These definitions are not, however, copied verbatim but share a strong family resemblance with the other definitions (Ibid). In most places, the words are merely rearranged, providing the same meaning but with a cosmetic flare of originality. Another apparent difference is the EU's preference for the term 'major emergency' instead of 'disaster', although the actual definition for both terms is similar across most regional organizations. Perhaps the largest terminological difference within the EU is its preference for 'civil protection' to describe its disaster relief activity rather than using the terms DRM or Disaster Risk Reduction (DRR), which are prevalent in other regions.[212] This does not mean the EU rejects this term, but that it uses the term selectively in its external relations (cf. European Commission 2008b). For a more complete comparison of the terms please refer to Annex 6.8.[213]

CARICOM and ASEAN tend to explicate the DRM model more stringently than the EU as many of the terms they use appear to be exact copies of other regional DRM framework agreements. In particular, CARICOM and ASEAN use the UN's preferable term of DRR to describe their disaster relief activities, which tends to be a general trend in a number of other regional organizations under review, such as the PIF (2005), SADC (2006) and ECO (2009). It is also interesting to note that the DRM

[211] ECO and Mercusor do not yet have a framework agreement, and the PIF, LAS, OAS, and AU do not list definitions in their agreements.
[212] Similar subject terms can be viewed in almost all regional organizations. The PIF, SADC, LAS, ASEAN, and the AU refer to DRR, while the ECO favour the term DRM and Mercusor uses the terms civil protection/defence.
[213] This ambiguity is referred to and explained in the analyses of the second ideal type.

terms used by regional organizations share a higher diversity prior to 2004. The 2001 SADC framework agreement, for example, has a comprehensive list of terms that are at odds with other regional agreements that were published after 2005 (cf. SADC 2001a, Annex 6.8). This is also true for CARICOM's dissimilar definition of 'disaster' taken from its 1991 agreement establishing CDERA (CARICOM 1991). However, these two regional organizations have, since 2005, revised versions of their original framework agreements that are now in-line with standard definitions of key terms (Annex 6.8).

What changed the basic definitions for regional DRM cooperation? For the case of SADC, there is a clear connection between dropping local DRM definitions and adopting global ones. When assisting SADC to formulate their regional DRM agreement, The United Nations Development Programme (UNDP) came to the conclusion that differences in DRM terms used by national DRM authorities was an important coordination problem; the solution offered by the UNDP was to adopt the United Nation's definitions on disaster management (SADC 2001a, §3.2.1, 3.5). This is not a unique example, as the UN DRM terminology seems to have had a wider impact on other regional organizations and states. In 2004 the UN DRM definitions were published in 'Living with risk: a global review of disaster risk reduction initiatives' (UNISDR 2004a). A year later the UN sponsored the second world conference on disaster risk reduction that was held in Japan. The Hyogo Framework for Action (HFA) was developed through this conference by the international community, who instructed the UNISDR to, *inter alia*:

> update and widely disseminate international standard terminology related to disaster risk reduction, at least in all official United Nations languages, for use in programme and institutions development, operations, research, training curricula and public information programmes
>
> UNISDR (2009, p. 1)

A booklet and online catalogue thus emerged with a detailed list of basic terms as well as 'emerging new concepts' that are of a 'growing professional relevance' (Ibid). Comments are also supplied beneath each definition that either expand on the original concept or instruct how the definition ought to be understood and applied. For example, the comments for 'Disaster risk reduction plan' notes that these plans should be guided by the HFA and, *inter alia*, should specify the 'time frame and responsibilities for implementation and the sources of funding…linkages to climate change adaption plans should also be made where possible' (Ibid, p. 11). This defini-

tion is also classed as a 'new professional concept' that is part of the updated booklet on terminology that was originally published in 2004.

The introduction of these terms subtly changes the nature of the DRM model and, through this, the very way practitioners talk about, and act out, DRM cooperation. To be clear, these terms were not written by any individual but represent the organic growth of concepts that are implicitly agreed upon by a majority of practitioners that is then institutionalized (objectified) through the UN mouth-piece.[214] Thus, the promotion of a standardized set of terms and concepts – or 'textbook' for the students of world culture – not only reinforce a particular way of doing DRM, but also actively encouraging a specific set of values that legitimize a global concept of DRM cooperation and reifies the core traits of world culture.

This empirical review also supports the tentative findings suggested in the analysis on the content of regional DRM agreements: that the global normative environment is an adequate cause and the UN is a coincidental cause for the high degree of standardization apparent in all regional organizations under review. It is hard to imagine this standardization without global norms and there also appears to be a strong connection between this standardization and the UN.

4.2.4. Values

This section demonstrates two important foundational aspects of the current state of regional DRM cooperation. First, the contingent character of the values that underpin the main referent points of protection is examined. This provides an example of the standardized values that support regional DRM and illustrates that a dynamic normative script supports these values. Second, as an identified global model, supporting women's rights in the area of regional DRM provides a further example of a standardized value that tends to be driven by global supply than local demand.

CONTINGENT REFERENT POINTS OF PROTECTION

In the period 1693-1783 it is estimated that 100 European cities were destroyed by earthquakes, causing approximately 130,000 deaths. Little relief was provided based on the belief that it was God's plan (Hutchinson 2000, p. 5). This is indicative of an

[214] In line with this, the UNISDR Terminology on DRR booklet recommends comments and suggestions for future revisions (UNISDR 2009g, p. 1).

era when people held largely different perceptions on the value of human life.[215] This began to change in the aftermath of the Lisbon earthquake in 1755, when Voltaire launched a famous appeal for enlightenment principles by surfacing a deep theological puzzle: whence evil? (1756, LL.141-8). Previous to this period, sinful humans were generally considered to be the cause of major catastrophes by the acts of God. This belief in a divine being as the cause of natural catastrophes is also expressed in the original 16th century meaning of the word disaster, or *disastro,* which means 'ill-starred' or the unfortunate position of the planet and Zodiac on society (Harper 2011). Voltaire famously questions these deep-seated societal beliefs in the spirit of emerging Western principles of tolerance and reason. Instead of blaming God, Voltaire blames the critical infrastructure of Lisbon: 'nature never assembled there twenty thousand houses of six or seven stories high; and that, if the inhabitants of that great city had been more equally dispersed, and more lightly lodged, the damage would have been much less, and perhaps none at all' (Voltaire 1756, cited in Hyland, Gomez and Greensides 2003, pp. 76-77). Whether it is the questioning of fundamental beliefs during the Enlightenment period or venturing astrological hypotheses, this example draws attention to the importance of the contextual environment and how society interprets and understands disasters as well as highlighting the particular values society upholds as sacred. Mystical explanations for earthquakes are no longer referred to as 'hidden thunders, belched from the underground' or the alignment of planets; rather, a scientific explanation is espoused based on the friction between, or movement of, tectonic plates. The introduction of scientific laws and the celebration of reason that began in the Enlightenment period have thus developed into an entirely different conception of the meaning of disasters as well as the object of protection.

Adding to Voltaire's concern with human suffering (life), regional organizations now emphasize property, the economy, and the environment as referent points of protection. Unlike other aspects of cooperation reviewed in this study, there is complete homogeneity across all regional organizations that have developed a DRM framework agreement. These referent points are often presented in the definitions of a disaster or are mixed into an introductory paragraph on how the increasing num-

[215] Until the turn of the 18th century slavery was commonly accepted, the punishment for crime was often administered through mutilation, burning, flogging, execution or exile (cf. Foucault 1977, pp. 1-6). Even brutality was considered an 'uncomplicated "pleasure in life" in the medieval period' (Elias 1978, cited in Haskell 1985a, p. 548).

bers of disasters are affecting the critical structures of society.[216] One slight exception to this is the OAS that places less emphasis on the environment as a referent point of protection. Instead, the environment, or 'natural resource base', tends to be more closely aligned to economic developmentHowever, may be changing. While still fairly absent in official texts, an 'official statement' delivered by an OAS risk management authority to the third session of the global platform for DRR makes a clear connection between climate change and DRR as a key challenge to the Americas (González 2011).

The raison d'être of regional cooperation on disaster management is also in line with the UNISDR definition of disaster that, as noted above, has been incorporated in most regional DRM strategies. A disaster is 'a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope with using its own resources' (UNISDR 2009g, p. 9). These referent points of protection are contingent on the current global societal context where the value of life, property, the economy, and the environment are semi-permanent fixtures that may or may not be prioritized in the future.

Women's rights

A number of regional organizations have inserted statements on the protection or the empowerment of women. Comparable gender references are made by LAS (2011, 3.3.2), SADC (2006, 2.2), PIF (2005, v), CARICOM (2007, vi), the OAS (2007, preamble), the AU (2004, 1/8), and ECO (2008, 12). While ASEAN does not have an explicit reference to women's rights in its 2005 framework agreement, it has more recently set up an ASEAN Commission on the Promotion and Protection of the Rights of Women and Children (ACWC), which contains specific measures for 'women in natural disasters' (ASEAN 2011c). EU legislation on civil protection and gender issues contains few explicit references to women's rights in connection to natural disasters. This does not mean however that the EU neglects women's rights, as this is a fundamental aspect of the values it upholds in a number of official treaties, legislation (European Council 1992, 2007c, cf. García Muñoz 1998) and through the European Court (Cichowski 2005). Attention to women's rights in connection to natural disasters can also be seen in the Commission's financing of various projects (ISDR 2008) and is also embedded in documents on the EU's response capacity to natural and

[216] Note that SADCs referent point of protection is not clearly stated in its agreements except for the environment. Its website, however, does mention the importance of human life and the preservation of essential assets and the economy.

manmade disasters (cf. European Parliament 2010). Additionally, the EU is particularly active in supporting women's rights abroad (Candeloro 2010, Georgieva 2010d), such as its strong commitment to implementing the UN Security Council resolution 1325 on women, peace and security through ECHO, the largely external policy space of the Union for emergency management (UN 2010).[217] The EU is also committed to the HFA priorities for action that include the aim that a 'gender perspective should be integrated into all disaster risk management policies' (UNISDR 2005, p. 4).

As the empowerment of women is a prioritized value in world society (cf. Francisco and Weiss 1979, Berkovitch and Bradley 1999, Berkovitch 2003), the explicit or implicit inclusion of gender references in DRM activity from the 10 regional organizations under review provide a fairly strong link between the importance global norms have on the construction of regional DRM. As there is also a full homogeneity across all 10 regional organizations in terms of the general referent points of protection that form the foundational basis of DRM cooperation, the argument that states are influenced by a global normative structure on DRM is further strengthened.

The empirical review on the contingent nature of regional referent points of protection and women's rights revealed a high degree of standardization, offering further support for the claim that the global normative environment is an adequate causal property. However, unlike the analysis on the content and concepts of regional DRM, support for the UN was not as strong. While regional organizations and the UN hold the same values, no direct link was discovered between them. As the historical section on the contingent character of modern values demonstrates, these values are rather understood as a broader or more transcendent set of values that seems to constitute the activity and interests of the UN as a receiver rather than a diffuser of norms. This possibility is revisited in the third ideal type that examines *inter alia* mulitiple agents of normative diffusion.

4.2.5. Summary

According to the definition of a global model, the standardized 'set of cultural rules' elucidated in regional DRM agreements 'give generalized meaning to social activity and regulate it in a patterned way' (Meyer, Boli and Thomas [1987] 2009, p. 85). This

[217] An early connection made between DRM and women's rights by the UN was through the 1968 international conference on human rights. A resolution was adopted by the Commission on the Status of Women and the General Assembly that recommended the protection of women and children against violence in territories with armed conflicts and natural disasters (UN 1969, pp. 516-7). See also: (UN 1989, p. 334, 2010).

patterned activity is present not only in the content and concepts of the agreements, but also in the very values they wish to uphold and protect. The three features of the DRM model described in this section clearly depict a high level of standardization across a range of regional organizations that have varied local histories and cultures. This substantiates the claim that a global DRM model exists and that regional DRM cooperation is formed from an external structure rather than local demand. This is seen most clearly in the stated motivations and references in the content of the DRM agreements, as well as the values underpinning the referent points of protection.

Table 4.4 Degree of standardization of regional DRM

Features of DRM standardization		*Degree of homogeneity*
Content	Aspiration	Medium/High
	Motivation	High
	External legitimation	High
Concepts	Disaster; response; preparedness, early-warning; DRM; DRR	Medium/High
Values	Life; property, economy, environment,	High
	Women's rights	High

These highly standardized features of regional DRM are depicted in Table 4.4. The degree of standardization was arrived at by assessing the extent to which all cases that had published DRM framework agreements – used as a common measure across the cases – held highly similar content, concepts, and values.[218] When there was complete agreement across all cases, the outcome produced a 'high' degree of homogeneity. When a minority of cases displayed differences, a 'medium/high' degree of homogeneity was given. The aspiration category under DRM content, for example, received a medium/high degree of homogeneity because a majority of cases are similar and a minority of cases – the EU, ASEAN, and the OAS – showed some differences.

The main findings show that a majority of regional organizations expressed remarkably similar aims and goals in their DRM framework agreement (aspirations); that all regional organizations expressed a common motivation for cooperating on regional DRM that has transcended its functional routes; all regional organizations refer to external agencies in order to legitimize DRM cooperation; a majority of regional organizations use the same DRM terminology, which is derived from a common source from the UNDP; and the reference points of protection that establish the fundamental reason for DRM cooperation are identical across all 10 regional organizations.

[218] Out of the 10 cases, ECO and Mercosur do not yet have such agreements and are therefore not included. Also note that out of the framework agreements, only four regions included definitions.

Across all features of DRM standardization, the EU is the main regional organization that reduces the possibility of full homogeneity as it differs in terms of aspirations (the types of goals and aims it sets) and in its definition of DRM terms. A common explanation for this variance is when global values come into conflict with local customs and traditions. However, there is an arguably more convincing explanation based on the unique ideational character of the EU that is further elucidated in the next section. Furthermore, as a majority of cases do conform exceptionally well with a global model of DRM, the argument that differences occur due to local conditions gains little currency in this analysis. Instead, the high similarities provide support for the argument that states are motivated through a global set of norms rather than local conditions for regional DRM cooperation. It is important to keep in mind, however, that the highly standardized cooperation on DRM is only supported by regional agreements that emerged or were updated after 2000, in general, and after 2005, in particular. Regional agreements before this period tend to convey more diversity than similarities.

Table 4.5 Assessment of ideal type 1: The standardization of regional DRM

Ideal Type 1: 'Regional DRM is standardized by a global set of norms'			
	Causal condition	Causal status	Outcome
i.	External normative structure	Adequate	*Reference to an external source legitimizes state action in DRM*
ii.	External normative agent	Coincidental	*Reference to the UN to legitimizes state action in DRM*

The aim of the first ideal type was to explore the extent to which regional DRM was a product of a global set of norms. Attention was thus focused on the expected outcomes of the existence of a regional DRM normative model: namely, a high degree of similarity in the content, concepts, and values expressed in regional DRM frameworks of agreement. This is largely confirmed in this analysis, which classifies the global normative environment as an adequate cause for the emergence of regional DRM cooperation. That is, regional DRM cooperation cannot be imagined without the existence of a global set of norms. In addition to this adequate cause, the investigation also points to a further coincidental cause: that the emergence of regional DRM cannot be imagined without the presence of the UN. It was revealed that the aims and goals of a majority of regional organizations, many of the external references, and the terms and definitions of DRM all pointed towards the active involvement of the UN as the source of much of DRM standardization. While this causal factor is not part of the ideal type, the important role of international organizations is

mentioned by world society theorists—an important issue that defines the second and third ideal types. A summary of the outcome of this analysis is illustrated in Table 4.5.

The results from the application of the first ideal type are nevertheless unsatisfying. While it has established that there is a global DRM model and that the UN plays an important role in the legitimatization of regional DRM, it does not tell us how states are influenced by the model and why the DRM model exists. Exploring these avenues in the following empirical sections via a number of other ideal types will help to answer these questions and also provide higher specification on the extent to which global norms are responsible for motivating states to cooperate on regional DRM.

4.3. Ideal type 2: The (re)production of the global DRM model

The second ideal type – that *regional and international organizations (re)produce a global model of DRM* – is designed to express the extent to which the global DRM model is reproduced through inter-subjective exchange by regional and international organizations.[219] The purpose of this ideal type is not only to substantiate the existence of a DRM model – this was achieved with the first ideal type on standardization – but also to express how this DRM model is propagated and maintained as an important global norm. The second ideal type thus provides a different perspective on the central argument proposed in this chapter: that states are motivated to cooperate on regional DRM via a set of global norms. The first ideal type explains what is standardized; the second explains why and how this is case.

The findings from the first ideal type provide much of the impetus for conducting an investigation into how the global model on DRM is (re)produced. The previous analysis reveals that: (1) there is a high amount of homogeneity among a majority of regional organizations, thereby confirming that a global model on regional DRM exists; and (2) there is an acute inter-relational dimension as evidenced by the external references made to international organizations and the links made between the content and concepts of regional DRM agreements with the UN. The relationship between regional organizations and the UN (singled out as the coincidental agent for

[219] As noted in the previous section, the global DRM model is defined as: 'set of cultural rules' on the preparedness, prevention, response and recovery to natural disasters 'that give generalized meaning to social activity' for states, regional and international organizations 'and regulate it in a patterned way… [it] involves processes that make such sets of rules seem natural and taken for granted while eliminating alternative interpretations and regulations' (Meyer, Boli and Thomas [1987] 2009, p. 85).

regional DRM cooperation) is consequently investigated for the purpose of assessing the importance of this external source for regional DRM cooperation.

If regional DRM is reproduced and maintained as a global model it is expected that this is achieved through a hierarchical relationship between the receiver and the teacher of DRM norms (cf. Finnemore 1993).[220] The receiver or student of the norms will practice and attempt to mimic the teacher, while the teacher will tell the student what type of acceptable behaviour is warranted in the area of DRM. In the following section, I first concentrate on the role of the regional organizations as learners or students of the regional DRM model. This comprises a discourse analysis of speeches and official statements made by regional DRM authorities. The outcome of this analysis reveals that a majority of regional organizations tend to conform to the role of a student, with the case of the EU as the main exception. This ambiguity is explored in the next section where speeches and statements from the EU show signs of an ideational shift from a student to a teacher of regional DRM. The final section analyses the extent to which the UN acts as a teacher of regional DRM. The overall findings tend to agree with the ideal type and thus substantiate the importance of the global normative environment on state decisions to cooperation on regional DRM. The ambiguity revealed in the ideal types also emphasizes the dynamic roles played by regional organizations, whereby they strive to become more like the teacher of norms. Unlike many world society theorists, the empirical results of this study also place emphasis on the power gained through enacting a global model. The more authority an organization gains as a teacher of DRM norms, the more normative power it gains in determining the future trajectory of the policy field. Before embarking on the empirical analysis a brief revision of the theoretical foundations of the ideal type as well a description of the employed methods is made.

4.3.1. Theoretical foundations and applied methods

When states conform to a global model their activities not only become standardized, but states will also ceremonially reproduce the global cultural script. By propagating a global model – derived from the world cultural script – states are awarded with legitimacy not because a model is a functional requirement of the state, but because states observe that others also follow a similar pattern of cooperation (Jepperson 2001, p.

[220] These diametrical terms are also referred to as a principle-agent relationship (Meyer and Jepperson 2000, p. 111). However, this term is avoided in this thesis as it can be too easily confused with Principal-Agent Theory (cf. Laffont and Martimort 2002).

5). States will thus reify or reproduce an existing global model as common practice. In addition, world society theorists posit that states will be inclined to promote this model to other states, as this will afford an even higher degree of legitimization. States will first embark on a process of becoming an 'interested agent' of norms, which ultimately leads to becoming a 'disinterested other' (Meyer 2010, p. 7), from a student to a teacher of norms (cf. Meyer and Jepperson [2000] 2009). As students of norms, regional organizations will reproduce a global model by not only standardizing policies but also by announcing to others that their policies and activity are homogenous with the global script: global models are produced and reproduced by professionalized 'others' who 'instruct and advise individuals and organizations on how to be better actors in light of general principles' (Meyer 2010, p. 7). The audience will often be the teacher that confirms, supports, and lends legitimacy to such activity as well as advising and correcting behaviour. Interrelational exchange between international organizations, the state, and regional organizations is consequently required for the reproduction of the global model (Meyer *et al.* 1997, p. 158). Put simply, a student and teacher relationship between states and the international community would be an adequate cause for the reproduction and preservation of the global DRM model. We would consequently expect to see this type of relationship when analysing regional organizations' roles in the international community. As the UN was highlighted as an important causal component for the emergence of regional DRM in the previous analysis on the standardization of DRM, it is furthermore expected that the UN embodies the teacher role and that regional organizations embody the student role.

The principal method used to analyse the interrelational role between regional organizations and the UN is discourse analysis. Here, speeches and official regional DRM agreements are used to uncover the roles of regional organizations in teaching or learning the DRM script. Instead of emphasizing the mode of diffusion in argumentation (Risse 2000), deliberation via epistemic communities (Haas 1992), and modern technology (Deutsch *et al.* 1957), world society theory emphasizes the dynamic ideational reification of global actors in supporting and constituting global models.[221] That is, it places emphasis on how states – or in this case regional organizations – take on a particular role or identity that is predetermined by a world cultural script. Regional organizations thus enact, and thereby reproduce, the global model. In order to analyse this I draw on a hermeneutic discourse analysis that, in line with

[221] To be clear, this does not mean that world society theory does not take these other processes seriously see: (Lechner and Boli 2005, pp. 84-8).

an analytical methodology, assumes that meaning can be interpreted through texts. The following elaborates on this particular form of analysis.

When an ideal-type is reframed into a question and then applied to a text, a discourse is produced between the researcher and the material. By asking the same questions – or 'knocking' on the door of the text until it gives a resonating tone (Alvesson and Sköldberg 2009, p. 122) – an interpretation of a text is created. The text in this case is largely made up of speeches and official documents on DRM. The principal question applied to these texts is: can the context of the whole (world culture) relate to its parts (regional organizations) and vice versa? This is subsequently separated into two specific questions: (1) is there continuity in the texts in terms of common values and principles of world culture? And (2) does the author of the text act as a teacher or as a student?

As noted above, the image between the teacher and the student is taken from an underlying theme in world society theory based on the production and reproduction of global culture through a repeated student-teacher relationship. The teacher is the disinterested other who teaches and spreads the global script to the interested actor. Just like the formal school system that emphasizes 'individual achievement, individual capacities and individual limitations and…individualized attention to the unique properties of each student' (Boli 2005, p. 389), an NGO can also act as an 'individuating institution' to a regional organization or a state.[222] An example of the student-teacher relationship is when students repeat to the teacher what they have learned as well as the accomplishments that have achieved. Conversely, an example of a teacher-student relationship is when the teacher rewards good behaviour, teaches best practices, and punishes non-performance.

To be sure, this is not an inductive or 'grounded' study (Milliken 1999, p. 234), but applies an ideal type derived from a theoretical or deduced assumption to the text with the expectation that the text will not always resonate with a resounding tone. This is carried out with the expressed aim of revealing the authority associated with the roles of a teacher and student of a DRM model and how this constitutes state behaviour. The typical 'method' used to systemically review the meaning of texts in IR is predicate analysis that concentrates on the (ad)verbs and adjectives that are attached to nouns (Milliken 1999, p. 232). This is loosely applied to the analysis and is complemented by an emphasis on personal pronouns (cf. Fairclough 1992, 1995, Hardt-

[222] To be sure, this is not a one-way street. Actor and action are intermittently intertwined, which means that actorhood can switch to otherhood.

Mautner 1995, Wodak and Chilton 2005), as I am primarily interested in identifying the roles an organization performs.

In summary, the second ideal type focuses on the interrelational processes between regional organizations and the UN for the purpose of highlighting how this interaction creates and re-affirms particular identities that constitute, and thus shape, acceptable patterns of behaviour for states in regional cooperation on DRM. This is achieved through a qualitative study that makes use of discourse analysis that investigates how these organizations take on the roles of a 'teacher' or 'student' of the global DRM model.

4.3.2. The school of DRM

This section explores the ideational role of regional and international organizations. In particular, it is shown that a student-teacher relationship tends to define interaction between regional organizations and the United Nations. The performances of these organizations in taking on particular roles is a central concept in the sociology of knowledge that is influential in world society theory: 'Institutions are embodied in individual experience by means of roles…[as an] essential ingredient of the objectively available world of any society (Berger and Luckmann 1967, p. 74). This relationship and the extent to which these organizations embody different roles are distinguished through an analysis of public and private speeches made by regional DRM authorities in international fora as well as official agreements on DRM. These authorities are individuals that oversee DRM cooperation in regional and international organizations such as the EU Commissioner responsible for International Cooperation, Humanitarian Aid and Crisis Responses, and the General Secretary for ASEAN. The analysis of these regional organizations reveals that the UN is often treated as the main 'teacher' of DRM norms. Understood as reflections of a particular organizational identity, UN speeches are subsequently analysed in the second section.

This relational approach to understanding the roles of DRM organizations also builds on the insights delivered by Martha Finnemore who refers to international organizations in general, and the UN in particular, as *teachers* of norms (1993). The following analysis thus applies a hermeneutic discourse analysis on the selected regional organizations with particular emphasis on whether the organizations teach, or are being taught, the global DRM model. References to world cultural principles of progress and human rights as the central values of DRM are, furthermore, expected to reverberate through speeches and official documents on regional DRM. The first

subsection presented below analyses the extent to which regional organizations are students of the global DRM model. The second subsection analyses the extent to which the UN acts as a teacher of the global DRM model.

4.3.2.1. Learning the global DRM model

If regional organizations are students of a global DRM model, one would expect statements from speeches and official texts to show a clear reiteration of the organization's commitment to the global DRM model. The following examples confirm this expectation in a majority of the 10 regional organizations under investigation.

Celebrating the International day of disaster reduction, the Secretary General of ASEAN made the following statement:

> let us use this event to reflect not only the importance of disaster risk reduction towards achieving sustainable development, but to also reaffirm our commitment to speed up and achieve the ASEAN Community, Hyogo Framework for Action and Millennium Development Goals by 2015. I would also like to extend my sincere recognition to the international community, non-government organisations, academic institutions and civil society for their outstanding energy and assistance for supporting the ASEAN Member States in every level of disaster risk reduction initiatives. I would encourage that we continue the existing collaboration and keep on inventing new strategies and technologies to further enhance disaster risk reduction, climate change adaptation as well as poverty alleviation initiatives.
>
> Surin Pituwan (2010)

Pituwan's speech reiterates ASEAN's desire to commit to the Hyogo Framework for Action (HFA). It expresses gratitude to the international community, and it encourages the continual process of institutionalization of DRM at the regional and global level. If the HFA is representative of the global DRM model, by including this in his speech, the Secretary General uses a linguistic symbol to provide a (detached) meaning that is understood within the institutionalized world of DRM. A linguistic symbol is a commonplace word that expresses a set of ideas within a specific issue area that is easily transmittable (cf. Berger & Luckmann 1967, 57). ASEAN thus appears to claim its membership in a global community of DRM through a shared sign-system.

Similar traits are observable in other regional organizations that not only refer to the HFA but are also keen to pledge their allegiance to the global aims of DRM. Expressing their commitment and desire to uphold the DRM model, an LAS representative at the UN's third Global Platform for Disaster Risk Reduction notes: 'I would like

to assure you of the commitment of the Arab League to continue its efforts to reduce disaster risks' (El Mallah 2011b). Presenting a speech at the same venue, the AU Commissioner for Rural Economy and Agriculture, Rohda Peace Tumausiime, similarly notes that their political commitment to implement 'global and regional frameworks for disaster risk reduction remains strong in Africa' (2011, p. 3). Addressed to a similar audience, Adelina Kamal, head of disaster management and humanitarian assistance division in the ASEAN secretariat notes that their framework agreement (AADMER) 'reaffirms and is a manifestation of ASEAN's commitment to the implantation of the HFA' and contributes to the 'global disaster reduction aims' (2009). And in the opening remarks at a conference for the preparation of the 2001-2004 framework on DRM, CARICOM's coordinator for CDERA notes: 'It is our expectation that your presence [UNDP and USAID] will assist us in fashioning a strategy that promotes a broad based consensus approach to disaster management in general and risk reduction in particular' (Collymore 2001, p. 1).

Pituwan's speech and other statements from regional organizations not only emphasize shared sign systems, but also share a common trait of 'commitment'. This predicate reflects a hierarchical structure where regional organizations assume a sense of humility in the face of more normatively powerful organizations. Put differently, these expressions illustrate a loyalty to an external 'other' in a student-teacher relationship. The regional organizations wish to live up to the expectations and obey the rules set by an external source that is close to the DRM global model.

These commitments are often followed by the practice of listing a set of achievements that represent progress towards the aims and goals set by the 'teacher' and, thus, further reinforce the performances of the two roles. For example, Russell Howorth, the director of the agency responsible for DRM in the PIF, notes in a speech at the UN's third session of the Pacific Platform for DRM that:

> Over the past two years progress has been made, in areas such as agriculture and education…training courses available at regional and national level…humanitarian response is being streamlined and strengthened…development planning and decision- making frameworks is progressing [sic].
>
> (2011, pp. 6-7)

Other examples of listing include the AU (Tumausiime 2011), LAS (El Mallah 2011a), OAS (Ramdin 2009), CARICOM (Riley 2011), SADC (Mothae 2010), and ASEAN (Kamal 2009).

While a majority of regional organizations under investigation do tend to show strong signs of 'learning' DRM, the EU tends to be an exception to the rule as it posi-

tions itself in a more authoritative position than most other regional organizations, yet less so than the UN.

THE EU AS AN APPRENTICE OF DRM

The European Union provides a number of speeches and documents that link DRM with universal values. An excerpt from a speech delivered by the European Commissioner for International Cooperation, Humanitarian Aid and Crisis Response to the United Nations on 24 September 2010 illustrates this connection and provides preliminary evidence for its student role vis-à-vis the UN.

> I travel to countries that are suffering because of natural or man made disasters, from Haiti to Pakistan, from Sudan to the Sahel and many other places. In these moments of human hardship, it is not just relief staff and money that come to rescue lives. It is above all the common and universal values of our shared humanity which bring us together to express our solidarity with our fellow men and women, across borders, across oceans, across cultures, across religions. This is the very common cultural heritage, which we need to value and promote through the Alliance. The promotion of universal human rights lies at the heart of that common cultural heritage.
>
> Kristalina Georgieva (2010c)

The rhetoric used by the EU conjures up images of world culture writ large, where global principles of human rights and progress are reified. More specifically, the Commissioner claims human rights as the basis for a global, and not Western, common heritage. She does this by claiming that global empathy is fashioned through the suffering of humankind that is brought on by natural and man-made disasters. This empathy is then transferred and made synonymous with human rights. The statement is also strongly declarative. Although the Commissioner uses the personal pronoun 'our' – which could be interpreted as an attempt to strengthen her 'united' message of equality – she also proclaims the universal values as facts: this is 'our shared humanity'; this is our 'common cultural heritage'.[223] This tone is important because it implies a hierarchical relationship in the sense that the Commissioner gives herself the right, or has the power, to claim status. This statement is thus not only representative of a European worldview, but also makes an ideational claim, and legitimates its action through reiterating the core values of the world script. This stands in contrast to a majority of other regional organizations that take on a more sober image that is more indicative of a student.

[223] The emphasis on personal pronouns is an established area of discourse analysis that this study rests upon. For more on this see: Hardt-Mautner 1995, p. 16, Wodak and Chilton 2005, p. 151, Huckin 2002, Fairclough 1992, 1995, Inigo-Mora 2004.

On occasion the EU also provides lists of achievements to the UN (EU 2011a). However, a subtle difference in the type of language used can be detected. Instead of only using the first person singular that would identify a dialectical relationship between a student and a teacher of norms, the EU also uses the first person plural. By using 'we' and not 'I', the EU begins to shift its ideational position from a student to an apprentice or even a teacher itself. For example: 'We fully share the Secretary General's view that there is evidence of greater investment needs in disaster risk reduction'; and 'We all know that investing in disaster risk reduction (DRR) activities before a disaster takes place pays significant dividends' (Ibid). Other speeches also tend to take on an image of the EU as an apprentice where the Union embodies the global script to the point that the global values become their own:

> We need to focus political attention, to ensure a shared understanding and commitment regarding humanitarian action. The Development agenda has benefited from the formidable political traction of The Millennium Development Goals. It is time to build a renewed **global consensus** on the **goals, norms and principles** for humanitarian assistance
>
> Kristalina Georgieva (2011b, original emphasis)

Although the Commissioner's speech is performed in a different context, there is continuity in her declarative language (cf. Gerogieva 2010b). By acting out this specific role, Georgieva reinforces the EU's self-identity as a moral leader and implicitly proclaims what type of cooperation is needed in the future: a presumptuous and authoritative statement that closely resembles the UN Secretary General's closing lines in a recent speech on DRM: 'we know the problem. We know what to do' (Ban 2009). The various initiatives made by the EU in the past three years as an external supplier of Disaster Risk Reduction (DRR) (CDERA 2009) have only strengthened such resolve. In a recent trip to Southeast Asia, the Commissioner describes a number of 'needs' that ASEAN ought to adopt, using language that resonates a teacher-student relationship:

> In our own development, we Europeans have learned how important it is to share the benefits of growth: when economic resources are shared, the society is far more resilient. This is why in this time of more disasters and rapid economic changes, we need to be particularly vigilant to tackle inequalities, as the poorest are also the most vulnerable. This is an important lesson for Europe's unity and future, and a lesson that will matter for the future of ASEAN as well.
>
> Kristalina Georgieva (2011a, 2)

The Commissioner continues by advising how to 'realise environmental degradation' and what type of collective cooperation should be executed. Not only does Georgieva's speech provide a list of the most appropriate types of cooperation – such as the need to cooperate collectively in the area of preparedness, response, and recovery – but she also tells ASEAN what type of threat will be important for them based on European historical experience. This statement, thus, assumes that the EU is somewhat ahead in the DRM game – Europeans have already learned the importance of sharing knowledge – and therefore is in a 'better' position to share their knowledge to those who are less privileged. This underlying assumption is certainly difficult to explicitly claim, and it is doubtful that any EU official would openly support such a claim. Nevertheless, it does appear to be embedded in the language and helps to reveal how the EU perceives itself in Southeast Asia as an authoritative teacher.

The EU has increasingly become more of a disinterested 'other' rather than an 'interested agent' of DRM norms, whereby it confers power and authority to itself through the promotion of DRM values. Keeping this in mind, a common thread remains: all regional organizations claim strong links with the UN and a majority play a student-type role when in its presence. If the UN is the classical 'teacher' of a global DRM model, does it also 'act' as a teacher?

4.3.2.2. Teaching the global DRM model

The following aims to show that the UN enacts the role of a teacher (1) through the language UN officials use, (2) by rewarding regional organizations and nation states (students) for good behaviour, and (3) supplying a common fora (classroom) in which all states and regional organizations can attend.

Cast in dramatic imagery reminiscent of Winston Churchill's chronicle of the Second World War, the UN Secretary General's opening speech at the 2009 global platform on DRR is clear in its authoritative message: the HFA goals must be incorporated if the values that 'we' wish to protect, based on the world cultural script, are to remain.

> Risks are growing, especially in poor countries. In many parts of the world, we are losing ground. Moreover, it is clear that climate change is making things worse. The storm clouds are gathering. We face a more threatening future from natural hazards. Millions of people will be hit twice over. First, by more extreme weather. Second, by the loss of ecosystems and food and water supplies…Risk reduction is an investment. It is our first line of defence in adapting to climate change. It will pay handsome dividends. The Hyogo Framework for Action is vital in reducing risk. We can link the implementation of Hyogo with a new climate agreement. We can achieve a triple win -- against poverty, against disasters and against climate change. I challenge you to set a target…. I urge you to start working now on the immediate practical steps that will achieve this goal. The United Nations will back you in this effort. As one UN…[W]e know the problem. We know what to do.
>
> Ban Ki-moon (2009)

This message could be easily read as a call to arms. We will be 'hit', 'we are losing ground', action is 'vital' and 'our first line of defence', we need to 'win', achieving the 'goal' will be 'challenging', we need to be 'practical', and the top brass will 'back you in this effort'. A second image that surfaces in this statement is a calculative need to 'invest' in the future. These imageries are not unique to Ban's speech but are often repeated in different fora by UN officials when referring to DRM (Egeland 2005, Ban 2010, 2011, Wahlström 2010a, 2010b, 2010c).[224] Ban and other UN practitioners set forth a single and clear instruction: to insert the HFA goals in national and regional organizational structures. By incorporating images of a collective by using the first person plural and the use of phrases like 'as one UN', the Secretary General signals the reward of surmounting his 'challenge': namely, acceptance into the global cultural order. Thus legitimacy is bestowed upon regional organizations and states that adopt the DRM model embodied in the HFA framework, as well as the cultural script of human rights and environmental protection. Like the EU's relationship to ASEAN, the UN constructs itself as a 'knower' who transmits (objectified) knowledge to the 'non-knowers' (cf. Berger and Luckmann 1967, pp. 70-1).

An example for ritual creation by the UN offers a further illustration of the power the UN holds in forming the 'rules of the game' on regional DRM. On 11 May 2011 the UNISDR recognized President Susilo Bambang Yudhoyono of Indonesia as the

[224] The 'military' and 'investment' themes are repeated in many other speeches by top UN officials. The following offers a small selection: 'We are…on the threshold of a breakthrough in acceleration in risk reduction practice, leaders and decision-makers and individuals seem to be hesitating – holding their step. Let us consider in this meeting why and what we as risk reduction policy makers and practitioners can do to accelerate actions' (Wahlström 2010a); 'we recognize that you…are the front line of defence of humanitarian principles in times of disaster or emergency' (Wahlström 2010b); 'It is time to invest and act immediately to make African continent more resilient to disasters' (Wahlström 2010c); 'Experience and common sense agree: we must invest today for a better tomorrow' (Ban 2011); and 'we must recognize that climate change will bring more incidents of extreme weather. That is why we must invest more in reducing the risk of future disasters' (Ban 2010).

'UNISDR Global Champion for Disaster Risk Reduction'. In a letter of commendation to the President the Special Representative of the Secretary-General for Disaster Risk Reduction, Margareta Wahlström, noted:

> I am honored that you have accepted to be the in recognition of your efforts and commitment in protecting people and communities from the impact of disasters…You have been instrumental in instilling a culture of safety under pinned by strong community engagement, both at the national and local levels…I applaud your leadership in fostering a drive for resilience within the South East Asian Nations, underscored by greater coherence and coordination among Member States. Your guidance and leadership will be of immense value to countries at risk around the world [Sic].
>
> ISDR (2011f)

This ritualistic action legitimizes the role of the UN, Indonesia, and ASEAN through a public award-giving ceremony. By publicly awarding a state for adopting the institutionalized rules of (regional) DRM, the UN sends a clear signal of what action is necessary for increasing the status of a state; and reifies its position as a higher-order organization that holds the rights – through the disinterested action of its professional employees in promoting (Western) transcendental values – to instruct, teach, and advise regional organizations and nation states. The statement by Wahlström also provides a map of the most appropriate action for other states: (1) they ought to engender a 'culture of safety' at the local and national levels; (2) they ought to actively participate at the regional level; and (3) they ought to cooperate on regional DRM.[225] Interestingly, this practice has recently been used by CARICOM which celebrated CDEMA's 20th anniversary by awarding 'individuals and institutions whose long term efforts have fundamentally changed the delivery of disaster management in the region for the better' (CARICOM 2011). The process of award giving through symbolic or 'mnemotechnic aids' not only reaffirms transmitted knowledge (Berger and Luckmann 1967, p. 71), but also strengthens the constructed relationship and ongoing performance between organizations. Furthermore, the act reinforces the central cultural script of liberal individualism; as soon as individual organizations are signalled as being superior to others, a logic of competition arises which further reinforces the individualism of each contestant.

If the speeches analysed above are representative of the ideational roles of regional organizations, then the UN clearly sports a commanding 'teaching' role. Indeed, the UN and its agencies are of more strategic importance for reifying and producing the

[225] In addition to this award, the UN also gives out the Sasakawa Award for Disaster Reduction as well as Certificates of Distinction and Merit each year to individuals that have 'significantly contributed to the implementation of the Hyogo Framework for Action' (UNISDR 2009e, 2009f).

global DRM model than other organizations. This observation is in-line with the general commentary on roles made by Peter Berger and Thomas Luckmann who state that:

> While '*all* roles represent the institutional order...*Some* roles, however, symbolically represent that order in its totality more than others. Such roles are of great strategic importance in a society, since they represent not only this or that institution, but the integration of all institutions in a meaningful world.'
>
> (1967, p. 76)

While the EU does not seem to 'fit' with the general student-teacher model, it can be understood more precisely as an apprentice of the global DRM model. That is, it has recently begun to act out features of the UN's teaching role by not only learning, but also exporting the DRM model.

4.3.3. Summary

The global DRM model is (re)produced through the interaction between regional organizations and the international community. Typified as a teacher-student relationship, the empirical analysis emphasizes the critical role the UN plays in the promotion and production of regional DRM and it also highlights the important role regional organizations play as learners or students of the regional DRM model. The case of the EU produced considerable ambiguity between the empirical investigation and the ideal type. The EU did not fully conform to the role of a student or a teacher of DRM; instead it was identified as in-between the two ideal types. Carrying on the analogy of the 'school of DRM', the EU was classified as an apprentice of the global DRM model. The ambiguity raised through the 'apprentice' status of the EU suggests that the idealized roles of the regional organizations are dynamic, albeit, one that is theoretically inclined to expect a shift from interested agents to disinterested others. Put simply, the 'students' tend to strive to become like the teacher and thus not only adorn the same principles, values, and patterned activity of DRM, but also begin to teach the same pattern to others.[226] Interaction is thus crucial and an adequate causal property for the DRM global model.

[226] The progressive normative bias in world society theory, however, does not anticipate disintegration.

Table 4.6 Assessment of ideal type 2: The (re)production of regional DRM

Ideal Type 2: 'Regional and international organizations (re)produce the global model of DRM'			
	Causal condition	Causal status	Outcome
i.	Regional organizations as 'reproducers'	Adequate	Inter-relational exchange between regional organizations and the UN legitimizes state action in regional DRM
ii.	United Nations as a '(re)producer'	Adequate	
iii.	European Union as a 'producer'	Incidental	

Table 4.3 summarizes the second ideal type. The original causal condition emanating from the ideal type was the inter-relationship between regional organizations and the international community. It was revealed that this was indeed taking place; regional organizations act as students by reproducing the global DRM model, and the UN acts as a teacher by steering and prescribing appropriate behaviour. The UN thus acts both as a producer and a reproducer of the global DRM model. This relationship is understood as an adequate cause for motivating states to cooperate on regional DRM. That is, the condition cannot be imagined without the outcome. It was furthermore revealed that the EU relationship with other regional organizations and states also reflects a diametric relationship whereby the EU is beginning to act as a teacher. As regional DRM can nevertheless be imagined to exist without the presence of the EU, it is thus classified as an incidental cause for the emergence of regional DRM cooperation. This classification should not however deemphasize the important and growing role of the EU in the area of norm control, construction, and propagation. The more it establishes itself with the authority of a 'disinterested other' or as a teacher of global DRM norms, the more power it will have in determining the trajectory of a vital policy field that has direct relevance to other associated global models, such as state sovereignty. Indeed, the notion of normative power should not be underestimated: the clear dichotomy between the UN and other regional organizations places emphasis on the power the UN has in constructing the rules of the game.

The aim of the second ideal type was to reveal the extent to which the global DRM model is produced by the UN and reproduced by regional organizations. By analysing the existence of this dialectic relationship, a further case can be made for the importance of the external normative environment on the motivations of state cooperation in regional DRM.

4.4. Ideal type 3: The diffusion of global DRM

The third ideal type is designed to express the extent to which the global DRM model is diffused by international organizations.[227] One would thus expect a significant increase in the number and geographical spread of organizations dealing with disaster relief. It is also expected that relational and cultural diffusion mechanisms are an adequate causal property for the growth and spread of DRM norms.

This section is consequently divided into two parts. In the first, I apply a quantitative analysis on the growth, spread and interconnections between organizations dealing with DRM. This is designed to shed light on the growth and geographical spread of DRM organizations. The most important outcome reveals that DRM became a global phenomenon in the late 1970s and 1980s, and that regional DRM emerged in the wake of this diffusion. During this period the number of DRM organizations continued to increase and emerged in all regions of the world. An additional analysis of the interrelations made between these organizations also reveals that the UN, followed by the EU and civil society, are the main agents of normative diffusion.

The second part explores the mechanisms of diffusion. In line with world society theory, two modes of norm diffusion are stressed. The first is relational diffusion, defined by inter-subjective exchange between DRM organizations. The second is cultural diffusion, defined by a common cultural category that gives meaning to a particular set of norms. The main outcome reveals that not only are the UN and other DRM organizations actively employing both types of diffusion, but that the cultural and relational diffusion mechanisms are mutually exclusive for establishing a strong set of global norms.

The purpose of the third ideal type is thus to express a further perspective on how global norms influence state action on regional DRM. It adds to the previous ideal types by concentrating on how norms are diffused and highlights the preconditions for the emergence of the global DRM model. Before embarking on the empirical analysis, a brief revision of the theoretical foundations of the ideal type, and a description of the main methods, are provided in the following subsection.

[227] The formulation of the third ideal type is: the disaster risk management model is diffused by international organizations.

4.4.1. Theoretical foundations and applied methods

The first ideal type illustrates that a global DRM model exists, and the second ideal type illustrates that this model is (re)produced through a dialectical role play between regional organizations and the UN. It was also shown that regional organizations will not only enact appropriate values but will also aim to adopt the role of the 'other' by teaching other organizations (cf. Meyer 2010, p. 7). The motivation for adopting the DRM model was furthermore located in the state's ambition to increase its normative authority and legitimacy on the world stage.

An outcome and process of the reification of the DRM global model is the diffusion of professions and organizations. World society theorists highlight two ways in which global models are diffused. The first is via 'relational links' whereby an individual or organization is connected to a global model through inter-subjective exchange. The second is via 'cultural links' whereby an individual or organization is connected to a global model through a common social category (Strand and Meyer [1993] 2009, p. 139). The former includes inter-subjective exchange through networks: when the quantity of networks that adopt and transmit the global DRM model increase, the number of rationalized myths will also increase (Meyer and Rowan [1977] 2009, p. 95, cf. Boli and Thomas 1999).[228] While an important aspect of inter-subjective exchange was dealt with in the previous ideal type, the analysis on the ideational roles of regional organizations did not provide a broader perspective on the extent to which transnational networks support and provide legitimacy for states to enact the global DRM model. The third ideal type thus adds to the previous findings from the first and second ideal type by illustrating the growth and spread of DRM organizations, by expanding on the inter-relational aspect of diffusion, and introducing the importance of cultural diffusion mechanisms. This in turn provides further support for the influence global norms have on state participation in regional DRM cooperation.

This section makes use of quantitative and qualitative methods to extract the empirical data. The former is employed for the first sub-section that looks at the quantity and spread of DRM organizations as well as the inter-connections made between them. All organizations listed in the database of the Yearbook of International Organizations that are defined by the keywords 'disaster' and 'emergency' were assessed and categorized according to their date, geographical location, and the type and num-

[228] Rationalization is a central term used in world society theory that is defined as 'the structuring of everyday life within standardized impersonal rules that constitute social organization as a means to collective purpose' (Meyer, Boli and Thomas [1987] 2009, p. 76).

ber of inter-organizational links. This data was consequently arranged into various tables and figures to provide a clear illustration of the data. Qualitative techniques are used for the remainder of this section that assess various diffusion mechanisms through textual and historical analysis. Explicating the historical origins of DRM is considered an appropriate method for illustrating the effect norms have on state behaviour; comparing state perceptions and actions on DRM over time ought to reveal the contingent nature of norms, the importance of context, and how these can influence state interests.[229] The main sources used include UN yearbooks, documents from the EU Commission, European Parliament, and European Council, as well as other official documents on regional DRM and civil society.

4.4.2. The expansion of DRM organizations

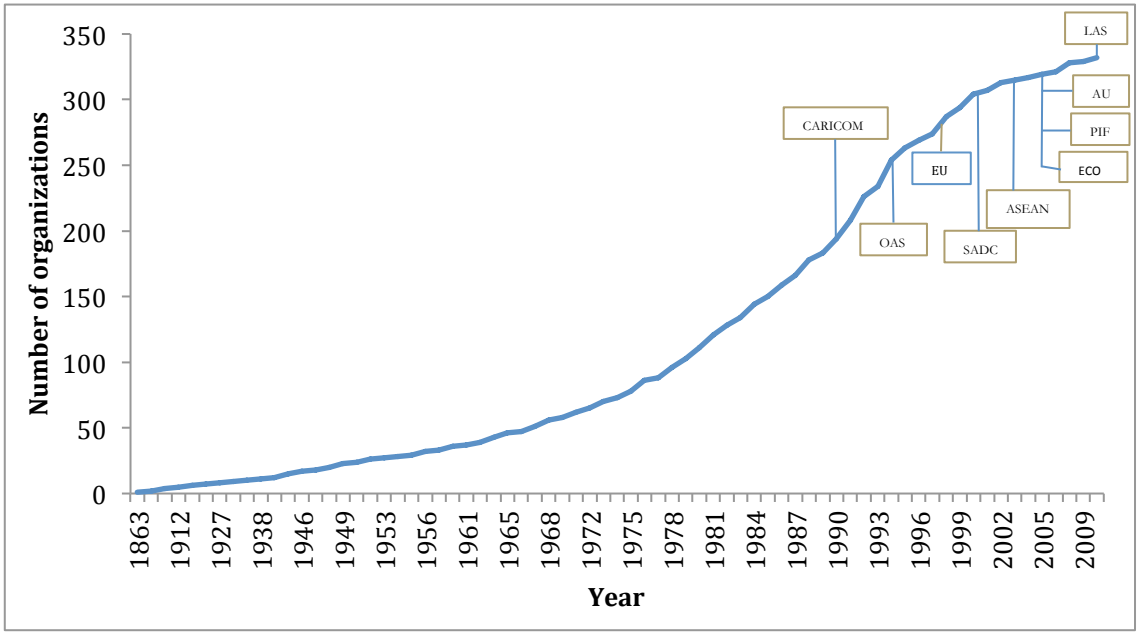
The diffusion and reification of global models are easily transported in an interdependent environment through networks of individuals that work through international (non-governmental) organizations such as the Red Cross, the UN, and the International Court of the Environment (Meyer and Rowan [1977] 2009, p. 95). Three central features of this phenomenon are assessed in the following subsections. The first subsection investigates the quantity of DRM organizations in order to observe if there is a correlation with the rise of networks and the emergence of regional DRM. The second subsection looks at the geographical distribution of the networks. This helps to identify when DRM became a global phenomenon and the original geographical source of transnational advocacy on DRM. The third subsection investigates the number of inter-connections made between networks. This aids in identifying which organizations are the most prolific in propagating the global DRM model.

4.4.2.1. The growth of DRM organizations

This section analyses the quantity of DRM organizations that emerged across the globe in the last century. It reveals that there is a fairly strong agreement with the argument that DRM-networks are an important prerequisite for the emergence of regional DRM.

[229] This is a general method has been used by many other constructivists, such as Finnemore (1993, 1996) and Reus-Smit (1997).

Figure 4.1 Growth of IGOs and INGOs in the field of emergency and disaster relief and the emergence of advanced regional DRM: 1863-2009



Source: Author's own calculations, data retrieved from the Yearbook of International Organizations (2010)

According to the Yearbook of International Organizations (YIO) the number of organizations operating in the field of emergency and disaster relief has grown significantly in the last half century. Based on the keywords 'emergency' and 'disaster' the YIO database identified a total of 429 organizations.[230] The number of organizations that were established each year was then calculated. The outcome reveals a steady increase in the number of DRM organizations as depicted in Figure 4.1. Between the creation of the International Committee of the Red Cross in 1863 and the creation of the Emergency Economic Committee for Europe in 1945, a total of 15 organizations emerged.[231] By 1967 the number of organizations expanded to 50, doubled within a decade, and continued to climb towards 200 at the end of the Cold War, and then 300 at the turn of the century. For a period of approximately two decades, between 1978

[230] These include conventional and non-conventional IGOs and INGOs. Conventional international organizations are defined as 'autonomous international governmental and non-governmental organizations of a non-profit nature. Multinational enterprises are therefore excluded. All such bodies have members in at least 3 countries and do not have their activities or decision-making structured in favour of any particular country'. Non-conventional organizations also include (autonomous) conference series and multilateral treaties (UIA 2012, cf. YIO 2010). Also note that 20 per cent or 88 organizations were not listed with an origin date.

[231] The year 1863 marks the beginning of the modern period of international organizations in DRM. The first recorded emergency relief organization with an international mantel – that continues today – is the Sovereign Military Hospitaller Order of St John of Jerusalem, of Rhodes and of Malta, established in 1099.

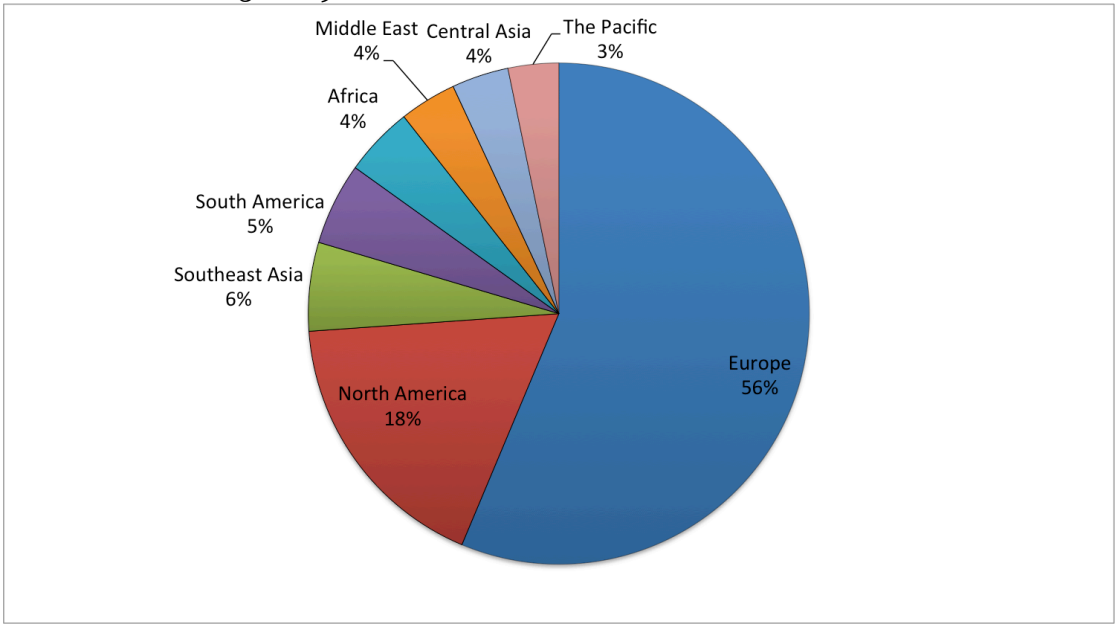
and 2000, at least five new organizations emerged each year. The most intense period of organizational growth was between 1988 and 1994, when 87 organizations were established within six years. After 1994 the number of new DRM organizations have slowly declined, which means that the expansion of DRM organizations have since plateaued (Annex 6.9).

The existence and spread of these organizations provide the necessary medium through which the DRM model can be diffused (Meyer and Rowan [1977] 2009, pp. 95). Indeed, a strong correlation can be made between the rise of DRM organizations and regional DRM cooperation. The stark increase in disaster and emergency relief organizations, beginning in the mid 1970s, correlates with the nascent level of regional cooperation on DRM that was identified in the previous chapter. That is, regional DRM cooperation that is defined by general statements of intent and information sharing initiatives. The intense period of DRM organizational growth in the 1990s also precedes the surge of more advanced regional DRM cooperation in the 2000s, i.e., when regional DRM cooperation developed operational capacities and standardization initiatives. Figure 4.1 illustrates this pattern by depicting the rise of international DRM networks against the emergence of an advanced level of regional DRM cooperation.

4.4.2.2. Geographical representation of DRM organizations

The rise and spread of DRM organizations can be usefully categorized according to their geographical origins. This helps to provide insight regarding (1) when DRM became a truly global phenomenon, and (2) the geographical origin of DRM.

Figure 4.2 The quantity and geographical distribution of DRM organizations: 1863-2009



Source: Yearbook of International Organizations (2011)

Figure 4.2 displays the percentage of DRM organizations that have emerged in the last century according to their geographical origins. The procedure for collecting this data was repeated from the previous subsection. That is, the data was sourced from the Yearbook of International Organizations, where a standard search was entered into the database for all organizations that use the keyword term 'emergency' or 'disaster'. Out of approximately 429 organizations, 244 provide their date and place of origin. These organizations are then grouped according to major world regions: Europe, North America, South America, Southeast Asia, Africa, the Middle East, Central Asia, and the Pacific.[232]

[232] The following countries that claims the origins of DRM organizations were categorized as follows, which includes the percentage of the number of organizations from each country: Europe has 138 DRM organizations, which consisted of France (22%), Belgium (15%), the UK (16%); Switzerland (13%), Italy (8%), Germany (4%), Austria (4%), the Netherlands (3%), Norway (2%), Sweden (2%), Greece (2%), Bosnia-Herzegovina (1%), Cyprus (1%), Denmark (1%), Malta (1%), Slovakia (1%), Spain (1%), Finland (1%), Kosovo (1%), and Portugal (1%). *North America* has 43 DRM organizations, which consist of the US (98%) and Canada (2%). *Southeast Asia* has 14 DRM organizations, which consist of Japan (36%), Thailand (21%), the Philippians (21%), Singapore (7%), Timor-Leste (7%), and Malaysia (7%). *South America* has 13 DRM organizations, which consist of Colombia (15%), Peru (15%), Argentina (8%), Barbados (8%), Bolivia (8%), Brazil (8%), Costa Rica (8%), Cuba (8%), Guatemala (8%), Panama (8%), and Uruguay (8%). *Africa* has 11 DRM organizations, which consisted of Kenya (18%), Ethiopia (18%), Côte d'Ivoire (18%), Senegal (9%), Seychelles (9%), South Africa (9%), Cameroon (9%), and Congo DR (9%). *Central Asia* has 9 DRM organizations, which consist of Turkey (44%), Ukraine (11%), Russia (11%), Pakistan (11%), Belarus (11%), and Azerbaijan (11%). The *Middle East* has 9 DRM organizations, which consisted of Saudi Arabia (33%), Israel

The geographical distribution of DRM organizations clearly shows a transatlantic bias, where the dominance of Europe (largely consisting of Belgium, France, Switzerland, Italy, and the UK) and the US provide the geographical hub of global DRM.[233] According to world society theory, this division is not surprising as the world script is essentially a Western-based script (Meyer and Jepperson [2000] 2009, p. 115, cf. Buhari-Gulmez 2010, pp. 258-9). Thus, while DRM may be global, it is decidedly trans-Atlantic.

Table 4.7 Geographical distribution of DRM organizations: 1863-2009

Time period	Europe	North America	South America	South East Asia	Africa	Middle East	Central Asia	The Pacific
1863-1909	X							
1910-1919	X	X						
1920-1929	X							
1930-1939	X							
1940-1949	X	X				X		
1950-1959	X	X						
1960-1969	X	X		X				X
1970-1979	X	X	X	X	X	X	X	
1980-1989	X	X	X	X	X	X	X	X
1990-1999	X	X	X	X	X	X	X	X
2000-2009	X	X	X	X	X	X		

Source: Yearbook of International Organizations (2010)

Table 4.7 allocates the geographical distribution of DRM organizations according to the period in which they emerged. When one or more organization from a geographical region emerges an X is entered on the corresponding row. One can observe that Europe and the US are the main protagonists for the diffusion of regional DRM across the globe, which began in earnest in the 1970s. Until this period, DRM organizations were generally confined to Europe with the exception of some networks emerging in the US and one in Jordon, New Zealand, and the Philippines. This dramatically changed in the 1980s, which is orthogonal to the rapid increase the number of DRM organizations, where all regions experienced the creation of new DRM organizational structures. The last decade has seen a slightly lower geographical spread suggesting that the expansion of DRM is beginning to plateau.

This geographical analysis is useful for locating the general source of the global DRM model and also illustrates when DRM became a global phenomenon. The fol-

(22%), Bahrain (11%), Jordon (11%), and Kuwait (11%). *The Pacific* has 8 DRM organizations, which consisted of Australia (75%), New Zealand (12.5%), and Samoa (12.5%) (cf. YIO 2011).
[233] Ibid.

lowing empirical analysis now examines the connections made between networks in order to further identify which organizations are the most prominent.

4.4.2.3. The DRM network

A majority of organizations operating in the field of DRM have formal and informal inter-organizational links. This is understood as a necessary part of the inter-subjective activity that promotes and reproduces the DRM model. This interaction is not evenly distributed across all DRM organizations. Instead, there are some organizations that are linked to more networks than others. The higher the number of links registered to the same organization, the more influential that organization will be.

Table 4.8 Number of network links between international organizations involved with 'emergencies' and 'disasters': 2011

International/Regional Organization	*Number of links*
United Nations and associated agencies	236
European Union	73
International Federation of Red Cross and Red Crescent Societies	44
Council of Europe	35

Source: Yearbook of International Organizations (2011)

The type of links analysed in this empirical section include MoUs, financing schemes, cooperative partnerships, affiliations, active or preparatory participation, observer, consultant or supervisor status or when an organization is instrumental in setting up another organization.[234] A list of the number of these links ought to reveal who the most prominent actors are in the field of DRM norm diffusion. These connections are depicted in Table 4.8. For reasons of parsimony, subsidiary bodies or agencies of large organizations, such as the International Red Cross and Red Crescent Societies (IFRC), the EU, and the UN, have been grouped together under their principal names. Thus, ECHO is classified as EU and UNISDR is classified as UN. The results demonstrate that the UN is the major transnational actor which has 236 connections to or from DRM organizations. Other important organizations include the EU with (73) connections, the IFRC with 44, and the Council of Europe with 35.

[234] These various links are based on the Yearbook of International Organizations (YIO) criteria for organizational links.

Table 4.9 Most referenced international organizations involved with 'emergencies' and 'disasters': 2011

International/Regional Organization	*Number of links*
United Nations and associated agencies	130
European Union	67
International Federation of Red Cross and Red Crescent Societies	29
World Health Organization	29
World Food Programme	19
Voluntary Organizations in Cooperation in Emergencies	17

Source: Yearbook of International Organizations 2011

If international organizations provide the primary medium for transporting a global model, it would be expected that they are not only active in creating links, but a select few will also be referenced by other organizations, whereby legitimacy is conferred by a perceived authority in the field.[235] Disaggregating the data according to this logic reveals that many organizations tend to reference 10 or more links to other organizations yet relatively few receive more than 10 references. The network links expressed by each organization in the YIO were collated. The top six organizations that received most references are displayed in Table 4.9. The most referenced set of organizations in descending order are the UN, the EU, IFRC, WHO, WFP, and VOICE.[236] The number of referenced connections to the UN is 130, which clearly outweighs references to the other five organizations that range between 67 (EU) and 20 (VOICE). These organizations are listed in Table 4.9.

An additional observation on the emergence of a DRM network questions an underlying assumption made by world society theorists that norms are progressive. It is often assumed that once institutional structures are established they become path-dependent and thus less susceptible to disintegration. Indeed, it is through the re-enactment of world scripts via relational links that organizations maintain or increase their legitimacy and standing on the world stage. A dense network like the one illustrated above provides a perfect backdrop for this type of social action. However, the YIO also lists DRM organizations that no longer exist. Even if some of these organizations may have changed their names, or been subsumed by other organizations, the fact that there are organizations in the field of emergency and disaster relief which have ceased to exist demands further theoretical fine-tuning by world society theo-

[235] Note that a similar exercise was performed with the first ideal type on standardization, where regional organizations were found to reference external sources for legitimacy reasons.
[236] The Voluntary Organisations in Cooperation in Emergencies (VOICE) is a network of 83 European NGOs cooperating in the area of humanitarian aid.

rists, who pay relatively little attention to norm disintegration. This issue is revisited in the concluding chapter.

4.4.2.4. Summary of the expansion of DRM organizations

The quantity and geographical distribution of, and inter-connections between, DRM organizations are emphasized in this section. Quantitatively investigating these broad aspects of diffusion is designed to: (1) generally explore the relational or inter-subjective links that make norm diffusion possible, (2) establish whether there is a correlation between the emergence of regional DRM and the rise of DRM-related transnational networks, and (3) identify the main protagonists of global DRM diffusion.

The results show that there was a particular increase in the rise of DRM organizations in the late 1970s and 1980s. This observation also agrees with the geographical distribution of DRM organizations that spread across all major regions in the 1970s.[237] As the previous chapter notes in detail, the emergence of regional DRM began incrementally and with a generally low level of commitment and activity in the mid 1970s. It was not until the mid 1990s and the 2000s that regional organizations began to form more advanced levels of DRM cooperation that extended past information sharing activities to include the harmonization of national DRM policies and operational initiatives, such as regional based hubs for the facilitation of transboundary disasters. If a global DRM model is supported, reified, and legitimated through transnational networks, and if these networks are a prerequisite for regional DRM cooperation, then the timing of more advanced regional cooperation after the surge of DRM organizations tends to confirm this assumption.

Another finding produced through the ambiguity from the third ideal type also highlights a general bias in world society theory: that by focusing on global patterns of cultural similarity it tends to discount or ignore peculiarities that do not conform to expectations. A good example of this is the progressive bias of world society theory that struggles to explain normative disintegration or the demise of DRM organizations.

An additional finding made possible by investigating the links between networks revealed that the UN is the major advocate of the DRM norms, followed by the EU

[237] The number of DRM organizations tends to reach a plateau in the late 2000s as the intensity of organizational production is comparatively less than the 1980s and 1990s (Figure 4.1) and the geographical coverage does not extend to all regions in the 2000s (Table 4.8).

and other international organizations, such as the WHO. This finding agrees with the previous ideal type that also emphasizes the UN as the main teacher of the global DRM model, along with the rising importance of the EU.

In general these findings help to establish that the global DRM model is supported and reified through a large network of DRM-related organization. By extension, the emergence of regional DRM tends to be conditional upon global norms. If the UN and a small number of other regional or international organizations are the main protagonists of the regional DRM model, then how have they effectively diffused the DRM model? This question is turned to in the following section.

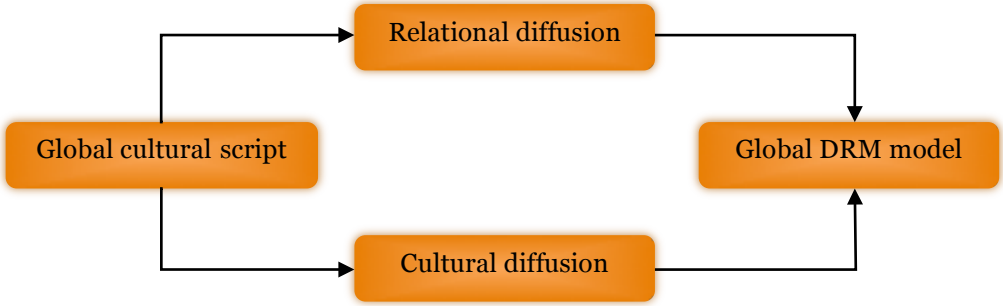
4.4.3. Mechanisms of norm diffusion

World society theorists describe two general modes of norms diffusion. The first is diffusion via relational association that is defined through inter-subjectivity. As we have seen, this includes the emergence of a large number of networks in terms of quantity and geography. However, the quantitative analysis does not explain what caused these networks to emerge. The following section accordingly analyses the history of the UN's involvement in DRM, as well as other agents of diffusion, in order to show how the global diffusion of DRM has been achieved.

The second mode of diffusion is via cultural association. This is defined by a common social category that provides the foundations for diffusion (Strand and Meyer [1993] 2009, p. 139). The common social category of the nation-state, for example, provides the foundations for diffusion as they share similar goals, such as economic growth, and share similar legal standards, such as national sovereignty (Ibid, pp. 139-40). These categories are often 'theorized' – 'the self-conscious development and specification of abstract categories and the formulation of patterned relationships such as a chains of cause and effect' (Ibid, p. 141) – which provides for the rapid diffusion of norms. It is expected that such conditions must be present for the emergence of regional DRM cooperation.

These two modes of diffusion are individually analysed in the following sections by investigating the historical trajectory of the UN's involvement in DRM, as well as the EU and the international community. As the previous analysis repeatedly points to the UN as the main agent of DRM norms, this organization is afforded greater attention; attention to the role of the EU and the international community as diffusers of norms are also represented in the penultimate section on the third ideal type.

Figure 4.3 Relational and cultural diffusion of regional DRM



Source: Adapted from Meyer & Rowan [1977] 2009, 94

Figure 4.3 is designed to illustrate the theorized process of diffusion via relational and cultural association. This begins with the global cultural script that expresses modern societal values such as progress, human rights, and individualism. Emanating from this global source is the global DRM model that becomes standardized and diffused through relational and cultural diffusion processes. The following elucidates this process by first investigating the relational and then the cultural aspects of norm diffusion.

4.4.3.1. Norm diffusion via relational association

A review of the UN's involvement in the diffusion of a regional DRM model reveals two important methods by which it is able to establish conditions for the spread of DRM norms. The first is through the inter-organizational coordination of disaster relief efforts, and the second is through the creation of bilateral, multilateral, regional and global arenas that facilitate the propagation and construction of the global DRM model. These two aspects of relational diffusion via the UN are presented in the following subsections.

INTER-ORGANIZATIONAL COORDINATION AND RELIEF AID

The following provides an historical commentary on the UN's DRM activities in the first four decades of its existence, with particular attention focused on inter-organizational coordination within and between UN agencies, regional organizations, states, and the international community. This serves to illustrate the proactive way in which the UN has fostered DRM cooperation through inter-relational modes of exchange. This also serves to highlight the functional origin from which this form of

coordination was based upon that has since been modified. Additionally, this section highlights the historically based legitimacy that the UN has achieved and profited from.

The Palestine conflict in 1947 and the worldwide food shortage gripped the attention of the newly formed United Nations.[238] These events motivated the UN's first efforts in disaster relief. In May 1948 a committee of the Assembly appointed Count Folke Bernadotte as the UN mediator on Palestine. Two months later Bernadotte initiated a disaster relief project to protect the Arab and Jewish refugees from the approaching winter as well as from famine and disease (UN 1948-1949, p. 200). This initiative was later replaced by the UN Relief for Palestinian Refugees (UNRPR), which signed cooperation agreements with the International Committee of the Red Cross, the League of Red Cross Societies, and the American Friends Service Committee as well as an arrangement with UNICEF (Ibid). Within the framework of this relief project, Bernadotte appointed a Director on Disaster Relief whose headquarters would be in Beirut through the collaboration of LAS and the Government of Lebanon. The director was also assisted by a Chief Medical Officer from the World Health Organization (WHO), a Chief Supply Officer from the International Refugee Organization (IRO), a Director of Field Operations, and a supervisor field medical officer from the International Rescue Committee (IRC) (UN 1947-1948, p. 312).

Cooperation with regional organizations thus began at an early stage. Three years after the UN's first efforts on disaster relief in 1948, the UN awarded LAS and the OAS observer status in the UN's Economic and Social Council (ECOSOC) (UN 1951, 68) where discussions and decisions on DRM are undertaken. This inter-organizational coordination would, at least, have given the newly formed regional organization an on-going comprehension and knowledge of the evolving DRM activity of the UN.[239]

UN activity in Palestine was followed by intermittent relief aid in the 1950s. Some examples include UNICEF's assistance to the 1950 Ecuadorian earthquake (UN 1950,

[238] This global food shortage spurred 44 nations to meet in 1943 and work together to 'banish hunger and establish a stable world agriculture' (UN 1951, p. 872). This grew into the UN Interim Commission on Food and Agriculture which eventually led to the creation of the UN Food and Agriculture Originization (FAO) in October 1945. The purpose of this organization was twofold: to strengthen the livelihood of individuals, and to contribute to 'an expanding world economy' (Ibid, p. 874). While attention to natural disasters was not its original concern, it was soon added to the FAO's mandate in the early 1950s as the concern with food shortages and increasing population growth continued.

[239] In 1953 these organizations as well as the Organisation for European Economic Copperation (OEEC) were included on the council's list of organizations with similar responsibilities (UN 1953, p. 495).

p. 690), the 1954 flood in Iraq, and the Chilean earthquake in 1960 (UN 1960, pp. 248, 430).[240] Attention to natural disaster relief developed until it became an annual occurrence in 1964.[241] By the early 1970s UN disaster relief activity spanned the globe, from Bangladesh, India, and Lesotho to Haiti, Afghanistan, Nepal and Costa Rica (UN 1979, p. 941). With the release of a DRM report by the Secretary General in 1971, the objectives of the UN also widened to include prevention, control, prediction, planning, preparedness, rehabilitation and reconstruction; cooperation now shifted from disaster relief to DRM.[242]

In conjunction with the geographical spread and number of DRM organizations that began to emerge on a global scale in the 1970s, the UN took measures to accelerate worldwide coordination on DRM. In 1974 the UN noted that due to the general 'lack of adequate world-wide co-ordination' in the area of disaster relief, the UNDRO is in a 'unique position…to provide a global system of mobilizing and co-ordinating disaster relief, and that this capability should be strengthened as a matter of priority and urgency' (UN 1974, p. 588). The institutionalization of this global vision for DRM began to materialize in 1975 when the Council requested that the UNDRO, other UN bodies and relevant organizations begin to prepare an international strategy for disaster prevention (UN Res. 1972(LIX(2))).[243]

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[240] Examples of the type of aid provided include milk, drugs, soap, insecticides, vitamin capsules and food. The typical costs of aid ranged between 53,000 to 120,000 USD (UN 1954, p. 265).

[241] Examples of such coordinated relief efforts include the 1964 volcanic eruption in Costa Rica, the 1966 hurricane in Western Samoa, and the flooding of the Euphrates River in Syria in 1967. Aware that the UN still had 'virtually' no resources to provide assistance directly after a natural disaster had occurred (UN 1964, p. 390) and noting the increase in requests for assistance by developing countries (UN Res. 1049(XXXVII)), the acting Secretary General, U Thant, set up a voluntary emergency trust fund, requested to draw funds from the Working Capital Fund (cf. UN 1968, p. 672) and also recommended an increase in technical assistance (UN 1964, p. 390). Similar proposals continued throughout the 1960s and intensified in the early 1970s: the ceiling for disaster relief funds, or the 'Working Capital Fund', increased from 100,000 to 200,000 in the period 1969 to 1971, doubled again 1974 and continued to increase during the 1970s (UN 1971, 475, 1973, 458, 1975, 562, 1976, 514, 1979, 941). By early 1990s annual contributions from the UNDRO had reached above 200 million USD (UN 1991, 413, cf. 1990, 346, 1994, 850-1, 1999, 858) and by 2007 OCHA was receiving contributions amounting to over 800 million (UN 2007, 911).

[242] In order to operationalize these objectives and bolster the emerging organizational structure of the UN in DRM, the Council requested the Secretary General to appoint a disaster relief coordinator (UN 1971, 474). The Office of the Disaster Relief Co-ordinator (UNDRO) was subsequently created in 1972.

[243] To be sure, the UN was not coercively applying a set standard of appropriate behaviour on states, but was principally, and increasingly, requested by states and later regional organizations to provide advice and administrational assistance on DRM. Indeed, a part of the stated motivation to increase cooperation was due to the increasing requests by states (UN 1989, p. 345). Viewed through world society theory, this represents a 'dialectic of knowledge' whereby the state increasingly recognizes that legitimate action can be obtained through cooperation that is based on an idealized functional need (in order to travel of diffuse) that not only legiti-

The UN also contributed to providing expert advice and technical assistance to regional organizations (UN 1979, p. 942, 1980, p. 973). For example, a fact-finding mission was sent to seven Andean countries in order to implement a regional project on DRM and support intra-regional assistance (UN 1974, p. 582). Plans for a pan-Caribbean DRM project were also evolving in the late 1970s and finalized in 1981. The following year the UNDRO established an emergency telecommunications network in the Caribbean region, and in 1983 handed over the administrative responsibilities of the regional programme – the Pan-Caribbean Disaster Preparedness and Prevention Project – to CARICOM (UN 1981, p. 484, 1982, p. 714-5, 1983, p. 533). The UNDRO continued to closely support this effort. In the following year it sent two full-time experts on emergency telecommunications to the region, organized seminars, workshops, training programmes, simulations, and support for disaster plans. These efforts aimed to support and create national emergency offices. By the end of 1984 a total of 23 out of the 28 member states had national programmes on disaster preparedness and prevention (UN 1984, p. 521). This insight may help to explain why CARICOM created an advanced form of DRM cooperation in the early 1990s compared to a majority of regional organizations that began to cooperate in operational activities near the end, and after the turn of the century.[244]

The Caribbean region was not the only region to receive assistance. Global DRM activity in the 1980s involved a considerable amount of training and education from the UN to regional organizations and states. In 1984 for example, the UNDRO partic-

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mizes the state but also encourages the expansion of activity by the UN. The UN and the state thus carry out a necessary mutualistic mode of activity.

[244] In addition to including existing regional organizations, the UN also created regional commissions for the purpose of promoting economic growth. These Commissions were set up in Europe (UNECE) and Southeast Asia (ESCAP) in 1947 and in Latin America (UNECLAC) in 1948 (at this time the Commission in South America was the UN commission for Latin America and the Commission for Southeast Asia and the Pacific was the Commission for Southeast Asia). A decade later a regional commission was also established in Africa (UNECA) and a Western Asia Commission emerged in 1973 (UNESCWA). The use of these agencies to disseminate and promote DRM strategies already began in the 1950s, when ESCAP assisted in the creation of the Mekong River Commission in 1957. ESCAP was also instrumental in forming the Typhoon Committee in 1968 and together with WMO, ECAFR created a 'regional action programme for natural disaster relief' in 1970 (UN 1970, p. 424). While significant, these events tended to be ad hoc rather than institutionalized arrangements, as few other DRM activities arose. Indeed, the mandate of the Commissions has only recently begun to include attention to DRM activities. The UNECE has now begun to cooperate with the OECD on DRR; ESCAP established a Committee on disaster risk reduction in 2009; UNECLAC signed an MoU with the Caribbean Catastrophe Risk Insurance Facility (CCRIF) on DRM in 2010, and a recent dialogue between ECOSOC and the Commission executive secretaries emphasized the need to strengthen the Commissions' role in development strategies (IISD 2011). As these Commissions are well established it is somewhat surprising that no official DRM cooperation has emerged until very recently. Instead of focusing on its own regional bodies, the UN has been more active in promoting the DRM model on regional organizations.

ipated in or sponsored regional-based programmes, such as the Tropical Cyclone Committee for the South-West Indian Oceans, a seminar on disaster preparedness in the South-West Pacific, flood management in Asian countries, a disaster training programme for South Asian countries, a disaster experts meeting in ASEAN, a regional seminar on disaster preparedness, a regional training seminar for the South-West Indian Ocean, DRM assistance to Southeast Asia and India, a regional meeting with the OAU, and supported the Balkan region's creation of a permanent International Governmental Committee for Earthquake Risk Reduction (UN 1984, pp. 520-1, 533, cf. 1985, p. 547). By 1985 the UN's regional-based action was officially recognized: increasing emphasis was to be placed on 'regional approaches and methods to solve problems related to disaster prevention' (Ibid).[245]

This historical description serves to illustrate that from an early stage of the UN's history its operational practice in the area of disaster relief has been transnational.[246] That is, disaster relief cooperation included regional organizations, UN agencies and INGOs such as the Red Cross. From the UN's point of view this was a novel approach: 'The programme for the United Nations Relief for Palestine Refugees (UNRPR) represented a new type of organization in the Secretariat in that, with a view to the greatest economy and dispatch, it utilized the machinery of existing disaster relief agencies and the facilities of the appropriate specialized agencies' (UN 1948-1949, p. 161). While this may not have been entirely novel it did set an important precedent in the newly formed organization that was critical for the later diffusion of DRM principles. The inter-organizational role of the UN has since expanded to include a large number of networks and is now a common feature of global DRM.

Two main conclusions can be gleaned from this short historical overview of the UN's activity in disaster relief. First, the functional requirement to assist with little capacity (cf. UN 1964, p. 390) has meant that the UN has naturally used existing relief agencies to support its DRM aims. Such participation provides a natural outlet for dialogue and the transference of a global DRM model between agencies, states and regional organizations. Inter-organizational cooperation is thus an important precon-

[245] Regional organizations were also considered essential partners in global DRM coordination by the early 1980s. UN resolutions on DRM before 1980 did not include 'regional organizations' when referring to partner organizations that provide relief assistance; instead, the general term 'intergovernmental' was used. However, in 1980 regional organizations were mentioned in appreciation of their relief aid, and from 1981 'regional organizations' were included in the standard list of partner organizations that provide disaster relief (UN 1980, 980, 1981, 498, 1982, 676, 1983, 493).

[246] The UN's predecessor in the area of DRM – the International Relief Union (IRU) administered through the League of Nations – was also defined by an inter-organizational spirit. For more on this see p. 197.

dition and mechanism for the diffusion of global norms. Second, by taking a proactive role from an early period, the UN has established itself as a leading protagonist in regional DRM. This has helped to legitimize and provide normative power to the UN as a diffuser of global DRM norms. Indeed, without the historical evolution of the UN's DRM activity, it is hard to imagine that DRM would be as prolific as it is today: a preliminary insight that supports the argument that the UN is an adequate cause for the emergence of DRM norms. The expanding role of the UN in DRM also includes the facilitation of arenas of diffusion that have become a particularly apparent and strong mechanism of norm diffusion used by the UN the last two decades.

Arenas of diffusion

Large international organizations are understood as a mechanism through which global models can be constructed and diffused. These organizations provide common arenas where global models are generated through the interaction of states (Lechner and Boli 2005, pp. 84-8).[247] Examples of these forums include UN world conferences on the environment, major contemporary art exhibitions, and even the football World Cup (Ibid).[248] These arenas are often accompanied by a large number of IGOs and professionalized individuals that can generate 'models of legitimate goals and putative "best practices"' as well as the capacity to carry or propagate the script (Schofer, Hironaka and Frank 2004). The UN has increasingly supplied and financed specific arenas where the diffusion of a global DRM model can accelerate through intensive moments of dialogue. When major global sites of interaction are facilitated the contents of the global DRM model can also be mutually adjusted and further institutionalized (cf. Lechner and Boli 2005).

The first world conference on DRM was held in 1994 in Yokohama, Japan. The outcome of this conference produced a general strategy that reiterated the need for states to adopt comprehensive DRM procedures.[249] This is the first institutionalized expression of a global DRM model that was designed by the international communi-

[247] This is apparently achieved by (1) preparation and agenda setting by professionalized others around common issues that can be addressed by a global collective, and (2) intersubjective exchanges between different countries and participating NGOs in the international fora. Differences in terms of customs, traditions, and perceptions between the participants are expected and it is, in part, through this discourse that symbolic documents are produced that lay out common principles and plans of action (Lechner and Boli 2005, pp. 84-8).

[248] Other ways in which cultural scripts can emerge or deteriorate include conflicts between different world models and critical shocks to the system (Boli 2005, pp. 395-6, Meyer 2009, p. 56).

[249] It may be of interest to note that man-made disasters were introduced in the expanding area of protection and with this a move from the use of 'disaster relief' to 'disaster reduction' (UN 1989, p. 345).

ty.[250] This was complemented a decade later by the second world conference held in Hyogo, Japan. Like the previous conference, a large number of practitioners and state representatives attended and a revised global DRM model was produced.[251]

The second world conference on DRM was held in 2005 in Hyogo, Japan. The outcome from the second world conference produced the Hyogo Framework for Action (HFA), which set out five targets to be achieved by states and regional organizations by 2015. The goals agreed and developed by the international community in the HFA provided the main impetus for the ISDR to promote, advocate, and set mid-term goals to foster the inclusion of HFA goals in national and regional policy. Thus, national platforms, reviews, workshops, conferences, working groups, and the support of early warning systems for tsunamigenic and other potentially disastrous events were organized by the ISDR Task Force (UN 2005, p. 1017).[252] These initiatives are important because they provide further sites for the diffusion of the global DRM model.

In addition to these arenas of diffusion, the UN organizes global, regional, and national platforms for Disaster Risk Reduction (DRR) that are designed as sites for the exchange of information and proposals for new DRM initiatives (UNISDR 2012a). These arenas are understood to have developed out of earlier regional fora from the 1990s, such as regional symposia on IDNDR, regional roundtables on DRM, and international conferences (UN 1991, p. 411, 1995, p. 939, 2000, p. 882). These and other arenas of diffusion provide important sites for the UN to encourage states to strengthen regional capacities, which seem to be taking effect. In the 1994 UN yearbook it was noted that: '[a]t the regional and subregional levels, countries facing the same threats were urged to strengthen cooperation by establishing subregional or regional centres for disaster reduction and prevention; strengthen regional and national capacities to reduce natural disasters; and establish mutual assistance agreements and joint projects for disaster reduction' (UN 1994, p. 851). A similar message was reiterated in the 'Yokohama Strategy and Plan for Action for a Safer World' (UNISDR 1994) and again in the second world conference a decade later (cf. UNISDR

[250] 'Major themes for the Conference included the cost benefits of hazard mitigation, construction of safer buildings, drought management, disaster warning and preparedness systems, interaction between natural and technological disasters, and the vulnerability of communities and special groups' (UN 1993, p. 741).
[251] The second conference has approximately 4,000 participants representing 168 states, 78 observer organizations, 161 NGOs, and 152 media organizations (UN 2005, p. 1015).
[252] The promotion of the HFA also gave rise to other structural changes within the UN DRM system such as a management oversight board, a reformed ISDR Task Force, an advisory committee and a strengthened ISDR secretariat (UN 2005, p. 1017).

2005, p. 2, UN 2005, p. 1017). By 2007, regional organizations were making concerted efforts to adopt DRM procedures in accordance with the goals set out in the HFA. ECOWAS approved the sub-regional policy and mechanism for DRR; the AU released the Africa Regional Strategy for DRR; and the Coordination Centre for the Prevention of Natural Disasters in Central America re-issued its Regional Strategy for Disaster Reduction 2006-2015 (UN 2007, p. 948).

As a sign of the UN's increased involvement and authority as an agent of DRM norms, the UNISDR has been proactive in supporting bilateral links in many regional organizations. For example, the UNISDR signed an MoU with ECO setting out 'modes of cooperation' on DRR in 2007; the SADC multi-sectoral disaster management Strategy was financed and co-authored by the UNDP (UNDP 2001); the PIF's Madung DRR framework was financed and drawn up by SOPAC, which has strong links to the UN and the EU (SOPAC 2010); LAS signed an MoU with the UNISDR in 2008 (Mallah 2011); and the LAS strategy for DRR was developed in collaboration with the UNISDR regional office, UN agencies, the World Bank, IFRC, and civil society (UNISDR 2011a). Ongoing support and continual integration of UN-based DRR in regional organizations have also seen the establishment of *inter alia* a Memorandum of Cooperation (MoC) on DRR with ASEAN, the UNISDR, and the World Bank in 2009; a joint declaration on DRM with ASEAN in 2010; the creation of a regional supply-hub in Malaysia; the exchange of letters between OCHA and the EU on disaster response; and cooperation agreements with the OAS. These and other initiatives are furthermore supported by ISDR regional offices for Africa, the Americas, the Arab States, Southeast Asia and the Pacific, and Europe.[253] It is worth noting that the EU and select states are also beginning to participate in similar endeavours such as the Swedish Civil Contingency Agency cooperation with SADC or ECHO's proactive involvement in diffusing DRR strategies to other states (cf. European Commission 2009, Jönsson 2010).

The facilitation of arenas of diffusion by the UN and other organizations provides the preconditions for the diffusion of the regional DRM model. In addition to this, global conferences also provide the conditions for the (re)construction of DRM norms that are then disseminated to states and regional organizations. The current normative environment that upholds DRM cannot be readily imagined without the proactive role of the UN in orchestrating inter-organizational cooperation and the facilitation of

[253] A further observation that emphasizes the increasing importance the UNISDR places on regional organizations, as can be seen in the 2010-2011 expenditure breakdown, where a majority of the costs went to the regional work programmes (UNISDR 2010, p. 22).

global sites of exchange. The UN is thus considered an adequate cause for the global DRM model.

4.4.3.2. Norm diffusion via cultural association

Cultural diffusion is the 'cultural understanding that social entities belong to a common social category [that] constructs a tie between them' (Strand and Meyer [1993] 2009, p. 139). When these cultural categories exist, diffusion is more likely as there is a recognized similarity between different states. In order to tweak this argument towards the emergence of regional DRM, it is proposed that common cultural categories, such as societal values, knowledge, and language are conditioned by the UN into standardized features of DRM. Once these categories become institutionalized or taken-for-granted by states, the diffusion of regional DRM becomes more likely. It is furthermore posited that when these cultural categories are connected to a theorized pattern of explanation based on pre-existing global models, diffusion will rapidly occur.[254]

Table 4.10 Common social categories used for the diffusion of the global DRM model

Cultural categories		*Standardized mechanisms*	*Examples*
i.	Rationality	Rationalized vocabulary	DRM as an '*investment* in the *future*'
ii	Science	Scientific studies	Methodology for seismic risk reduction strategies
iii.	Knowledge	Education	Primary school resources; master programmes on DRR; manuals of best practices; 'Common terminology' publications
iv.	Myths	Global agenda setting and ritual construction	HFA priorities of action; international day for disaster reduction

Table 4.9 depicts four cultural categories that are discussed in the following sections. The source of this material is largely derived from the UN yearbooks. Standardization mechanisms are the tools the UN uses for crafting common social categories that can then be used for the rapid diffusion of regional DRM. Examples of the standardization mechanisms are included in the far-right column.

RATIONALITY AS A THEORIZED MODEL

Rationality is often defined by world society theorists as a central component of the world cultural script. It is the 'structuring of everyday life within standardized imper-

[254] Theorization is 'the self-conscious development and specification of abstract categories and the formulation of patterned relationships such as chains of cause and effect' (Meyer [1993] 2009, p. 141).

sonal rules that constitute social organizations as a means to collective purpose…exchange is governed by rules of rational calculation [and]…rule constituting a market' (Meyer, Boli and Thomas [1987] 2009, p. 76). In order to fully understand why this is an imperative normative component of DRM cooperation, I will briefly turn to an historical review of the rise of the contract, which forced the individual to 'think in the future' and fostered a heightened sense of responsibility. These are crucial, albeit, taken-for-granted aspects of DRM.

The emergence of the market system during and after the Enlightenment period fundamentally changed the way people interacted. Based on a common and competitive financial interest, people of different faiths, cultures, and customs began to intermix more intensely than before. This provided a 'powerful educational force' and 'altered character by heaping tangible rewards on people who displayed a certain calculating, moderately assertive style of conduct' (Haskell 1985a, p. 550, Weber [1930] 2010, pp. 17, 20). A crucial phenomenon that surfaced through the market system was the adherence to the contract. By assenting to a contract and the market principles of self-discipline, utility, honesty, and punctuality, people were obligated to be *responsible* and calculable individuals—a force that awakened the 'sovereign individual' and provided a sense of security for the future (Haskell 1985a, p. 552, Nietzsche [1913] 2003, p. 36). People also began to live in the future to the extent that contractual agreements were made in the present on the understanding that a future event would take place.[255] The moulding of individuals into 'civilized' people who obtained a sense of responsibility through the act of promise keeping (responsibility) and living in the future is crucial for comprehending the rise of the humanitarian norm on DRM - a sensibility that, as Nietzsche notes, typifies the consciences of the modern man:

> The proud knowledge of the extraordinary privilege of *responsibility*, the consciousness of this rare freedom, of this power over himself and over fate, has sunk right down in his innermost depths, and has come as instinct, a dominating instinct – what name will he give to it, to this dominating instinct, if he needs to have a word for it? But there is no doubt about it – the sovereign man calls it his *conscience*.
>
> [1913] 2003, p. 36 (original emphasis)

[255] The contract is also built on a number of assumptions of actions that must be followed in order to achieve the contractual goal. The growth of these 'contingent recipes', argues Thomas Haskell, are fundamental for instilling typified causal modes of action as well as moral responsibility (1985b, p. 554, Gasking 1955). This was an important precondition for the emergence of a 'humanitarian sensibility' (Haskell 1985a, p. 559).

Before long the contract was a legal norm and responsibility (promise keeping) a social convention that went beyond the market system. This *inter alia* empowered people to think and act ahead of time as well as awarding the right of intervention in future events (Haskell 1985a, p. 556). The stage was thus set for the performance of the sovereign individual that would be legitimated by others through the newly fashioned script epitomizing the empowerment of individual, rational action, progress, and responsibility. That is, some of the central properties of the modern world script.

Legitimizing cooperation on the basis of future events via rational calculative means provides essential common cultural categories that give meaning to DRM: 'thinking in the future' as a 'responsible' individual informs the rational contours of DRM. As we have seen, many regional organizations emphasize the importance of reducing financial costs, even if the actual expectations of future disasters based on historical experience has been decreasing over the last three decades. One would also expect agents of DRM norms increasingly to adorn themselves with rationalized activity. This is certainly the case for the UN which is in the process of becoming more of a rationalized, functional, and calculative entity as action is increasingly legitimated by rational behaviour and cost-benefit calculations. In the mid 1990s, for example, the stated motivation for disaster relief and the promotion of DRM principles began to draw from disaster statistics (UN 1996, p. 539, cf. 1993, p. 741, 1998, p. 840). Reflecting this change, the Secretary General noted that policymakers should recognize 'disaster reduction as an investment in the protection of national assets' (UN 1996, p. 539, cf. Ban 2009, Ideal Type 2). This tends to support and maintain the rationalization of world society and legitimizes the UN's action in promoting DRM. Rationalization is also intimately intertwined with the rise of science, which is another important cultural category now examined.

SCIENCE AS A THEORIZED MODEL

Science is an important concept for many world society theorists because of the power it has in legitimizing social activity. John Meyer and his colleagues even refer to science as the new religion (Meyer *et al.* [1997] 2009, p. 192). The essence of the scientization thesis is a universal search for stability (Meyer 2010, p. 11, cf. Drori *et al.* [2003] 2009). Scientific knowledge provides stability through the want of knowing, and through knowing a sense of security in what is otherwise a haphazard and confusing world.[256] Translated into DRM, this means having control over unpredictable

[256] Science is described as a 'cultural canopy' that supports and constitutes modern world society by awarding legitimacy and status to those actors that speak science (Drori, *et al.* [2003]

events via scientifically-informed prediction.[257] It is thus 'important in constructing agentic human actorhood to establish, not only that the universe is a lawful and rational place, but that humans can and do figure it out; gratuitous displays of knowledge information, and analysis help to do this' (Ibid, p. 272). United Nations scientific efforts in DRM are thus part of, and contribute to, a wider system of meaning for the rationalized actor (Ibid, p. 276) that is supported by inter-organizational coordination.

The pursuit of scientific studies has been a dominant and expanding theme throughout the UN's involvement with DRM.[258] The value the UN places on scientific knowledge is based on the belief that 'man's current scientific and technical capacities could help conquer the environmental scourge' (UN 1970, p. 637). The body of scientific knowledge established from the 1970s presents a running theme in UN DRM activity that is epitomized in a statement made by the international ad hoc group of experts on the International Decade for Natural Disaster Reduction (IDNDR): that the following decade would represent 'an opportunity for the world community to use existing scientific and technical knowledge to reduce the damage done by natural disasters' (UN 1989, p. 355). The General Assembly resolution 44/236 on the IDNDR subsequently noted the importance of 'devis[ing] appropriate guidelines and strategies for applying existing scientific and technical knowledge' (UN 1989, p. 356), which was complemented by the Secretary General's report which recommended 'strengthen[ing] rationalization of international cooperation and intervention methods' (UN 1990, p. 438).[259] As the century was closing, ongoing and more sophisticated scientific documents were being published, such as the Risk Assessment Tools for Diagnosis of Urban Areas against Seismic Disasters, methodology for seismic risk reduction strategies, and a report on the Usoi Landslide Dam and Lake Sarez in Tajikistan (UN

2009, p. 266-7). Amongst other 'advantages' science not only legitimizes action but also provides a layer of meaning for action and understanding about how the world works, producing a sense of stability and security.

[257] The concept of 'prediction' is one of the cornerstones of the UN's humanitarian 'reform', tying the desire for scientific knowledge with the expansion of cooperation.

[258] As early as 1962, when a separate sub-section entitled 'measures concerning natural disasters' first appeared in the UN yearbook, emphasis was placed on promoting scientific knowledge (UN 1962, p. 392).

[259] Of course, activity in promoting DRM was already underway in the 1960s (UN Res. 1384 (XLV), UN 1966, p. 532) although it was less institutionalized. The adoption of the International Relief Union's assets and responsibilities in 1966 would have further invigorated the UN's bias towards science (UN 1966, p. 532). Upon the Secretary General's recommendations, it was agreed in the following year that UNESCO would take over the scientific study of natural disasters from the IRU and that the Administrative Committee on Coordination would look into the implication this has for the co-ordination of the UN family in the area of natural disasters (UN Res. 1268(XLIII)). For more on the IRU and its involvement with science see p. 197.

2000, p. 882). This has been an ongoing trend that is fundamental to the success and legitimacy of the UN's activity in DRM.

The scientization of DRM is a good example of diffusion via the theorization of a cultural category. Presenting DRM around 'elaboration' models of scientific and rationalized explanation strengthens its legitimacy and thus accelerates the path of diffusion (Strand and Meyer [1993] 2009, p. 141). Another common social category that the UN has used is the diffusion of DRM knowledge through a variety of media. This is the theme of the following section.

KNOWLEDGE

From its modest beginnings as a burgeoning relief agency in the 1950s, the UN soon developed its mandate to include the production and dissemination of knowledge on DRM. As we have seen in the previous description of inter-organizational cooperation, and in line with the global diffusion of DRM organizations, the production and diffusion of DRM knowledge became particularly pronounced in the 1970s, when the UN widened its focus from disaster relief to DRM. Already by 1979, the UN had stretched across the globe in terms of disseminating knowledge on DRM. In this year alone it financed training fellowships in disaster preparedness in Bangladesh, Burma, and India; it provided advice on the establishment of a disaster research and training centre in the Philippines; it sent technical cooperation missions to Haiti and Jamaica; representatives went to Afghanistan and Nepal to review their flood management systems; a joint UNDRO and UNDP mission was sent to Costa Rica, El Salvador, Guatemala, and Honduras to renew a regional DRM project for Central America; UNDRO missions were sent to Lesotho, Malawi, and Rwanda; advice was sought from Senegal and Zaire; representatives' were sent to Mozambique; and a conference on the effectiveness of pre-disaster planning was carried out in Fiji for the South Pacific (UN 1979, p. 941, cf. UN 1964, p. 390, UN 1967, p. 584, 1973, p.458, 1975, pp. 561-2. UN 1976, p. 513).[260] It is assumed that these experts carry with them a particular model of DRM that they present through their operational activity and advice. This and other forms of relational diffusion aids in fostering a similar mode of DRM cooperation that will increasingly 'fit' local conditions as common cultural categories become institu-

[260] Some further examples of the type of material that is diffused include the UN Institute for Training and study on 'model rules for disaster relief operations' (UN 1982, 701), the UN Environmental project guidelines for disaster prevention (Ibid, 715), UNICEF manual on emergencies (UN 1984, 521), and the UNDP/UNDRO Disaster Management Manual (UN 1991, 414).

tionalized. The institutionalization of these common cultural categories is achieved through the following methods of knowledge standardization.

First, in addition to financing studies on DRM, the UN and other international organizations publish manuals and reports on 'best practices' (UN 1964, p. 390, 1982, p. 701, 1984, p. 521, 1991, p. 414) that are made available to DRM practitioners. These include, for example, 'policy and practical guidelines' for mainstreaming gender issues in DRM (UNISDR 2008, 2009d); best practices on flood management, knowledge sharing, and emergency food security reserve management (EUPPRD 2011, Malteser International 2011); global best-practices in housing construction (World Bank 2010); and good practices in local disaster risk reduction (UNISDR 2010b). Many of these reports are either complemented by, or are direct outcomes of, workshops hosted by the UNISDR. Here, conditions for appropriate knowledge on DRM practices is advanced and standardized.

Second, UN agencies have increasingly focused on establishing learning initiatives at all levels of education, from pre-primary to graduate levels of education on DRM.[261] For example, in 2009 the UNISDR published a report on 'educational material for school earthquake safety: from guidelines to practices' (2009b). This document not only provides guidelines for the most appropriate type of student handbooks and workbooks to be used for fostering knowledge on earthquake resilience, but also recommends how earthquake drills should be carried out, how disaster safety plans ought to be formed, and what the essential items for an emergency utility kit ought to have (Ibid). Examples of other primary school documents from the UN and other international organizations include: 'risk reduction methods: disaster reduction handbook for foundation phase learning (Grade 1-3)' (UNISDR AF 2009); Tsunami textbooks from pre-elementary school to high school levels (IOC 1997); and 'the A.B.C. of cyclone rehabilitation' (UNESCO 1996). Higher education schemes are also supported by the UN, such as a master of science in 'sustainability, development, and peace' at the UN University in Japan, or an Erasmus Mundus exchange programme in flood risk management (PreventionWeb 2012). To be sure, the promotion of educational initiatives is not new (UN 1967, p. 584, 1987, p. 701, 2007, pp. 943-64), however the intensity with which these initiatives are being put into place does seem to be increasing.[262] As these educational programmes have been instigated by the UN and

[261] For further reading on the expansion of education refer to Meyer and Ramirez ([2000] 2009).
[262] For a review of the increasing number of educational initiatives from the international community see the list under 'educational materials' on the PreventionWeb website: www.preventionweb.net

other organizations from a fairly early stage, it is reasonable to conclude that this has helped to form common social categories of standardized knowledge on DRM (cf. Meyer [2001] 2009, p. 347).[263]

Third, a further knowledge-standardization initiative that the UN has orchestrated is the normalization of DRM terminology. This is defined as a process whereby the various concepts and definitions used for DRM are streamlined into standardized statements. For example, in 2009 the UNISDR published a booklet on the terminology of disaster risk reduction that defines a list of common terms, such as climate change, disaster, risk, and early warning system (UNISDR 2009g, cf. UNISDR 2011). It is also interesting to note that this document also includes terms that are exclusive to the institutional structure of the UN, such as 'national platform for disaster risk reduction', and introduces 'emerging' terms, such as 'prospective disaster risk management' (Ibid). In other words, the UN plays a strong hand in determining the appropriate language to be used, which has clear consequences for the social construction of DRM activities. Standardized multilingual projects on key terms and phrases on DRM were first developed in 1991 (UN 1991, p. 414) and updated prior to the Hyogo world conference on DRR in 2004 (UNISDR 2004b, 2009g). The outcome of these initiatives can be seen in the results from the first ideal type that reveal a high similarity in, if not duplication of, DRM terms used by a majority of the ten regional organizations under review (cf. Ideal Type 1, 144, Annex 6.8),

The success of diffusing a DRM model to regional organizations is determined by the extent to which knowledge on DRM has become a standardized feature of the state apparatus. As the commentary above depicts, the UN has been highly active in fostering such standardization through the publication of 'best practices' manuals, supporting learning initiatives, and constructing common DRM terminology. It is doubtful that the widespread diffusion and solidification of DRM norms could have been achieved without the prerequisite of grafting globalized DRM knowledge onto local contexts. Knowledge and its connection to rationalization and scientific progress are thus identified as important adequate causal features that have made regional DRM possible.

[263] John Meyer notes that 'Educational expansion, curricular structures...all flow through a professionalized international world, producing pronounced world isomorphism' ([2001] 2009, p. 347).

MYTHS

Myths are 'rationalized institutional structures in society that make formal organizations more common and more elaborate' (Meyer and Rowan 1977, p. 89). Viewed as a rational and appropriate form of DRM cooperation, such myths will be incorporated into an existing institutional structure, or form new ones, and thus contribute to standardization (Ibid, p. 94). The following examples from the UN serve to illustrate this procedure of myth making or ritual construction that attributes common social categories to states and, by extension, regional organizations.

An example of myth making is made through global agenda setting, which is conducted through specialized UN agencies and world forums on DRM. The formation of rationalized institutional structures in the form of easily identifiable common goals helps to construct a standard recipe of DRM that is easily diffused. The following provides a description of how UN agencies have developed these DRM myths over the last two decades.

Emerging out of the international Decade for Natural Disaster Reduction (IDNDR), a Scientific and Technical Committee was established (UN 1989, p. 245). One of the first activities of the Committee was to recommend the organization of a world conference on DRM, which subsequently adopted a plan of action for the conference (UN 1993, p. 741).[264] A long list of 18 recommendations for action was agreed upon at the conference that encouraged states to mobilize domestic resources, develop risk assessments, and document disasters (UN 1994, pp. 14-15). Unlike the outcome of the second world conference a decade later, the 'Yokohama Strategy and Plan of Action for a Safer World' provided few institutionalized myths or simplified categories that states could easily adopt. In contrast, the Hyogo Framework Plan of Action (HFA) reduced the number of recommendations to a set of five identifiable cultural categories in the form of simplified, stylized, and standardized goals. Examples include: 'identify, assess and monitor disaster risks and enhance early warning' and 'reduce underlying risk factors'. These common categories are shorthand for the DRM model that is now highly institutionalized as a global concept. It is worth noting that it is during this period that regional organizations began to either adopt the new HFA

[264] It aimed to review national, regional, and international accomplishments of the Decade, create an action programme for the future, and increase the knowledge platform on DRM. Examples of the major themes to be presented at the conference included: 'the cost benefits of hazard mitigation, construction of safer buildings, drought management, disaster warning and preparedness systems, interaction between natural and technological disasters, and the vulnerability of communities and special groups' (UN 1993, p. 741).

agreement verbatim in conjunction with DRM cooperation or updated existing framework agreements, such as SADC, PIF, ECO, the AU, and LAS.[265]

Internal organizational restructuring within the UN in the 1990s provided the means for the UN to concentrate on not only disseminating DRM norms, but also to encourage the international community to take ownership and responsibility for diffusing DRM norms based first on the Yokohama strategy and then the HFA.[266] Achieving this goal was greatly assisted by the creation of the International Strategy for Disaster Reduction (UNISDR) in the late 1990s, which is designed to act as the main forum in the UN system to *inter alia* 'devising strategies and policies' on DRM (UN 1999, p. 858) and 'promote a worldwide culture of reduction' (UN 2000, p. 882).[267] Transferring the responsibility of diffusing DRM to the international community (cf. UN 2007, p. 945) also provided the UN with more space to focus on the global coordination of DRM, which is reflected in the 2005 'humanitarian reform agenda' initiated by the UN's Inter-Agency Standing Committee (IASC). This new agenda is based on four core themes of partnership, leadership, accountability, and predictability (UN 2007, p. 914) for the purpose of creating a more efficient response effort by the international community. An on-going initiative that has emerged from this new agenda are global 'clusters' of relief organizations that are grouped around particular themes such as education and disasters, emergency shelters, emergency telecommunications, child protection, and nutrition. The aim of the cluster pro-

[265] For a full description of these and the other regional organizations under review consult Chapter 2.

[266] The UNDRO was restructured into a wider organizational body called the Department of Humanitarian Affairs (DHA) in the early 1990s. The purpose of the DHA was to form a 'coherent system-wide approach' to strengthen coordination (UN 1992, p. 584). The inter-agency mode of coordination continued as the newly formed department was supported by staff seconded from the WFP, UNICEF, UNHCR and the UNDP. A Central Emergency Revolving Fund (CERF) and an Inter-Agency Standing Committee (IASC) were also created within the DHA. The former is designed for 'pre-positioning' of relief aid for rapid response and underfunded emergencies (CERF 2006) and the latter is designed to facilitate inter-agency decision-making in the event of a major disaster (OCHA 2010). This restructuring largely came out of the General Assembly Resolution 46/182 which called for a stronger UN body to manage complex emergencies and created the new post of Emergency Relief Coordinator (ERC); a position that would bring together the roles of the UN Disaster Relief Coordinator and the Secretary General representatives on major disasters into a single focal point (Ibid). The Department of Humanitarian Affairs (DHA) was restructured into the UN Office for the Coordination of Humanitarian Affairs (OCHA), which brought with it an even wider mandate that included amongst others the 'advocacy of humanitarian issues and coordination of humanitarian emergency response' (UN 1998, p. 842).

[267] At the end of the decade the IDNDR was replaced by an inter-agency secretariat and an Inter-Agency Task Force to implement the International Strategy for Disaster Reduction. The UNISDR is composed of eight UN agencies: FAO, ITU, UNDP, UNESCO, UNEP, WFP, WMO and the World Bank – seven regional bodies and eight civil society and NGO representatives (UN 2000, p. 882).

gramme is to strengthen global response capacity to disasters by coordinating relief organizations in principal fields of response (One*Response* 2011). These new initiatives provide a further example of standardized cooperation and myth making around simplified themes or common cultural categories that are in the process of becoming institutionalized.

It is interesting to note that these DRM myths are furthermore reinforced through the creation of rituals. An example of this, as illustrated in the second ideal type, is the awarding of prizes to individuals who, or institutions that, perfect the ideal of DRM. Another example of ritual creation is the International Day for Disaster Reduction. This ritual emerged out of the Decade for Natural Disaster Reduction (IDNDR) plan of action in the early 1990s (UN 1989, pp. 245, 355, 1990, p. 346, 1991, p. 413). This not only provides a common symbol for DRM in all countries and regions, but also serves as a mouthpiece for the UNISDR and the UN Secretary General to promote DRM. A clear indication of such resolve can be seen in a General Assembly resolution from 2001 that affirms the need to maintain the practice, 'as a vehicle to promote a global culture of natural disaster reduction, including prevention, mitigation and preparedness' (UN RES/56/195(32)). It is fairly common to read of various states and regional organizations that 'celebrate' this day by voicing the importance of DRM internationally. Examples include a speech by the ASEAN Secretary General (Surin Pituwan 2010); a commemoration ceremony in Papua New Guinea (SOPAC 2011); and the AU's use of the day to create an exhibition for 40 DRM-related agencies (AU 2011b).

By including the various forms of cultural diffusion illustrated in the previous pages a more complete understanding of DRM norms can be achieved. The myth making procedure through global agenda setting, and its reinforcement through ritual creation, solidifies the global DRM normative model. In addition, the connection made between DRM and rationality provides an important cultural category that supplants DRM as an appropriate policy space. This model is furthermore awarded with legitimacy through the 'theorization' of science. It is also worth noting that at least four additional global models can be identified with DRM, which further strengthens its existence as a legitimate global model. 'Environmental protection' and 'sustainable development' are attached to DRM as evidenced in the preamble of the Yokohama strategy (UN 1994, p. 4) and 'good governance' and 'women's rights' are reinforced through the HFA (UNISDR 2005). By supplementing the DRM global model with these additional models a higher status is achieved, which also paves the way for the rapid diffusion of DRM. The DRM model thus becomes more readily understood as a

rational and necessary policy to be implemented by states at the regional level as it is recognized in connection to common cultural categories in local contexts. The more elaborate and complex the model, the more rapidly it diffuses (cf. Strand and Meyer [1977] 2009).

4.4.3.3. Summary of relational and cultural diffusion

The analysis of cultural diffusion ought to be viewed in parallel with relational diffusion; together they define the extent to which regional DRM can diffuse as a global model. Relational diffusion via the UN reveals that its history of inter-organizational cooperation not only legitimates its expanding mandate in diffusing DRM, but that it also provides a natural avenue for the diffusion of the global DRM model through inter-subjective exchange. Added to this is the facilitation of arenas of diffusion that provide for moments of intense diffusion, and even the modification of the DRM model in major world conferences. Cultural diffusion emphasizes the importance of common cultural categories through the dissemination of DRM knowledge and the layering of additional global models, such as scientific progress, to create an increasingly elaborate and legitimate DRM model. These common categories help to provide a smooth transition of the DRM global model to regional organizations; the more common social categories are constructed around DRM, the more likely regional DRM cooperation will appear a rational and appropriate field of cooperation. The existence of these features of diffusion help to explain the existence of a multifaceted normative environment that conditions states to cooperate on regional DRM.

Table 4.11 Summary of relational and cultural diffusion

Diffusion mechanisms via the UN	
Relational diffusion	Cultural diffusion
i Inter-organizational networking	i Theorizing via adopting science as a global model
ii Arenas for diffusion and norm construction	ii Establishing a common social category via an appeal to rationalization
	iii DRM knowledge production via education
	iv Myth making via global agenda setting and ritual construction

Table 4.11 summarizes the main features of relational and cultural diffusion that have surfaced through a study of the diffusion activity of UN agencies involved with DRM. It is revealed that the UN is not only active in promoting inter-relational diffusion mechanisms, such as inter-organizational networking, but also underpins the

momentum of this relational field through a continual grafting of DRM in common cultural categories, such as DRM knowledge production and setting DRM in a 'rationalized' cast. To be sure, the general focus on the UN as the major agent of diffusion does not mean that other agents are less important for the diffusion of DRM norms. The following section consequently examines the extent to which the wider international community uses similar mechanisms to diffuse DRM.

4.4.4. Multiple agents of diffusion

Due to their near-omnipresence in the field of DRM diffusion, UN agencies have informed the main focus in the previous sections. However, as the previous quantitative section revealed, as well as the analysis of the second ideal type, the EU and the international community are also highly involved actors in diffusing DRM. World society is defined by many different actors that can mutually legitimate each other and diffuse regional DRM (Meyer *et al.* [1997] 2009, p. 196).

The following section first describes international DRM before the emergence of the UN. This highlights the transcendental aspect of the global DRM model that existed prior to the UN, and also reveals the origins of common mechanisms of diffusion described above. The second section examines specific examples of the EU's emerging role as a diffuser of DRM norms, and the third section examines the diffusion of DRM norms via the broader international community. The results not only highlight the multifaceted nature of DRM norm diffusion, but also emphasize the normative agency rather than the normative actorness of international organizations. That is, the 'transcendent' nature of the global cultural script and its connection to global DRM norms is emphasized over any particular international organization. It is also revealed that DRM activity by the international community conducts similar relational and cultural diffusion practices to the UN.[268]

[268] The UN has presumably been active in promoting these organizations to diffuse DRM. Armed with an increasing mandate on DRM, the UN directly encourages states, international and regional organizations to 'disseminate best practices on improving disaster preparedness; to expand successful local initiatives; and to increase resources to address disasters' (UN 2007, p. 945). This important step in the expansion of global DRM partially transfers responsibility to these organizations, effectively adorning a higher level of legitimacy on them; a process from interested to disinterested actorhood (cf. Ideal Type 2). Sweden and the UK, for example, now have specific national strategies on Disaster Risk Reduction for developing countries (European Commission 2009, p. 4).

4.4.4.1. International cooperation on DRM: 1755-1945

Modern international assistance to natural disasters emerged after the Lisbon Earthquake in 1755. This event tends to be a watershed that marks the rise of DRM activity, such as King George II's request to the Members of Parliament to send supplies and relief material to Portugal, and relief assistance by the city of Hamburg (McEntire 1998, p. 50, Hutchinson 2000, p. 5).[269] Three years after this episode, an emerging humanitarian sensibility was clearly expressed by Emmer de Vattel who wrote that 'all governments with an abundance of provisions should come to the assistance of those countries which have been smitten by disaster' (1916, cited in McEntire 1998, p. 50, cf. Haskell 1985a, p. 559). Such sentiments continued to solidify into an accumulating norm on relief assistance that was first institutionalized through the establishment of the Red Cross in 1860. The prestige and number of Red Cross societies quickly increased throughout Europe in the late 19th century and began to extend beyond its borders. By 1900 Red Cross societies could be found in China, Japan, the US, and other countries in the Western hemisphere (Hutchinson 2000, p. 8). The Red Cross was not, however, the only relief organization that emerged at this time. A series of horse ambulance services was established in the US from 1869 (Hutchinson 1997, p. 158), Sir John Furley formed the St John Ambulance Association in 1877, Baron Friedreich von Esmarch established the *Sameriterverein* in 1882 and the Royal Life Saving Society was established in 1891.

International relief aid to the 20 million people suffering from droughts and famines in Russia and the Ukraine in 1921 and 1922 provide one of the earliest examples of a modern transnational relief effort. This was carried out by the Red Cross, the newly formed American Relief Administration (ARA), and a collection of voluntary relief organizations coordinated by Fridtjof Nansen, the newly appointed Commissioner for Refugees by the League of Nations (Stokke 2009, p. 577).[270] With the enthusiastic proposals of the president of the Italian Red Cross, Senator Giovanni Ciraolo, these efforts were further institutionalized through the League of Nations with the establishment of an International Relief Union (IRU) in 1927, the first known intergovernmental organization that would specifically deal with emergency relief from national disasters. This initiative was designed to offer assistance to civilians affected by natural disasters as well as providing the grounds for a 'scientific study of the

[269] Interestingly, Denmark refused to offer assistance as it saw the disaster as an act of retribution (Hutchinson 2000, p. 5).
[270] Relief activities were also conducted by the Red Cross to those suffering from the Typhus epidemic immediately after the First World War.

causes of natural calamities, with the view of counteracting or limiting their effects' (Nature 1940).[271] The IRU also encouraged inter-organizational cooperation between (non-) governmental organizations. Its first meeting in 1932 included the League of Red Cross and Red Crescent Societies, the Sovereign Order of Malta, the International Institute of Agriculture and the International Labour Organization (Macalister-Smith 1985, p. 20).

The history of the IRU is rife with objections and complications – including the intra-organizational conflict between the ICRC and the LRCS – and can even be considered an institutional failure. It is, nevertheless, highly significant for the following three reasons. First, Ciraolo's vision is indicative of the growing humanitarian norm that was a necessary ingredient for voluntary and national relief efforts in the late 19th and early 20th century. In this sense, the proceeding work on disaster relief by the UN can be seen as a continuation of the IRU; the remnants of the institution were officially grafted onto the UNDRO in 1966 (UN 1966, p. 532).

Second, like the UN, an important part of the IRU's underlying rationale was its promotion and belief in achieving security through science. Using science to master nature and, more specifically, to prepare for and predict future catastrophes, underpinned much of the activity of the IRU. Indeed, due to financial difficulties the only action taken by the IRU was the creation and distribution of a scientific journal. In giving support to Caroalo's project, the director of the ICRC, Gustav Ador, noted that he was highly optimistic that 'science will before long give us a map of world catastrophes'; a 'world map showing the catastrophes – earthquakes, volcanic eruptions, floods, drought, etc., [that leave]…their mark upon the surface of the globe' (Ador 1923, cited in Hutchinson 2000, pp. 27-8).[272] Ador continued, noting that he believed it was possible that science could also help predict future events and thus help society take preparatory measures (Ibid).

Third, Ciraolo's vision for the IRU shows surprising similarities to the role that the UN would adopt half a century later; namely, the adoption of an identity as a teacher of DRM norms. Ciraolo notes that the IRU was to 'serve as a school of education among the Governments and peoples and show the possibility and the benefits of International solidarity and prepare for future development, and these, little by little, shall make possible similar Institutions in other fields so as to ensure a more human

[271] Although the Red Cross at this time did not include emergency relief from natural disasters in its mandate, it was part of the original plans when the organization was established by Henry Dunant and others (McEntire 1998, p. 50) in 1863.
[272] For a modern manifestation of this vision see the Global Earth Observation System of Systems (GEOSS) and the Group on Earth Observations (GEO).

civilization among more fraternal people' (Ciraolo 1923, cited in Hutchinson 2000, p. 26).

This brief review of the pre-World War II history of DRM serves to emphasize two important points. First, it establishes that the UN and other regional organizations are not entirely conscious actors that create and structure norms, but are agents that receive and act through an historically path-dependent yet contingent set of norms. Caroalo's focus on prediction, for example, fits neatly in the historical narrative on the emergence of the contract, as it emphasizes the rise of the rational 'responsible' individual who 'thinks in the future'.[273] Second, a number of diffusion mechanisms highlighted in the previous section are also apparent in the period 1755-1945, such as: inter-organizational cooperation (relational diffusion) and Ador's insistence on scientific progress (cultural diffusion).

4.4.4.2. The European Union

The European Union's competencies in the field of disaster risk management have recently extended to include the diffusion of DRM practices.[274] The clearest indication of this expansion is the 2009 Commission communication to the Council and European Parliament on an EU strategy for supporting DRR in developing countries. This document explicitly complements and builds on the Hyogo Framework for Action (HFA) goals and the UNISDR mandate by: emphasizing the importance of focusing on regional organizations; reducing duplication of member states' national DRR programmes; integrating Disaster Risk Reduction principles in EU development and humanitarian aid policies; and 'support[ing] developing counties in integrating DRR considerations into their development policies and planning effectively' (European Commission 2009, p. 5). The methods for achieving these goals are achieved through the dissemination of DRM knowledge via national media, the publication of primary education material and training initiatives to 'empower people to protect themselves' and to build a 'culture of safety and resilience at all levels' (Ibid, p. 8). Plans to set up DRR networks in disaster-prone countries and to expand inter-organizational exchange with NGOs and civil society are also prioritized (Ibid, p. 11).

[273] See the previous section on rationality as a common social category for cultural diffusion.
[274] This does not mean the EU has been inactive in supporting developing countries with disaster resilience as reflected in the various programmes conducted through DIPECHO, however, there has been no concerted or strategic cooperation on disaster risk reduction at the community level (European Commission 2009, p. 4).

Recent decisions and initiatives give further support to the external goals of the Union. The 2011 Council Conclusions on the External Cooperation on Critical Infrastructure Protection, for example, invites member states to 'share information and good practice with other Member States and the Commission on developing close cooperation with relevant third countries in the field of critical infrastructure protection' (European Council 2011b, 7(e)). ECHO's Humanitarian Implementation Plan (HIP) for 2012 also addresses DRR, which aims to: 'strengthen local capacities in risk management and disaster preparedness, preparation/revision of contingency plans, enhancing the equipment of local preparedness committees for disaster response, mitigation works to protect vital infrastructures' (ECHO 2012, p. 4).

ECHO also plays an important role by commissioning Framework Partnership Agreements (FPA) with various organizations. The FPA's aim is to strengthen local disaster resilience, encourage inter-agency coordination and finance DRM research endeavours that extend past the agenda set in the EU DRR strategy. In 2004, for example, there were no less than 50 countries that received disaster-related assistance through these short-term projects (ECHO 2004). The Commission's Monitoring and Information Centre (MIC) has also been active in providing support to external natural disasters, such as the 2004 Tsunami in Indonesia.

This description of the EU's developing role as a diffuser of DRM reveals that, like the UN, it also deploys relational diffusion practices, such as training initiatives, network formation, the encouragement of inter-organizational exchange, inter-national information sharing, and the financing and design of FPAs. While there may be relatively fewer examples of cultural diffusion, the EU is nevertheless active in increasing education initiatives abroad.[275]

[275] To be sure, these initiatives do not mean that the EU competes with the UN for legitimacy; instead, they are understood as partners (cf. Meyer 2009, p. 50). As a sign of the EU's commitment to the UN's engagement with the global dissemination of DRM knowledge, the Commission's financial support of the UNISDR in the period 2010-2011 was the third highest, below the World Bank and Sweden (UNISDR 2011b). EU-UN cooperation also tends to be well established with a clear view of their collective and complementing roles in the international system (cf. EU 2012). Expressing their joint view on global security issues, the EU and the UN note: In the years ahead, therefore, Europe's attachment to multilateralism – and to the United Nations, as the pivot of the multilateral system – will help determine whether, and how, the institutional architecture established in the years after World War II can continue to serve as the bedrock of the international system.…An active commitment to an effective multilateralism means…taking global rules seriously, whether they concern the preservation of peace or the limitation of carbon emissions; it means helping other countries to implement and abide by these rules; it means engaging actively in multilateral forums, and promoting a forward-looking agenda that is not limited to a narrow defence of national interests' (European Commission 2003).

4.4.4.3. The international community

The UN and the EU are certainly developed authorities on globalizing DRM. However, other international organizations have also become highly active in propagating DRM that are not always within the purview of the UN. As the quantitative section above demonstrates, a large number of international organizations have emerged and spread across the globe since the 1970s aiming to improve the resilience of countries from disasters. A majority of these organizations tend to be connected and cooperate on global initiatives. Three examples of relational or cultural diffusion are demonstrated below that focus on: (1) the creation of a code of ethics on DRM, (2) standardizing knowledge through the Global Facility for Disaster Reduction and Recovery (GFDRR), and (3) promoting DRM education.

Solidifying a series of declarations on the guiding principles of the Red Cross, Jean Pictet played a significant role in defining seven principles that defined the organization's ethos that was adopted at the 20th international conference of the Red Cross in 1965 (IFRC 1996, Slim 2012). Using these principles as a bedrock, the IFRC supported a civil society movement in the early 1990s that drew up a 'code of conduct' on disaster relief. Produced in 1994, this document was developed by the eight largest disaster response agencies existing at that time (IFRC 2011). The first of 10 principles outlined smartly captures an institutionalized humanitarian norm that further reinforces the importance of DRM as a legitimized global model:

> The humanitarian imperative comes first. The right to receive humanitarian assistance, and to offer it, is a fundamental humanitarian principle which should be enjoyed by all citizens of all countries. As members of the international community, we recognise our obligation to provide humanitarian assistance wherever it is needed. Hence the need for unimpeded access to affected populations is of fundamental importance in exercising that responsibility. The prime motivation of our response to disaster is to alleviate human suffering amongst those least able to withstand the stress caused by disaster.
>
> IFRC (1994)

This code was endorsed by the international community at the 26th International Conference of the Red Cross and Red Crescent, which included representatives from 143 governments, 166 Red Cross and Red Crescent societies, and 68 UN and NGO observers. As of August 2011 a total of 492 humanitarian organizations have signed the code of conduct. Interestingly, the UN was not active in formulating and supporting this endeavour. Even though the UNDRO was approached by the IFRC in 1991 with the burgeoning idea of an ethical code for disaster relief, it showed little interest (Walker 2005, p. 326).

Since the code of conduct, a Humanitarian Charter has been established which makes a serious link between international law and humanitarian ethics (Sphere 2011). This has been furthermore complemented by the publication of a series of standards of appropriate behaviour for civil society. These include the 'Code of Good Practice', the 'Humanitarian Accountability Partnership Standard', and the 'Sphere Handbook' (Humanitarian Standards for Aid Workers 2012).

A further example of civil society involvement in DRM is the newly established Global Facility for Disaster Reduction and Recovery (GFDRR) managed through the World Bank. This trust fund, which began in 2006, involves 39 countries and eight international organizations that aim to 'mainstream' DRR and climate change adaptation in developing countries (GFDRR 2012). The GFDRR also promotes knowledge on DRM and does this by standardizing and simplifying DRM knowledge in simple formats and templates for easier access and comprehension (GFDRR 2012a).

The international community has also been active in promoting educational initiatives on DRM. Examples include publications aimed at school children and DRM practitioners from the Red Cross, the International Institute of Earthquake Engineering and Seismology (IIEES), the Inter-Agency Network for Education in Emergencies (INEE), and the International Tsunami Information Center (ITIC) (PreventionWeb 2012). The aim of these and other educational initiatives is to foster DRM norms in states and organizations. It ought to be stressed that particular states, such as the US and Sweden, also share a similar tradition of DRM dissemination. For at least two decades, states such as Colombia, the US, Australia, Spain, and Ecuador, have created national handbooks for schools to foster basic knowledge on DRM (Ibid).[276]

The GFDRR, the code of ethics, and production of textbooks help to demonstrate the involvement of the wider community in (re)producing meaning according to a common global model on DRM. This includes both relational diffusion, via networks, and cultural diffusion by establishing common cultural categories of DRM knowledge, such as the code of ethics and GFDRR templates. Civil society thus plays an important role as a community that "carries' and continues to produce a 'social edifice of meaning' that conveys objective reality (Berger and Luckmann 1967, p. 85). It is posited that these and other global events have been instructive in motivating states to cooperate on regional DRM.

The growing importance of the EU and civil society in promoting DRM is important for at least two reasons. First, it provides the necessary conditions for the

[276] The first registered date for the national production of DRM-related textbooks for children on the PreventionWeb database is by Colombia in 1989.

continual reification of the global DRM model; enacting a set of global DRM norms not only reaffirms the identity, purpose and meaning of an organization, but it also ensures that these norms are continually bolstered through their active engagement in networks and the diffusion of DRM norms. Second, as the case of the creation of a code of ethics shows, the global DRM model is not necessarily entirely located within the UN. Instead, it appears to have a more transcendental character that latches onto broader global normative models.

4.4.5. Summary

The overall findings from the third ideal type reveal that DRM became a global phenomenon in the late 1970s and 1980s as shown through the expansive increase in DRM organizations across the globe. The UN, the European Union, and the international community were identified as the main agents of these norms through an analysis of the various network arrangements held between the organizations. It was furthermore shown that these agents employ a range of relational and cultural diffusion mechanisms in order to effectively diffuse the DRM global model.

The UN's presence in the field of DRM is particularly strong; it holds a high degree of authority on DRM and has a long history of disaster relief and practice of disseminating DRM knowledge to states and regional organizations. As early as the 1960s the UN used a variety of forms to disseminate DRM principles such as: promoting the growth of inter-organizational networks on DRM (1972, p. 415, 1987, p. 459), publishing manuals on 'best practices' (UN 1964, p. 390, 1982, p. 701, 1984, p. 521, 1991, p. 414), publishing studies on natural disasters (1972, p. 415), the frequent sending of experts and advisors to countries (UN 1973, p. 458, 1975, pp. 561-2), technical assistance (UN 1964, p. 390, UN 1967, p. 584, UN 1976, p. 513) promoting specific national legislation (UN 1977, 641, cf. UN Res. 2034 (XX), cited in UN 1965), conducting two global forums on DRM, conference workshops, the promotion of educational initiatives (UN 1967, p. 584, 1987, p. 701, 2007, pp. 943-64), and a standardized multilingual project on key terms in DRM (UN 1991, p. 414, UNISDR 2004b, 2009g). These relational and cultural mechanisms of diffusion have become a central part of the UN's self-image in the area of DRM as revealed in the goals and aims for the International Decade for Natural Disaster Reduction.[277]

[277] The preamble of General Assembly Resolution notes the importance of the UN as a global actor: 'Recognising the important responsibility of the United Nations system as a whole for promoting international co-operation in the study of natural disasters and in the development

In addition to the UN, other agents of diffusion are also identified, such as the EU and the Red Cross. Like the UN, these organizations deploy similar diffusion tactics in order to reify and disseminate global DRM norms. Some examples include: the production of educational textbooks, DRM knowledge standardization by the GFDRR, and the creation of a code of ethics on DRM.

Table 4.12 Assessment of ideal type 3: The diffusion of the global DRM model

Ideal Type 3: 'The DRM model is diffused by international organizations'			
Causal condition		Causal status	Outcome
International organizations	United Nations	Adequate	The use of relational and cultural diffusion mechanisms influence state motivation to cooperate on DRM
	DRM organizations	Adequate	
	European Union	Incidental	
	States	Incidental	

Table 4.11 depicts the original ideal type used to uncover the extent to which the global DRM model is diffused by international organizations and, by extension, how this has influenced states to cooperate on regional DRM. The far-left column displays the causal condition from the ideal type as well as four additional agents of diffusion. The constant and historical presence of the UN in diffusing DRM is understood as an adequate causal explanation for the emergence of the global DRM as expressed in all three ideal types. This is due to its multifaceted techniques of diffusion, its constant and historical presence, and its normative power.

The third ideal type illustrates that the EU is an emerging agent of DRM norms. While this organization is important for complementing the diffusion practices of the UN and the international community, regional DRM can still be imagined in the absence of the EU. This is based on the observation that a global model of DRM was already prevalent before the EU began its diffusion of DRM in earnest. The EU is thus an incidental causal property.

The state, which is usually understood as a receiver of a global model, has also begun to diffuse DRM norms. However, the importance of the state as a diffuser of global norms is considered an incidental cause for the global emergence of regional organizations. Global DRM can easily be imagined without state diffusion practices because this is a fairly new development that does not tend to include a large number of states.

of techniques to mitigate risks arising therefrom, as well as for providing assistance and coordinating disaster relief, preparedness and prevention' (UN General Assembly 1988).

4.5. Conclusion

Disaster risk management is now a global phenomenon. This universal activity has become a highly standardized procedure that reflects a particular set of patterned activity of how states ought to cooperate on DRM through regional organizations. This is shown through the first ideal type that reveals a high degree of similar content, concepts, and values in regional DRM agreements. It also reveals that UN agencies, UN publications and the UN's Hyogo Framework for Action (HFA) are similar sources for much of the standardized DRM cooperation expressed by regional organizations.

The importance of the relationship between the UN and regional organizations was also highlighted by the findings from the second ideal type. Through the application of a discourse analysis two general ideational roles were identified: the UN acts as a 'teacher' of DRM norms and regional organization act as 'learners' by enacting these norms. The most apparent ambiguity that emerged from this ideal type was the role of the EU, which could act as a teacher to other states and regional organizations, but also as a learner to the UN. This helped to underline the progressive or dynamic nature of ideational change in regional organizations vis-à-vis DRM norms; a dynamism that propels regional organizations to act more like a teacher in order to increase their legitimacy on the world stage.

The third ideal type expresses two important aspects of regional DRM. First, regional DRM emerged in the wake of a global spread and rise of DRM organizations. Second, this phenomenon is fostered by relational and cultural diffusion. In order to increase and secure the process of DRM diffusion, the global model is not only attached to the creation of common cultural categories, such as DRM education and myth making, but also through 'theorization'. That is, the grafting of the DRM model onto established categories of the world cultural script, such as science. This not only provides for rapid diffusion, but underlines the contingent nature of the global normative framework that constitutes, and therein dictates the possibilities for, state interests in DRM.

Viewed in isolation this process of cultural diffusion does not adequately explain state cooperation on regional DRM. Instead, it must be conjoined by relational diffusion mechanisms. These efforts of diffusion include: inter-subjective exchanges between regional and international organizations through established arenas of diffusion such as global DRM conferences and other multilateral initiatives.

These diffusion processes were pioneered by the International Relief Union (IRU) and the Red Cross, and significantly developed with the rise of the UN's advocacy of global DRM. This is now complemented by a large DRM network of organizations that emerged on a global scale from the late 1970s. While not seen as an adequate causal condition for the emergence of regional DRM, the importance of particular states, such as the US and Sweden and the rise of the EU's external policies on DRM diffusion, are also important developments for the future of regional DRM. Without this global community of DRM, it can be imagined that disaster relief efforts would have remained national pursuits. The common cultural categories that unite states and the interaction between DRM organizations are therefore essential not only for the diffusion of knowledge, but also in (re)producing the model and the identities of regional organizations.

The three ideal types are not entirely separate categories, but represent a cumulative narrative that supports the proposition that state cooperation on regional DRM is constituted and informed by a global DRM model. Viewed on their own, each ideal type supports the argument that states are influenced by a global DRM model, and together the findings mutually support and strengthen this argument.[278] Ideal type 2, for example, provides a greater awareness of the role the UN plays in producing the global DRM model, a finding that is further supported by ideal type 1 and which legitimizes a focus on the UN in ideal type 3. The configuration of various causal properties found in the ideal types consequently demonstrates that the underlying world cultural script, that is defined by *inter alia* rationalization and scientific progress, provides the possibility for states to engage in DRM cooperation at the regional level. The international community has been instrumental in crafting, reifying, and thus, solidifying a global DRM model that ought to be adopted not only at the national but also at the regional level. This creates a standard pattern of behaviour and constitutes a part of the identity of regional organizations. The norms that helped to constitute and influence state cooperation on regional DRM thus control the possibility of action now and in the future. A DRM 'sensibility' may have been vague in the first half of the 20th century, however the emergence of the UN and other international and regional actors has since amplified this sensibility to a pitch that now resonates in most regional organizations across the world.

[278] This logic can be loosely compared to the neopositive classification of a SUIN causal condition: that a combination of causal conditions is a sufficient but unnecessery part of a necessary but insufficient condition for the outcome.

5. Conclusions: Towards an ecumenical approach for explaining regional disaster risk management

In an eye-witness account of the 1906 San Francisco earthquake, Jack London poignantly noted: 'All the shrewd contrivances and safe-guards of men had been thrown out of gear by thirty seconds' twitching of the earth-crust' ([1906] 2003, p. 108). London's observation reverberates a general truism that has increasingly come into sharp relief as today's 'shrewd contrivances' augment transnational vulnerabilities in an interdependent environment. Regional DRM is a modern attempt to counter such disruptions of society. Yet, the timing and type of regional cooperation that has emerged poses a number of questions: it is unclear why a majority of states have developed advanced forms of regional DRM cooperation in the last two decades when the relative financial costs from natural disasters have only moderately increased; why DRM cooperation is highly standardized across diverse regions; and why states would be so willing to cooperate in an area strictly tied to sovereignty concerns. This thesis has attempted to unravel the complex motivations of state cooperation on disaster risk reduction in light of these puzzling observations.

This thesis provides two explanations for *what motivated states to cooperate on regional DRM in the period 1975-2011*. Informed through neoliberal institutionalism, the first explanation reveals that a combination of interdependence and asymmetrical risk is sufficient for explaining the outcome. World society theory informs the second explanation that emphasizes the constitutive role of a specific set of global norms on state behaviour. Through relational and cultural diffusion mechanisms by international organizations, these norms have rapidly diffused across the globe, producing highly standardized forms of regional DRM cooperation.

As these theories are set within different 'principles underlying a practice of knowledge' (Gunnell 2010, p. 15), it is *prima facie* difficult to draw any valid conclusions that rely on insights revealed by both methodologies. It is argued that a more complete explanation of DRM cooperation is possible by working through a similar ontological premise that both methodologies share, namely phenomenalism. This legitimates the possibility of constructing hypotheses from ideal types and vice versa, and subsequently provides a useful avenue for the comparison of the substantive as-

sumptions held by each theory; letting their differences create new perspectives and heuristics that can, in turn, mobilise new insights. Before using the empirical findings as a base to probe the substantive assumptions for theoretical heuristics, the main theoretical and empirical contributions from the rational and cultural approach are discussed in the following sections.

5.1. A rational explanation

This thesis applies a comparative study on 10 regional organizations that cooperate on DRM. This not only begins to address the general lack of medium-n comparative studies in the literature, but also allows for more specific generalizations on what motivates states to cooperate through regional organizations on sensitive issue areas of state sovereignty. If this outcome can be further generalized, and in accordance with the rational explanation, it is posited that at least two underlying structural conditions are sufficient to explain security cooperation in regional organizations: the level of interdependence and the extent to which risk is concentrated in a small number of states.[279] This finding satisfies two functional conditions hypothesized by neoliberal institutionalism, albeit as a configurational explanation. While the consistency and coverage of this explanation may be questionable when states first began regional DRM cooperation from the mid 1970s to the mid 1990s, they do provide a fairly accurate explanation for a developed or more advanced level of cooperation after the mid 1990s.[280] The scope conditions of these two explanatory conditions thus remain fairly stable in light of the empirical findings.

The scope conditions of the theory's ability to explain state cooperation on regional security issues are challenged by two additional hypotheses. The first untenable hypothesis is based on regional power distribution: that regional DRM cooperation would be likely when the relative amount of material capacity and risk from natural disasters is located in a single country. As not all regional organizations have regional 'paymasters', this explanation could not be applied. However, a nuanced adjustment to the initial proposition to include the possibility of 'risk-coalitions' – the concentration of material power and risk in a minority of states – does improve its explanatory

[279] This is a so-called INUS condition which, in this case, is understood in the following formulation: interdependencies and asymmetrical risk are insufficient but necessary parts of sufficient but unnecessary condition.
[280] Consistency is defined as 'the *degree* to which the empirical evidence is consistent with the set theoretic relation in question' (Ragin 2009, 108, original emphasis). Coverage is defined as the proportion of membership of the outcome condition that can be explained by the explanatory condition (Ragin 2008b, 86).

power. The addition of this explanatory condition to the configuration of interdependencies and asymmetrical risk moderately increases the accuracy of an explanation for the outcome.

The second untenable hypothesis is based on the assumed expectations of states: when the relative economic costs from previous natural disasters rise, the demand for regional DRM cooperation will also rise. As this hypothesis is drawn from a cost-benefit calculus – a central pillar of neoliberal institutionalism – it is surprising that the anticipated outcome produced contradictory findings.[281] This anomaly can be explained if the assumption of perfect information is relaxed. This would mean that a majority of states are not aware that the regional economic costs as a percentage of regional GDP has continually decreased. Instead, it is assumed – based on the official motivational statements of regional organization mentioned in Chapter 4 – that states are motivated by the general costs, unadjusted to inflation, that arise from the increasing number and severity of natural disasters over the last four decades (cf. ASEAN 2005a, European Council 2007b, PIF 2009a, p. 3, González 2011, LAS 2011). Thus, even if the economic impact from natural disasters is relatively less than 40 years ago, the *perception* of economic damages may be motivating states to cooperate. This draws attention to (1) the type rather than the accuracy of the information states receives, and (2) it underlines the power of information management. An alternative explanation for this anomaly is expanded upon in section 5.3, which draws on the insights offered from world society theory.

Despite some pessimism of usefully applying neoliberal institutionalism to comparative regional studies (cf. Börzel 2012), this study has shown that it remains highly appropriate for revealing the functional-based motivations that contribute to state cooperation on regional DRM. While not all hypotheses were corroborated, those that failed usefully question the scope conditions of neoliberal institutionalism and provide suitable avenues for future research.

5.2. A cultural explanation

World society theory provides an alternative explanation for why states were motivated to cooperate on regional DRM. Instead of emphasizing the pursuit of rational goals, the very structure that constitutes states to act rationally is critiqued by world

[281] Note the single outlier of this finding is CARICOM, which experienced a general increase in relative costs from natural disasters over the entire period of investigation. This can be generally explained by the excessive and consecutive losses from major earthquakes and hurricanes.

society theorists. The narrative begins with a world cultural script that is informed by highly institutionalized and taken-for-granted concepts that structure appropriate behaviour for the individual, the state, and international organizations. This includes a number of norms, such as scientific progress, individualism, human rights, and rationalization. Emerging out of the world cultural script are particular global normative models, such as the nation state. It is posited that regional DRM is also a global model that is legitimized through its connection to, or 'theorization' of, the global cultural script, such as rationalization and the use of science to legitimize its existence. This model is then diffused and supported by a rising league of professionalized 'others'. This is illustrated by the rise of DRM organizations from the late 1970s onwards, and is interpreted as a prerequisite for regional DRM cooperation. It was shown that various techniques of relational and cultural diffusion are administered by the international community such as inter-organizational cooperation, arenas of diffusion and the creation of rituals and myths. The outcome of this model is the standardization of regional DRM cooperation in terms of the content, concepts, and values that appear in regional DRM agreements. Evidence for this narrative is understood to verify the causal role global norms have on constructing the interests of states for cooperating on regional DRM.

One of the clearest ambiguities that emerged in all three ideal types was the categorization of the EU. This organization was expected to adopt a 'learning' role vis-à-vis the global DRM model (cf. Ideal Type 2 and 3). While it did show many signs of 'learning', it also showed increasing signs of 'teaching' DRM norms to other regional organizations and states. Indeed, the EU was identified as the second most active 'teacher' of DRM norms after UN agencies. While one could interpret this finding as evidence for the UN and the EU as normative actors (hence agency), world society theory would instead emphasize that while there is a scale between an 'interested agent' and a 'disinterested other', even the latter's actions are determined by the global cultural script.[282] This insight challenges typical explanations of EU foreign policy as actor-driven, which includes studies on the EU as a normative (Manners 2002) or normal power (Pacheco Pardo 2012). In other words, there is a tendency to frame the EU as an independent variable, or actor in world politics, rather than a receiver of

[282] This important characteristic of world society theory is also related to the concept of normative power, which is discussed below. By 'normative actor' I mean organizations that have the power to shape norms (Manners 2002, Whitman 2011).

global norms. To be sure, this does not mean that agency is not important, but that EU foreign policy analysis can profit from more structure-focused theories of IR.[283]

A further implication that can be drawn from the results is the inherent dynamism and path-dependence of norms. While this may not be new, what is novel from the perspective of world society theory is the analytical categorization of two types of interrelated norms: a world cultural script, and global normative models. While both are contingent, the latter tends to be more dynamic than the former. This distinction is helpful for understanding how the UN and EU can simultaneously be normative powers – shaping what 'ought to be' in DRM – and agents of a larger set of norms that are fairly impervious to change. Thinking about the specification of normative structures from this perspective may be a useful analytical strategy for investigating the simultaneous interaction between structure and agency instead of merely bracketing one or the other.

An important implication for research on global norms that emerges from the empirical results is the concept of norm localization: the argument that the adoption of global norms is determined by local actors' 'cognitive priors and identity' (Acharya 2004, p. 239). This is an important development and fine-tuning of the norm diffusion literature. World society theory's emphasis on cultural diffusion and theorization takes an additional step, by illustrating how the very cognitive priors and identity of local actors are manipulated by external agents of global norms, making diffusion spread more rapidly. For example, the formation of standardized school curricula by the UNISDR and other DRM organizations on best DRM practices, and the creation of rituals, such as celebrating the day of disaster risk reduction, fosters a common identity amongst a diverse range of actors that make diffusion more possible. Furthermore, by accentuating common traits that are already familiar to most regions – such as progressive science – there is even less friction between the local and global levels. Perhaps the strongest and weakest aspect of world society theory is its inherent focus on global similarities. World society theory gains parsimony by explaining much, but is simultaneously limited in its accuracy; its breadth outweighs its depth of explanation. Mercosur, for example, is difficult to explain because it has few standardized features, and unlike a majority of regional organizations, has not developed advanced versions of DRM cooperation. Similarly, the low and idiosyncratic pattern of cooperation before the mid 1990s is difficult to explain. Anticipated answers from

[283] A good example of this is the UN Millennium Goals that seem to clearly dictate an important part of the EU's foreign policy on development issues (cf. European Council 2000, 2006, 2011, European Commission 2012c).

world society theory might argue that it is only a question of time before Mercosur also establishes a standardized version of DRM cooperation and that DRM cooperation before the mid 1990s can be explained by the non-existence of an established *regional* model on DRM that only emerged after the first world conference on DRM in 1994. A further ambiguity that arose through the empirical analysis was the unexplained failure of some DRM organizations, which reveals a progressive bias in world society theory that cannot easily explain normative disintegration. A possible strategy to deal with these and other outliers is to more fully engage with the scope conditions of global norms.

5.3. Theoretical heuristics and methodological pluralism

As the two explanations offered in this thesis draw from two practices of knowledge production, it is difficult to draw broader findings that can use the insights from both rational and cultural approaches. This is the general line taken by Hollis and Smith in their (in)famous claim that there are two stories in IR (1990). There is good reason for making such a claim, as each methodology presents a different 'reality' or worldview that consequently affects theoretical application and the type of methods being used. However, this option is unsatisfying as it is resistant to ecumenical pressures; that is, it limits the realm of knowledge production to various disciplines within IR and subsequently limits explanations of real-world events. An alternative strategy pursued here moves away from the trenchant idea of incommensurable worldviews by working through the similarities of each methodology, while also respecting their differences. Through this a useful strategy emerges that introduces heuristics that are created by comparing the substantive assumptions from each theory. This provides a useful avenue for developing causal analyses for the two explanations offered in this thesis, without committing 'conceptual overstretch': the danger of simultaneously broadening and trivialising a theoretical explanation. Importantly, if this alternative is feasible, there must also be similarities in the two modes of knowledge production used in this thesis.

If the general purpose of neopositivism and analyticism is to establish 'organized knowledge' from 'social reality', then the promise of dialogue between the two methodologies seems possible.[284] The main difference is that neopositivism implicitly as-

[284] As noted in Chapter 2, theory is defined as: 'the explicit formulation of determinate relations between a set of variables in terms of which a fairly extensive class of empirically ascertainable regularities can be explained' (Schutz 1954, p. 260). Dietrich Rueschemeyer similarly

sumes social reality, while analyticism sees this as the principal object of inquiry.[285] 'Intersubjectivity, interaction, intercommunication, and language are simply presupposed as the unclarified foundations of these [logical empiricist] theories' (Schutz 1954, p. 261).[286] This is clearly seen in neopositive theories that rely on the subjective understanding of individuals who wish to either maximize their interests (liberalism) or produce relative gains (realism) of the body-politic or organization they represent. It is only by keeping this assumption constant that correlations can be made between observed actions or material facts, between dependent and independent variables. Indeed, relaxing this constant could lead to conceptual over-stretch if norms and ideas where posited as having a direct influence on interests. As long as neoliberal institutionalism maintains the implicit assumption that self-interested action trumps ideas, it will continue to offer high value in its explanatory power via a necessary abstraction from reality. This means that there is no serious opening for altruistic or other relational motivations for action in neoliberal institutionalism. This distinction also plays out in how the two theories perceive the role of the state. While they both claim the state as their main unit of analysis, neoliberal institutionalism assumes that the state is a self-interested 'actor', while world society theory takes the word 'actor' seriously by claiming the state, like the individual, is constituted by the global environment. The rational application thus excels in its emphasis and fine-tuning of the functional moment that was deemed sufficient for the emergence of regional DRM.

World society theory, on the other hand, excels in its emphasis and fine-tuning of the normative aspect of DRM. It takes a critical step back from the functional moment by connecting DRM to a broader normative environment. By doing this, chapter 4 shows that cooperation is itself only made possible by a historically informed normative environment and a contemporary diffusion of DRM norms. There would be no 'logical' reason for a state to provide aid to a neighbouring country, and no reason for regional or global DRM, in the absence of important historical facts, such as the rise of the contract and the responsible individual, conjoined with other common social

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defines a 'narrow' concept of theory as 'interrelated propositions that say something general about relations and processes in social reality' (2009, p. 6). Harold Doty and William Glick's definition of a theory also holds similar properties, albeit with a more neopositive bent: theory is defined by '(a) constructs must be identified, (b) relationships among these constructs must be specified, and (c) these relationships must be falsifiable' (1994, p. 233).

[285] Social reality is defined here as 'the sum total of objects and occurrences within the social cultural world as experiences by the common-sense thinking of men living their daily lives among their fellow-men, connected with them in manifold relations of interaction' (Schutz 1954, p. 261).

[286] While this statement may be more than half a century old, it still has relevance today. Patrick Jackson highlights, for example, the general lack of attention from mainstream IR to address methodological issues (2008, p. 131)

categories and global models such as scientific progress. Hence, they constitute an adequate causal property. Like neoliberal institutionalism's commitment to agency over structure and the importance of self-interested action over ideas and norms, world society theory's commitment to structure over agency and the importance of ideas and norms over self-interested action provides an idealized depiction of a non-reality, a prerequisite for any established theory. In saying this, however, it should not be assumed that they ought to be viewed in isolation, but rather as two distinct and alternative perspectives that can assist one another to provide a richer understanding and explanation of an 'interesting' phenomenon.

The mechanism, that allows these heuristics to have any possible effect, is based on a similar mode of knowledge production shared by both methodologies, which is identified as phenomenalism: a philosophical ontological wager that limits observations of the world to experience (Jackson 2011). The creation of ideal-types and hypotheses via experience share this similar mode of knowledge production, while the difference lies in how these conceptual tools are used. Neopositivists will test the hypotheses on 'less-likely' or outlier cases and analyticists will compare ideal-types to a unique event. If the main difference is in the use and not in the production of these tools then it is posited that heuristic devices can take the form of either a hypothesis or an ideal type. Indeed, Max Weber suggests a similar strategy when he notes that ideal types are not hypotheses, but can be used to help create them ([1949] 2011, p. 91). However, the translation from hypotheses to ideal-type will only be useful to the extent to which they meet theoretical assumptions.[287]

This approach is understood to contribute to the developing metatheoretical field of theoretical eclecticism (Sil and Katzenstein 2010a, 2010b) or theoretical pluralism that is defined as 'an explicit effort to utilize insights and variables from two or more theoretical approaches to make better sense of a real-world problem' (Checkel 2012, p. 224, Sil and Katzenstein 2011, pp. 182-3). Importantly, this does not mean synthesis and it does not bracket ontological and epistemological differences that would only confuse alternative definitions of causal relationships or truth claims. Instead, the ontologies and epistemological assumptions that constitute various research traditions must be explicated in order to 'make sense of a given problem' (Ibid, p. 482). The approach used in this thesis adds to this literature by providing a conservative method of translation between two traditions of inquiry. By conservative, I mean that

[287] To be clear, these heuristics are not designed to stretch the conceptual apparatus of each theory, but reveal that the determinate relations emphasized by each theory can be engaged with productively, albeit with a set of different causal assumptions under certain scope conditions.

different causal assumptions are not simply taken wholesale from different theories and applied to a problem, but that they are used as heuristic devices to foster a more developed research tradition on its own terms. This means that 'causal warrants' are not relaxed as Sil and Katzenstein advocate (cf. Haas 2010, p. 10), but remain central to each methodology that can then employ new hypotheses in order to provide a greater explanation to a given problem.

Table 5.1 Possible translations between ideal-types and hypotheses on key explanatory features for state cooperation on regional DRM

Explanatory features	*Ideal type*		*Hypothesis*
Normative and material Power	Asymmetrical normative power relationships are necessary for regional DRM cooperation	←	The more *material* power and risk from natural disasters are concentrated in a single state, the more likely regional cooperation will emerge
Power via legitimacy	State action on DRM is motivated through legitimacy concerns	→	The more states adopt global prescriptions on regional DRM, the more likely they will gain material power
Functionality	The origins of the regional DRM model is based on the functional priorities of the state	←	The higher the functional demand to solve collective action problem, the more likely states will cooperate on regional DRM
Norms	The normative environment constitutes states interests	→	If *common knowledge* is readily available to a group of states, then states will be more likely to cooperate on regional DRM

Table 5.1 illustrates four heuristic devices that can help to advance the explanatory power of each theory on its own terms. Based on some of the main substantive concepts and explanatory features that were used to explain regional DRM cooperation, material and normative power and functionality and norms, were identified. The arrow lines indicate the direction from the original causal statement to the translated ideal type or hypothesis. Attention has been focused on broad substantive concepts that produce enough friction to be translated as possible heuristics in light of the empirical question. Thus, important causal concepts such as interdependence and asymmetrical risk are not prioritized, because they either produce too little or too much friction between neoliberal institutionalism and world society theory. Both theories agree, for example, that interdependence is an important causal mechanism for the emergence of regional DRM, while asymmetrical risk is fairly insignificant for world society theory. The limits of translation are thus set on what is considered useful. [288]

[288] Of course, even these issues can be analysed and translated into ideal types or hypotheses. However, the perceived value of doing this is fairly low. For the case of interdependence, for example, world society theory would emphasize the importance of the international communi-

5.3.1. Material and normative power

Material power is a central concept used by neoliberal institutionalists. The under-provision of public goods, for example, is explained by the distribution of state power: only powerful states would be willing to produce a public good because the benefits it gains would outweigh the costs of production (Stone 2009, p. 33. cf. Rhinard, Hollis and Boin 2013). This argument was translated into one of the hypotheses tested in this thesis: that a regional hegemon or 'paymaster' (Mattli 1999) is necessary for the emergence of regional DRM. The empirical results revealed that not all regional organizations are defined by a single paymaster, but rather by a 'risk coalition' defined by a small group of states that are not only highly vulnerable to natural disasters but that also hold the largest material capacity within a region. Regardless of this nuanced change in the scope conditions for power, it serves to illustrate the importance neoliberal institutionalism places on the influence material power has for state cooperation on regional DRM.

Material power does not provide an overly useful heuristic for world society theory; material power would only increase the possibility for extensive networking and interrelational activity, rather than being directly attributed to influencing states to cooperate on regional DRM. Indeed, world society theorists seldom raise the concept of such power. However, a broader concept of power is considered useful for world society theory, whereby an emphasis on normative power – the power to shape appropriate behaviour – could increase its conceptual and explanatory competency.[289] As seen in Chapter 4, a teacher-student relationship was identified as an important aspect of (re)producing the global DRM model. This interaction between regional organizations and the UN can be reinterpreted into a division of power, whereby states and regional organizations authorize the UN with the power to shape the

ty to neoliberal institutionalism and neoliberal institutionalism would emphasize internal trade bias to world society theory. This does little for theory development because it does not challenge existing scope conditions of the theories. World society theory would see intra-regional trade bias as an additional example of networked relations for relational diffusion and neoliberal institutionalism would see international organizations as an additional actor to the state that provides and spreads information and institutional support for regional DRM cooperation. They would presumably be acting under the same functional explanatory conditions emphasized in this thesis. Asymmetrical risk, on the other hand offers little development for world society theory as it is a specific cost-benefit explanatory condition that is irrelevant for the argument that regional DRM is derived from a global set of norms.

[289] This does not mean that normative power is entirely absent from world society theory, but that it could be clarified and theorized to a greater degree. In an analysis of the EU, for example, John Meyer notes that 'Otherhood – the constant elaboration of expectations for actors – is a driving force behind the…European system. Realist social theories that do not recognize its power (or even existence) have had the greatest difficulty accounting for Europe' ([2001]2009, p. 348).

boundaries of acceptable behaviour through enacting the global DRM model. This may let agency in from the back door, but the activity of the UN and other 'teachers' of global models nevertheless tends to be confined to the world cultural script, which sets the possibilities of action. As this type of power is not directly associated with material concerns, but rather acceptable behaviour that is not always consciously apparent, it is often harder to cash it in for immediate effect. Yet, in the long term the power to channel societal behaviour is highly important not only for pragmatic and theoretical, but also for ethical reasons.[290]

World society theory's focus on legitimacy offers an additional heuristic for neoliberal institutionalism. Instead of identifying legitimacy with appropriateness, legitimacy can also be understood as a means to increase material power. Taking legitimacy seriously can help to explain cooperation that lacks an immediate functional explanation. Regional organizations, for example, that have a high level of DRM cooperation yet financially suffer from historically few disasters (low expectations) – in the last decade this would include the PIF, SADC, LAS, the AU, and ECO – may be cooperating with the active purpose of increasing foreign direct investment, or the reactive purpose of conditionality, in order to increase its overall gains.[291] This indirect method thus replaces legitimacy with material power and, thus, subtly shifts a world society theory definition of legitimacy based on 'the logic of appropriateness' to the 'logic of consequences' (cf. Schaar 1981, p. 20, March and Olsen 1989). If this insight were applied to neoliberal institutionalism, it could help to explain the persisting anomaly illustrated through the empirical results on the expectations condition. Despite the decrease in relative costs, the material gains achieved through cooperation may outweigh functional demand.

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[290] Altruistic motives are not taken seriously by either theory applied in this thesis. Neoliberal institutionalism's highly idealized conception of the state as a rational utility maximizer naturally shies away from stressing altruistic motives. Sweden's assistance to SADC's DRM framework, for example, would presumably be motivated through providing regional stability to enhance external trade flows, not for altruistic purposes (a liberal intergovernmentalist exception to this is that some democratic states are influenced by domestic pressure to act benevolently in its foreign policy). World society theory, on the other hand, does take note of benevolent action but sees this as a part of the world cultural script that loses its original functional purpose over time, a phenomenon that is partly a result of the diffusion process ('travelling light'). In other words, there is no normative or ethical component attached to world society theory. This is not necessarily a bad thing, as world society theory champions structure in order to gain parsimony and clarity. Nevertheless, adding a dash of agency – or adopting a softer constructivist or middle-of-the-road approach – does allow for this important factor, which also ushers virtue theory into international relations theory.

[291] This argument appears more likely for developing countries (Meyer and Rowan [1977] 2009, p. 94). The EU and the OAS is thus excluded from the list even if its meets the other criteria.

5.3.2. Functionality and norms

If an analytical version of world society theory takes seriously its claim of structure over agency, then even the interest of an individual is entirely constructed by his or her 'life-world'. The 'self' in self-interest is defiantly removed when the majority legitimates social action. The basis of what constructs collective action problems would, thus, not be based on the self-interest and the rational utility function of states, but on the complex arrangements of contingent social norms.[292] Thus, even rationality and functionality are subjective experiences. Keeping this in mind, the important work neoliberal institutionalism builds on the basis of functionality can nevertheless form a useful heuristic. World society theorists writ large would arguably concur that the establishment of a norm is based on a functional need or 'common situation', an insight that by cooperating collectively all parties will be better off (Berger and Luckmann 1967, pp. 55-57).[293] Importantly, this explanation would still be based within the broader normative context that provides the very rationale and possibility for a functional moment to occur. If this is true, then the insights that neoliberal institutionalism provides in outlining the main functional issues embedded in an incentive structure that motivates states to cooperation on DRM can be usefully engaged with. At the very least, the functional hypotheses can be used to further elucidate the functional moment that gives rise to DRM cooperation. While the concept of functionality will remain contested, this ought not to subtract from insights neoliberal institutionalism affords.[294] In particular, it can provide an outline of what actors perceive as the most important conditions under which they will agree to cooperate on DRM. Alter-

[292] An underlying tension in world society is expressed by the individual who is always constituted by an existing set of cultural norms. The continual production and reproduction of individual identity and reification of world culture lead Meyer and his colleagues to declare the individual as an 'institutional myth' (Meyer, Boli and Thomas [1987] 2009, p. 77). This makes it difficult to locate any origins of world society of DRM. Even if a single actor could be distinguished as the author of a global model, his or her actions would still be informed by world culture. Action precedes thought; it is the normative structure that constitutes the actor. Indeed, the 'essential elements of the cultural dimension of world society' is the 'the cognitive and ontological models of reality that specify the nature, purposes, technology, sovereignty, control, and resources of states and other actors (Meyer *et al.* [1997] 2009, p. 177).

[293] Of course, once this norm or pattern of behaviour is established it can take on a life of its own over time, whereby it can drift from the original functional moment of creation. This phenomena is well rehearsed by both world society theorists with reference to the notion of 'decoupling' (Meyer *et al.* [1997] 2009) and neoliberal institutionalists with reference to the notion of 'organized hypocrisy' (Krasner 1999).

[294] The term functionality or functionalism is heavily laden with alternative meanings in various subfields of the social and natural sciences. To be clear, this study understands functionalism to be grounded in rational choice literature and should not be confused with the sociological label of functionalism which is more related to a structuralist description of change related to Durkheim's and Parson's definition of 'functionalism'.

natively, the functional basis can also be used as an ideal type from which knowledge can be produced via empirical ambiguity.

According to neoliberal institutionalism, norms do not have a direct effect on self-interest: the latter trumps the former. In terms of the research question, the importance of norms as a causal element is not considered necessary; instead, a functional argument is sufficient for explaining cooperation irrespective of any global norms. Yet, even if rationalists do not accept the constitutive role of norms, they do see the value of norms in providing '*common knowledge*, which is essential for coordination' (Katzenstein *et al.* 1998, cited in Keohane 2010, p. 19: original emphasis). In this sense, the stress placed on common cultural categories by world society theory, such as science and education, can add important contextual understanding for rationalists by highlighting the source of the common knowledge needed for coordination on DRM.

The abovementioned construction of hypotheses and ideal types through the comparison of theoretical concepts provides useful avenues for future research, and provides the foundations for a more developed answer that emerges through a dialogue between the methodological approaches used in this thesis. World society can use the insights from neoliberal institutionalism to obtain a fuller understanding of the functional moment that gave birth to global DRM norms, and the concept of normative power can be applied to further specify the different ideational roles states and international organizations play out in order to (re)produce the global DRM model. Neoliberal institutionalism also profits from the heuristic devices employed through a comparison with world society theory. A description of what motivates states to cooperate on regional DRM can develop through increased attention to common knowledge as a prerequisite for effective coordination on regional DRM, and on the multiple goals of states, such as increasing foreign direct investment. If a regional organization establishes a particular form of DRM cooperation via 'common knowledge' in order to maximize its gains, the likelihood that it will create a standardized form of DRM is high, even if the local material incentives are not present.

If each methodology and its associated theory can be regarded as a legitimate mode of producing knowledge, there is no reason that their explanations cannot be used to provide a richer explanation, albeit with their own biases. These richer explanations are paraphrased below:

> Neoliberal institutionalism can explain why states were motivated to cooperate on regional DRM through a sufficient configuration of interdependence and asymmetrical risk that is complemented by an existing 'common knowledge' on DRM that is fostered by the international community.
>
> World society theory can explain why states were motivated to cooperate on regional DRM through relational and cultural diffusion practices by the international community; the importance of asymmetrical risk and interdependence is not epiphenomenal but speaks to the rationalized culture that constitutes and gives meaning to state action.

Note that the first statement on neoliberal institutionalism does not make the claim that norms have a greater impact on the outcome than the two functional-based explanatory conditions, but it does mean that the explanation can be more complete. As each tradition of inquiry used in this thesis is premised on a different set of assumption on warranted truth claims and conceptions of causality, the emphasis world society theory places on norms can only be translated into acceptable functional limits of neoliberal institutionalism and must then be evaluated according a nomothetic generalization.

5.4. A state in a world of risk

Disaster risk management is principally concerned with the protection of citizens. The emergence of regional DRM is thus a central issue for understanding the state of state sovereignty. While each theoretical approach in this thesis emphasizes different causal conditions, they both confirm the central role of the state in a highly interdependent and globalized world. This position tends to go against the grain of many commentaries on the devolving status or porousness of the state (cf. Kirchner and Sperling 2007). *Contra* this position, the state is not conceived as a degenerate actor in world politics but as a dynamic actor/agent that is able to (re)shape itself in an ever-changing contextual environment.

According to neoliberal institutionalism, states will cooperate in order to achieve greater gains or solve collective action problems. If there are disincentives, such as the number of states (Olson 1965), 'free-riding', and 'distrust' (Ostrom 1990, Barett 2007), the likelihood that states will agree to advanced forms of cooperation that restrict their behaviour is limited. If this logic is applied to regional DRM, it is not surprising that states are guarded in the amount of obligation they would entrust to regional organizations, particularly in the area of civilian protection that cuts at the heart of state sovereignty. However, since the mid 1990s, a large majority of the 10

cases examined in this dissertation produced advanced forms of cooperation that, while not reaching the level of an independent supranational capacity on DRM, do include emerging initiatives that require states to standardize DRM coordination and provide lists of assets that can be used in the event of a transboundary natural disaster. Nonetheless, it is argued that states remain in full control of the protection of their citizens for the following two reasons. First, most regional organizations exhibit an intergovernmental system of DRM cooperation, which means that state cooperation remains voluntary. Second, even the establishment of framework agreements that provide obligatory measures does not necessarily equate to a loss of sovereignty if there is a lack of enforcement measures. Indeed, translating words into action has been mostly limited to those regions with high capacities (the EU and the OAS).[295]

World society theory frames state sovereignty in different terms. Instead of an *a priori* condition, it is understood as a global model and therefore liable to change as a contingent social construction. The interrelationship between the rise of the regional DRM the nation-state model is understood to strengthen and not weaken the modern nation-state by heaping further responsibility on it to enact through an additional model – via regional organizations – and thereby increase in its legitimacy as a state. As global models are attached to the legitimate and external action of states, and less on the actual practices of states, there will be little competition between the two global models as decoupling would be expected to occur between official statements and operational practice (Meyer 2009, p. 50).

The state is not impervious to change; rather it achieves resilience as an entity through its ability to change either through the adoption of global norms, or by striking a balance between functional concerns of the state and preservation of its own sovereign identity. The general findings from this thesis mirror this observation by providing two independent explanations for what motivates states to cooperate on regional DRM. While concern has been placed on respecting these explanations on their own terms, a conservative translation of key causal assumption is also offered that acts as a useful theoretical heuristic for neoliberal institutionalism and world society theory. This not only provides for a potentially richer explanation, but also lays the ground work for future research in this highly important yet fairly neglected field that is essential for the survival of the state and the individual.

[295] A preliminary review on operational activity in regional DRM reveals that EU activity on the ground is fairly robust (cf. Boin, Ekengren and Rhinard 2012) and that the OAS has been active through the WHI. However, operational activity elsewhere is relatively low, such as ASEAN's DRM operational capacity (Marr 2010) or non-existent (cf. UN 2005, p. 1018, 2007, p. 949, ESCWA 2011).

Disaster risk management is global. The challenge is thus to understand how various global actors – from the local to transnational – can effectively coordinate in order to produce a more resilient environment. Charged by functional and ideational concerns, states have begun to operate through regional organizations as an important entity within this emerging field. The normative aspect of this global project speaks to the limits and possibilities of action that can evolve into 'dysfunctional' behaviour that raises unanswered ethical questions. The rational aspect of this global project speaks to the functional basis that informs state interests. Even if these two voices do not sing in concert, their tune does provide a fuller sound that is useful for generating knowledge, not only through their harmonies but also through the dissonance they produce.

6. Annex

6.1. Regional DRM agreements

Table 6.1 Regional DRM cooperation: 1987-2011

	Regional Organization		*DRM Agreement*	*Date*	*Ref.*
1.	Arctic Council		EPPR Strategic Plan of Action	2010	EPPR 2012
2.	Association of Caribbean States	ACS	Saint-Marc Plan of Action	2010	ACS 2010
3.	Asia Pacific Economic Cooperation	APEC	Strategy for Disaster Risk Reduction and Emergency Preparedness and Response in the Asia Pacific Region	2005	APEC 2005
4.	Association of South East Asian Nations	ASEAN	ASEAN Regional Programme on Disaster Management	2004	ASEAN 2004
5.	African Union	AU	African Regional Strategy for Disaster Risk Reduction	2004	AU 2004
6.	Andean Community of Nations	CAN	Andean Strategy for Disaster Prevention and Relief	2004	CAN 2004
7.	Barents Euro-Arctic Council	BEAC	Emergency Prevention, Preparedness and Response agreement	2008	BEAC 2012
8.	Caribbean Community	CARICOM	Comprehensive Approach for disaster management in the Caribbean Project: A Strategy and Results Framework for Comprehensive Disaster Management in the Caribbean[296]	2001	CARICOM 2001
9.	Council of the Baltic Sea States	CBSS	Eurobaltic Programme for civil protection	2000	CBSS 2012
10	Central European Initiative	CEI	Cooperation agreement on the forecast, prevention and mitigation or natural and technological disasters	1996	CEI 1996
11.	Council of Europe	CoE	EUR-OPA Major Hazards Agreement	1987	CoE 1987
12.	Disaster Preparedness and Prevention initiative for South-Eastern Europe	DPPI-SEE	Disaster Preparedness and Prevention Initiative	2000	DPPI SEE 2000
13.	Economic Cooperation Organization	ECO	ECO-RCRM[297]	2008	ECO 2008b
14.	Economic Community of West African States	ECOWAS	ECOWAS Policy for Disaster Risk Reduction	2006	ECOWAS 2006
15.	Euro-Mediterranean	EMP	Euro-Mediterranean Coop-	1996	EUPPRD

[296] Note that this is CARICOM's first official 'strategy'. For previous agreements on DRM see CARICOM (1990, 1991).
[297] ECO has not yet published an official framework agreement. However, it has signed a MoU with the UNISDR (ECO 2007) and cooperates through the Regional Centre for Risk Management of Natural Disasters (ECO-RCRM). For more on ECO see chapter 3, p. 55.

	Partnership		eration on Civil Protection (EUPPRD)		2012, cf. Bremberg 2012.
16.	European Union	EU	Community action programme in the field of civil protection	1997	European Council 1997
17.	The Intergovernmental Authority for Development	IGAD	Regional Disaster Preparedness Strategy	2000	IGAD 2000
18.	League of Arab States	LAS	Arab Strategy for Disaster Risk Reduction 2020	2011	LAS 2011
19.	Southern Common Market	Mercosur	REHU[298]	2009	Mercosur 2009
20.	North Atlantic Treaty Organization	NATO	EAPC policy on Enhanced Practical Cooperation in the Field of International Disaster Relief	1998	NATO 1998
21.	Nordic Council		Public health preparedness agreement	2002	Nordic Council 2002
22.	Organization for American States	OAS	Miami Plan of Action	1994	OAS 1994
23.	Pacific Islands Forum	PIF	Madang Framework for action	2005	PIF 2005
24.	South Asian Association for Regional Cooperation	SAARC	SAARC Disaster Management Framework	2006	SAARC 2006
25.	Southern African Development Community	SADC	Regional Multi-Sectoral Disaster Management Strategy	2001	SADC 2001a
26.	Central American Integration System	SICA	The Central American Policy on Integrated Risk Management (PCGIR)	2010	SICA 2010

Explanatory note. The list of agreements depicts the globalization of regional DRM. The dates generally refer to when each regional organization signed the corresponding agreement. This does not mean, however, that cooperation was absent before these dates. See the individual references on the far-right column for more details.

[298] REHU translates from Spanish to the following: Special Meeting on Disaster Risk Reduction Socio-Natural, Civil Defence, Civil Protection and Humanitarian Assistance (Mercosur 2009).

6.2. Estimated economic damages caused by natural disasters

Tables 6.2, 6.3, and Figure 6.1 illustrate the estimated economic damages caused by natural disasters. The raw figures are sourced from the EM-DAT database according to the following search categories, (1) countries pertaining to selected regional organizations, (2) time period '1970-2009', (3) 'natural disasters', and (4) 'estimated economic damages per country'. These figures were then adjusted for inflation based on the Consumer Price Index (Lawrence and Williamson 2011) according to real 2008 prices.[299] Once adjusted the average amount of estimated damages for each decade was calculated and placed accordingly in Table 6.2.[300] The percentage change from the first and last period is also provided in the far right column.

Table 6.3 displays an additional calculation that adjusts the figures in Table 6.2 according to regional GDP. The raw data for the GDP statistics come from the UNU-CRIS RIKS (2011) database and is adjusted to the average sum per decade.[301] The calculations drawn from the raw data set (EM-DAT) that include inflation and regional GDP is also displayed in Table 6.3.

Figure 6.1 illustrates the trend across the 37-year period of investigation based on estimated economic damages as a percentage of GDP.

6.2.1. Estimated economic damages caused by natural disasters adjusted to inflation rates

Table 6.2 Estimated economic damages caused from natural disasters: 1970-2007*

Regional Organization	1970-1979	1980-1989	1990-1999	2000-2007	Percentage change **
ASEAN	801.1	639.7	2,673.1	2,573.0	2.21
AU	538.3	2,212.6	418.4	1,190.9	1.21
OAS	7,724.0	12,545.0	27,390.0	42,871.2	4.55
ECO	758.6	792.6	6.407.9	1,372.0	0.81
LAS	439.6	3,605.3	896.6	1,431.1	2.25
EU	2,831.8	7,978.0	11,914.0	12,707.7	3.49
Mercosur	1,723.6	2,804.3	669.5	954.3	-0.45
CARICOM	31,708.5	650.4	292.7	882.1	26.82
PIF	1,141.8	2,058.3	1,181.8	995.7	-0.13
SADC	139.7	1,474.4	99.4	239.0	0.71

Source: EM-DAT 2011. * Adjusted for inflation. **Percentage change calculated from the 1970-1979 and 2000-2007 time periods.

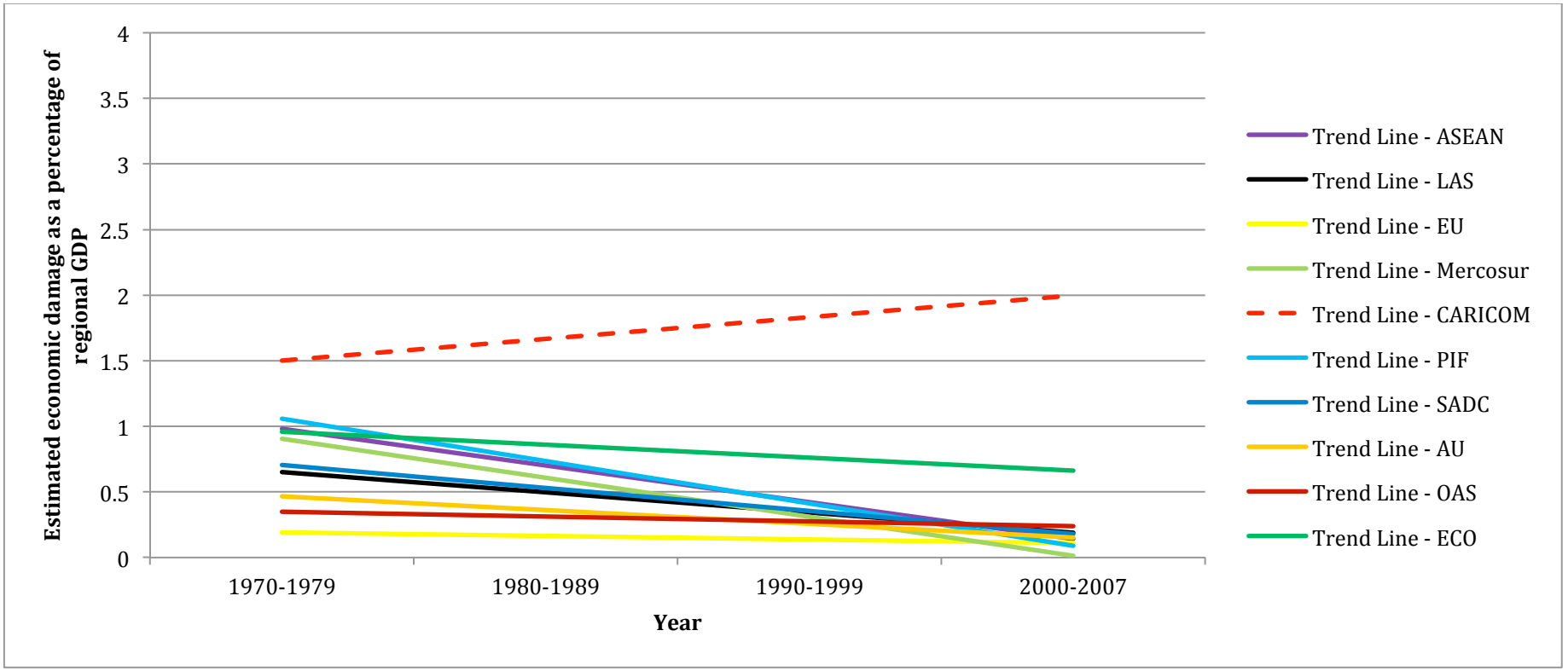
[299] These are adjusted for inflation because the raw figures correspond to 'the damage value at the moment of the event, i.e. the figures are shown true to the year of the event' (EM-DAT 2009).

[300] Note that each year was first adjusted for inflation before the average for each decade was calculated.

[301] The UNU-CRIS RIKS (2011) uses the GDP data from the UN Statistics Office.

6.2.2. Average trajectory of estimated economic damages caused by natural disasters as a percentage of regional GDP

Figure 6.1 Trend line of estimated regional economic damages caused by natural disasters as a percentage of regional GDP: 1970-1997



6.2.3. Estimated economic damages caused by natural disasters as a percenrage of regional GDP

Table 6.3 Economic damage caused by natural disasters as a percentage of regional GDP: 1970-2008 (USD ,000)

Regional organization	Categories of estimated economic damages	Time period			
		1970-1979	1980-1989	1990-1999	2000-2007
EU	Estimated economic damage	689,110	3,398,570	8,253,062	10,998,766
	Adjusted for inflation	2,831,888	7,978,000	11,914,000	12,707,750
	Adjusted as a per cent of regional GDP	0.16	0.20	0.15	0.09
ASEAN	Estimated economic damage	192,918	319,486	1,922,217	2,320,286
	Adjusted to inflation	801,146	639,700	2,673,100	2,573,000
	Per cent of regional GDP	1.27	0.26	0.45	0.27
PIF	Estimated economic damage	288,130	923,921	817,202	876,050
	Adjusted to inflation	1,141,800	2,058,370	1,181,820	995,750
	Per cent of regional GDP	1.01	0.88	0.29	0.13
CARICOM	Estimated economic damage	6,675	278,782	212,142	676,578
	Adjusted to inflation	31,708	650,416	292,710	882,114
	Per cent of regional GDP	0.33	3.75	1.19	1.73
Mercosur	Estimated economic damage	344,825	831,000	376,948	614,072
	Adjusted to inflation	1,723,685	2,804,303	669,582	954,350
	Per cent of regional GDP	0.82	0.85	0.08	0.09
SADC	Estimated economic damage	12,170	265,765	58,042	206,586
	Adjusted to inflation	139,700	1,474,400	99,413	239,012
	Per cent of regional GDP	0.22	1.41	0.06	0.08
LAS	Estimated economic damage	19,380	885,850	567,414	1,311,799
	Adjusted to inflation	439,676	3,605,300	896,654	1,431,195
	Per cent of regional GDP	0.39	0.97	0.19	0.13
AU	Estimated economic damage	145,727	907,897	282,561	1,024,705

	Adjusted to inflation	538,320	2,212,660	418,400	1,190,950
	Per cent of regional GDP	0.32	0.67	0.10	0.16
OAS	Estimated economic damage	1,889,771	6,203,112	19,160,384	38,181,427
	Adjusted to inflation	7,724,000	12,545,000	27,390,000	42,871,250
	Per cent of regional GDP	0.39	0.24	0.29	0.22
ECO	Estimated economic damage	139,835	397,700	4,302,476	1,235,727
	Adjusted to inflation	758,642	792,653	6,407,900	1,372,087
	Per cent of regional GDP	0.96	0.38	1.73	0.16

Source: EM-DAT 2011b; UNU-CRIS RIKS 2011; UNSTATS 2011

6.3. Regional DRM cooperation in ASEAN, LAS, EU, CARICOM, Mercosur, PIF, SADC, AU, OAS and ECO

Table 6.4 Level of regional DRM cooperation (outcome condition)

Regional Organization	*DRM Document*	*Year*	*Awareness*	*Information*	*Operational capacity*	*Standardization*	*Assets*	*Total Score*	*Reference*
ASEAN	Dec of ASEAN Concord	1976	0.20 *§9*	0.00	0.00	0.00	0.00	0.20	ASEAN 1976b
	Dec on Mutual Assistance on Nat Disasters	1976	0.20 *Preamble*	0.10 *Art. I*	0.00	0.00	0.00	0.30	ASEAN 1976a
	Dec of ASEAN Concord II	2003	0.20 *C(6)*	0.00	0.00	0.00	0.00	0.20	ASEAN 2003
	ARPDM	2003	0.20	0.20 *p.4*	0.15 *p.4,61, 73*	0.00	0.00	0.55	ASEAN 2004
	Dec of Action	2005	0.20 *Preamble*	0.05 *Art. 3*	0.15 *Art.3*	0.00	0.00	0.40	ASEAN 2005b
	AADMER	2005	0.20 *Art. 4; 5*	0.20	0.20 *Art. 6; 8; 11; 17;20; 24;*	0.20 *Art.8; 18;*	0.10 *Art. 9*	0.90	ASEAN 2005a
	SASOP[302]	2009	0.20	0.20	0.20	0.00	0.10	0.80	ASEAN 2009c
LAS	Dec # 39	1987	0.20 *Preamble*	0.10 *Art. 4;5*	0.15 *Art. 4;5*	0.00	0.00	0.45	LAS 1987
	Resolution # 345	2011	0.20 *p.8*	0.20 *p.15*	0.20[303] *p.4, 7, 16*	0.20[304] *p.17*	0.00	0.80	LAS 2011
EU	Council Res 87/C 176/01	1987	0.20	0.05 *Art. 2-4*	0.00	0.00	0.00	0.25	European Council 1987

[302] The 69-page standard operating procedures set out the procedures for ADDMER.
[303] While not specifically part of the agreement, the Regional Centre for Disaster Risk Reduction Training and Research (RCDRR) is mentioned as a supporting unit and, therefore, contributes to total the value.
[304] The strategy notes, for example, its commitment to commit to IASC Guidelines: Common Operational Datasets (CODs) in Disaster Preparedness and Response. This aims to increase the interoperability of disaster information sharing (IASC 2011).

Council Res 89/C 44/03[305]	1989	0.20	0.20 *Art. 2; 3; 5-7*	0.00	0.00	0.00	0.40	European Council 1989
Council Res 90/C 315/02	1990	0.20 *§2*	0.00	0.00	0.00	0.00	0.20	European Council 1990b
Council Res 90/C 315/01	1990	0.20	0.20 *§14-19*	0.00	0.00	0.00	0.40	European Council 1990a
Council Res 91/C 198/01[306]	1991	0.20	0.05 *Art. 11*	0.00	0.00	0.00	0.25	European Council 1991
Maastricht Treaty	1992	0.20 *Art.103(a)*	0.00	0.15[307] *Art.103(a)*	0.00	0.00	0.35	European Council 1992
Council Res 94/C 313/01	1994	0.20	0.20 *§14;17;19*	0.15 *§21;25*	0.00	0.10 *§20*	0.65	European Council 1994
Council Dec 98/22/EC	1997	0.20	0.10 *Art.3(2)*	0.10 *Art. 3(2a,b,c)*	0.00	0.00	0.40	European Council 1997
Council Dec 1999/847/EC	1999	0.20	0.10 *Art.3(2)*	0.10 *Art.3(2)*	0.00	0.00	0.40	European Council 1999
Council Dec 2001/792/EC, Euratom	2001	0.20	0.20 *Art. 1(3)*	0.20 *Art.1(1); 1(3);4(a,b)*	0.00	0.10 *Art.3(a);4(e)*	0.70	European Council 2001a
Council Res 2001/C 82/01	2001	0.20	0.05[308] 8(d,e,f)	0.00	0.00	0.00	0.25	European Council 2001b
Council Res 2002/C 43/01	2002	0.20	0.05 *Art.1-4*	0.00	0.00	0.00	0.25	European Council 2002b
Council Res 2003/C 24/03	2002	0.20	0.05	0.15[309]	0.00	0.00	0.40	European

[305] Note that the establishment of a multi-lingual glossary of disaster management terms in article 4 could be interpreted as harmonization of information. However, this is not done here because a harmonization would be the publication of general disaster management terms. As the document is not specific on this, no value under harmonization is given.
[306] This resolution sets out, for the first time, rules and procedures for member state cooperation in responding to a disaster within the Union.
[307] Operational procedure for releasing funds to a member state affected by a major disaster.
[308] Attention to cooperation and information sharing with Eastern European countries and Cyprus as well as recommending sub-regional cooperation on civil protection in the Baltic and Barents region.
[309] Based on the suggestion to have intervention teams outside of the Union.

				Art. 2	*Art.5*				Council 2002 a
	Council Res 2004/C 8/02	2003	0.20	0.05 *Art.1-4*	0.00	0.00	0.00	0.25	European Council 2003
	Com Dec 2004/277/EC, Euratom	2004	0.20	0.20 *Art. 1; 16*	0.20 *Art.1; Ch.3; 4*	0.00	0.00	0.60	European Commission 2004
	Council Dec 2007/162/EC, Euratom	2007	0.20	0.00	0.15 *Art.1*	0.00	0.00	0.35	European Council 2007a
	Com Dec 2007/606/EC, Euratom	2007	0.20	0.0	0.15 *Art. 3*	0.00	0.00	0.35	European Commission 2007
	Council Dec 2007/779/EC[310]	2007	0.20 *ChI*	0.20 *Art.2*	0.15[311] *Ch1/Art.1(2);2*	0.20 *ChII/Art.4/no. 3(d); CHIII/Art.8/no.4(c)*	0.10 *ChI/Art.2/no.8,9; ChII/ Art.5 /no.4*	0.85	European Council 2007b
	Treaty of Lisbon (Art. 176(c); Art. 188(r))	2007	0.20	0.00	0.00	0.00	0.00	0.20	European Council 2007c
CARICOM	Kingston Declaration	1990	0.20 *§13*	0.05 *§13*	0.20 *§13*	0.00	0.00	0.45	CARICOM 1990
	CDERA	1991	0.20 *Art. 4*	0.20 *Art.11,12*	0.20 *Art. 2*	0.00	0.10 *Art. 12; 13(s)*	0.70	CARICOM 1991
	CDMS	2001	0.20 *p. 16*	0.05 *p.18*	0.10 *p. 16*	0.10 *pp.16-19*	0.00	0.45	CARICOM 2001
	Action Plan	2005	0.20	0.20 *p.8, 18-26*	0.15 *p.11,20,22*	0.10 *p.19*	0.00	0.65	CARICOM 2005

[310] The amendments from Council Decision 2008/73/EC, Euratom, and Commission Decision 2010/481/EU (an up-date of the module system) are included in this analysis.

[311] A full score is not given in this area due to the lack of attention to prevention and response.

	Treaty on Security Assistance	2006	0.20 *Art. 3*	0.05 *Art. 5*	0.15 *Art. 3*	0.00	0.00	0.40	CARICOM 2006
	Strategy and Framework on DRM	2007	0.20	0.20 *Art. 4.1(2)*	0.15 *Art. 4.1;5.1; 5.5*	0.20 *Art. 5.1(1.5)*	0.00	0.75	CARICOM 2007
	CDEMA	2008	0.20 *Preamble*	0.20 *Art. 5;6*	0.20 *Art.5-6*	0.00	0.10 *Art.19*	0.70	CARICOM 2008
Mercosur	REHU	2009	0.20 *Preamble §2*	0.05 *Art.1*	0.00	0.00	0.00	0.25	Mercosur 2009
PIF	Regional Disaster Relief Fund	1975	0.20	0.00	0.15	0.00	0.00	0.35	PIF 1975
	Aitutaki Dec	1997	0.20 *(4)*	0.00	0.00	0.00	0.00	0.20	PIF 1997
	Madang Framework	2005	0.20 *Preamble*	0.20 *No.21-31*	0.15 *No. 37(e)*	0.10 No. 38(c); 54(c)	0.00	0.65	PIF 2005
SADC	Protocol on Health	1999	0.20 *Art. 25*	0.10 *Art. 25 (b; c)*	0.00	0.00	0.00	0.30	SADC 1999
	Protocol on Politics, defence and security cooperation	2001	0.20 *Art. 2(L)*	0.00	0.00	0.00	0.00	0.20	SADC 2001b
	Disaster Management Strategy	2001	0.20 *Preamble*	0.20 *4.1*	0.15 *5;2-4.1*	0.00	0.00	0.55	SADC 2001a
	Disaster Risk Reduction (DRR) Strategic Plan 2006–2010	2006	0.20 *AU 2006, 10*	0.20 *Ob. 2; 3*	0.20 *Ob.5*	0.10 *Ob.3(c)*	0.00	0.70	SADC 2006
AU	SEAF (21st Ordinary Session OAU)[312]	1985	0.20	0.00	0.10	0.00	0.00	0.30	UN 1985
	African Regional Strategy for Disaster Risk Reduction	2004	0.20 *p.2; Art. 3.1*	0.20 *Art.3.3.2.*	0.00	0.00	0.00	0.40	AU 2004
	Programme of Action for the implementation of the regional strategy (2006-2015)[313]	2009	0.20 *Art. 1*	0.20 *Art.4*	0.15 *p.13*	0.10 *Art. 4.2*	0.00	0.65	AU 2009

[312] The original document could not be located. In its place is a copy of the Economic and Social Council's declaration from 1985 which gives reference to the creation of the fund (UN 1985, 501).

[313] Note that this is an update of the programme of action for the period 2006-2010. This earlier version is not included for duplication purposes and does not affect the overall outcome as it is also within the 2000s.

	Declaration of the second ministerial conference on DRR	2010	0.20 *Preamble XIV*	0.20 *Art. 3, 11,12*	0.00	0.00	0.00	0.40	AU 2010a
OAS	Inter-American Convention on DRM	1991	0.10	0.00	0.00	0.00	0.00	0.10	OAS 1991
	Miami Plan of Action	1994	0.20 *Preamble; Art. 20*	0.10 *Art. 20*	0.15 *Art. 20*	0.00	0.10 *Art. 20*	0.55	SOA 1994
	AG/RES. 1327 (XXV-0/95)	1995	0.20 *Preamble; Art.I*	0.10 *Art. VI*	0.10 *Art. III*	0.00	0.00	0.40	OAS 1995a
	AG/RES. 1682 (XXIX-O/99)	1999	0.20	0.10	0.00	0.00	0.00	0.30	OAS 1999
	AG/RES,1885(XXXII-0/02)	2002	0.20 *Preamble*	0.20 *Art. 5; 7*	0.15 *Art. 5(c)*	0.00	0.00	0.55	OAS 2002
	Declaration on Security in the Americas	2003	0.20 *Art.II(4L);III(39)*	0.20 *Art. III(39)*	0.00	0.00	0.00	0.40	OAS 2003a
	AG/RES,2114(XXXV-0/05)	2005	0.20 *Preamble*	0.20 *Art. 2; 4(a,c,d)*	0.00	0.00	0.00	0.40	OAS 2005b
	AG/RES. 2165 (XXXVI-O/06)	2006	0.20 *Preamble*	0.10 *Art. 3; 6*	0.15 *Art.1-3*	0.00	0.10 *Art.1; 2*	0.55	OAS 2006a
	AG/RES,2184(XXXVI-0/06)	2006	0.20 *Preamble*	0.20 *Art. 2(b); 4;11*	0.05[314] *Art. 2(a); 7*	0.00	0.00	0.45	OAS 2006c
	Inter-American Program for Sustainable Development (PIDS) 2006-2009	2006	0.20 *3.3*	0.20 *3.3(b)*	0.10 *3.3(ci)*	0.00	0.00	0.50	OAS 2006b
	AG/RES. 2314 (XXXVII-0/07)	2007	0.20 *Preamble*	0.20 *Art.3*	0.15 *Preamble*	0.00	0.00	0.55	OAS 2007b
	AG/RES. 2372 (XXXVIII-O/08)	2008	0.20[315]	0.20 *Art.6;11*	0.15 *Art. 5;8*[316]	0.00	0.10 *Art.3*	0.65	OAS 2008a

[314] A low score was given on operational capacity as both instances referred to the need for, rather than the creation of, operational capacities.
[315] Awareness is not explicitly stated, but assumed from the general purpose of the document.
[316] The OAS is using the WHI as a vehicle for the OAS to actively respond to natural disasters. Because this is not entirely in the remit of OAS a value of 1.5 is awarded.

	AG/RES. 2492 (XXXIX-0/09	2009	0.20[317]	0.05 Art. 2; 3	0.00	0.00	0.00	0.25	OAS 2009
	AG(RES. 2610 (XL-0/10)	2010	0.20 *Preamble*	0.20 *Preamble;* Art. 6	0.00	0.00	0.00	0.40	OAS 2010b
	AG/RES. 2647 (XLI-O/11)	2011	0.20 *Preamble*	0.20 *Art. 1; 4*	0.15 *Preamble; Art. 5(d; e)*	0.10 *Art. 4(f)*	0.00	0.65	OAS 2011b
ECO	Baku Declaration	2006	0.20 *Preamble; Art. xi*	0.00	0.00	0.00	0.00	0.20	ECO 2006
	ECO-ISDR MoU	2007	0.10 *Preamble*	0.10 *Art. 3.2*	0.00	0.00	0.00	0.20	ECO 2007
	ECO-RCRM[318]	2007	0.10	0.20	0.05	0.00	0.00	0.35	ECO 2008b
	Tehran Declaration	2009	0.20 *Art. XXXIV*	0.05 *Art. XXXIV*	0.00	0.00	0.00	0.25	ECO 2009
	Istanbul Declaration	2010	0.20 *Art. XXIV*	0.05 *Art.XXIV*	0.00	0.00	0.00	0.25	ECO 2010a

[317] While not explicitly stated, the content of the document clearly acknowledges the need for further cooperation on DRM.
[318] No official document could be located for the establishment of the ECO-RCRM. According to the World Meteorological Organization the ECO-RCRM was created in collaboration with ECO and the Iran Meteorological Organization (WMO 2010). Also see the ECO-RCRM website (ECO 2008b).

Explanatory Note. As explained in chapter 3, p. 51, each qualitative anchor represents a feature of regional DRM cooperation. Each feature – from the left to the right of the column – resembles the perceived cumulative cost to the state for cooperating on DRM. The following specifies the extent to which a full value of 0.2 is given for each feature of DRM.

A value of 0.2 will be given to any regional organization that formally acknowledges the need to cooperate. This determines the level of awareness. A formal agreement is an official statement, agreement or declaration that is signed at the executive level (heads of state). If an agreement is formulated below the executive level a value of 0.1 is awarded. When these acknowledgments are complemented by specific instances of cooperating on the exchange of information a further value of 0.2 can be added. Examples of information sharing include the formation of a network of national emergency management practitioners (cf. European Commission 1994), encouraging education initiatives from primary education to fostering expert exchanges across countries, regular DRM conferences, as well as commissioned studies, surveys and risk mapping. If, on the other hand, only one or two initiatives are planned a value of 0.1 or 0.05 is awarded.

In order to receive a value of 0.2 for operational capacity the DRM document must not only make a reference to all four dimensions of DRM – prevention, preparedness, response and recovery – but must also state specific provisions for the accomplishment of the task. This can include, the establishment of simulation or desktop exercises, a centre for research, and a hub for the management of transboundary crises that can include inter- and intra-regional requests for assistance. When there are only one or two low-cost provisions, a value of 0.15 is given, and when there are no provisions but reference to the four dimensions of DRM a value of 0.1 is given. Note that when the generally accepted components of DRM are not explicitly stated, yet operational mechanisms were clearly presented, a value of 0.2 is awarded.

The value of standardization is divided into two components according to the perceived level of costs to the member state. First, a value of 0.1 is awarded to regional organizations that address the need to harmonize information, such a creating common transboundary risk maps for flooding or workshops on harmonizing national emergency response institutions (cf. ASEAN 2005, CARICOM 2007). The agreements ought to be specific on standardizing practices across countries. A full value of 0.2 is awarded to regional organizations that engage in interoperability at the operational level, which requires a higher degree of coordination and cooperation between countries (cf. European Council 2007).

Pooling assets is also divided into two separate indicators. The lesser of the two is based on the idea of pooling resources that can be made available in the event of a disaster. An example is the pre-registering of national capacities that can be used in the event of a transboundary disaster (cf. European Commission 1994, European Council 2007). If this is explicitly agreed to, a value of 0.1 can be awarded. If member states agree to include standing regional assets, such as regional stockpiles of vaccinations, fire fighting equipment or stand-by forces, a further value of 0.1 can be given.

6.4. Intra-regional trade share

Table 6.5 Per cent of intra-regional trade in ASEAN, LAS, EU, CARICOM, Mercosur, PIF, SADC, AU, OAS and ECO: 1970-2008

Regional Organization	Per cent of intra-regional trade share			
	1970-1979	*1980-1989*	*1990-1999*	*2000-2008*
EU	56	57	64	64
ASEAN	16	17	20	24
PIF	10	9	10	9
CARICOM	8	6	12	13
MERCOSUR	8	9	19	16
SADC	4	6	6	14
LAS	6	6	8	9
AU	4	3	9	13
OAS	47	44	49	50
ECO	2	7	4	5

Source: UNU-CRIS RIKS (2011); authors own calculations

Explanatory Note. These figures are taken from the UNU-CRIS RIKS database that organizes the per cent of intra-regional trade share according to regional organizations. The raw intra-regional trade data from UNU-CRIS RIKS is presented annually. In order to recognize broader patterns over a longer period of time the average figure from each decade is calculated.

6.5. Country-specific coefficient of variation of regional estimated economic damages

Table 6.6 Estimated economic damages and its coefficient of variation in EU, ASEAN, PIF, CARICOM, Mercosur, SADC, LAS, AU, OAS and ECO: 1970-2009 (USD, 000) [319]

Regional Organization	*Country*	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2009*
EU[320]	Poland	n.a	n.a	n.a	250,000
	Portugal[321]	n.a	n.a	202,300	4,718,136
	Bulgaria	n.a	n.a	n.a	2,454
	Hungary	n.a	n.a	n.a	58,000
	Czech Rep	n.a	n.a	n.a	350,000
	Denmark	0	250,000	3,546,639	1,400,000
	Estonia	n.a	n.a	n.a	130,000
	France	0	4,759,500	17,708,800	10,763,400
	Ireland	0	0	710,000	2,750
	Latvia	n.a	n.a	n.a	325,000
	Sweden	n.a	n.a	160,000	2,800,000
	Norway	n.a	n.a	n.a	130,000
	Slovakia	n.a	n.a	n.a	383,300
	Slovenia	n.a	n.a	n.a	407,000
	UK	1,000	1,646,500	9,310,480	18,809,200

[319] Note that while Iceland, Norway, and Croatia are not members of the EU they are included in the last decade under investigation (2000-2007) because they are subsidiary members and active participants in EU community mechanism for civil protection.
[320] Finland, Iceland, Romania, Cyprus, and Malta show no figures for estimated economic damages from EM-DAT.
[321] The estimated economic costs from the Azores were added to this figure.

Regional Organization	*Country*	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2009*
EU	Austria	n.a	n.a	253,770	5,005,000
	Belgium	0	50,000	1,257,986	455,000
	Croatia	n.a	n.a	n.a	350,000
	Germany	2,302,000	950,000	10,256,130	25,102,000
	Lithuania	n.a	n.a	n.a	255,573
	Luxembourg	0	0	390,000	0
	Greece	n.a	1,995,000	7,345,400	2,698,659
	Italy	4,588,100	22,668,700	18,118,410	18,949,452
	Netherlands	0	0	3,542,700	950,000
	Spain[322]	n.a	1,666,000	9,728,012	6,595,208
Total		*6,891,100*	*33,985,700*	*82,530,627*	*100,890,132*
SD		*1623018*	*6178650*	*6315947*	*6510901*
CV		*211,97*	*236,34*	*114,79*	*193,60*
ASEAN[323]	Brunei	n.a	0	2,000	0
	Cambodia	n.a	n.a	500	214,100
	Indonesia	290,750	432,888	10,595,552	12,573,237
	Lao PD	n.a	n.a	0	101,000
	Malaysia	37,000	11,500	355,000	1,501,000
	Myanmar	n.a	n.a	0	4,500,688
	Philippines	1,156,431	1,640,830	3,280,608	22,08,031
	Thailand	445,000	1,109,646	2,811,488	2,101,613
	Vietnam	n.a	n.a	2,177,020	5,055,205

[322] The estimated economic costs from the Canary Islands are added to this figure.
[323] EM-DAT displays no figures for estimated economic damages for Suriname.

Regional Organization		*Country*	*1970-1979*	*1980-1989*	*1990-1999*		*2000-2009*
ASEAN	Total		*1,929,181*	*3,194,864*	3,314,091		*28254874*
	SD		*468218*	*694257*	1922216		*3882510*
	CV		*121,35*	*130,38*	172.41		*137.41*
ECO					*1990-1992*	*1993-1999*[324]	
		Afghanistan	52,000	269,000	60,000	24,010	25,110
		Iran Islam Rep	59,000	2,753,000	8,743,100	8,722,730	1,155,866
		Pakistan	1,169,755	5,000	11,000	1,350,166	7,536,648
		Kazakhstan	n.a	n.a	n.a	39,532	139,162
		Kyrgyzstan	n.a	n.a	n.a	201,400	4,360
		Tajikistan	n.a	n.a	n.a	545,454	1,046,670
		Turkmenistan	n.a	n.a	n.a	99870	0
		Uzbekistan	n.a	n.a	n.a	0	50,000
		Azerbaijan	n.a	n.a	n.a	46,200	165,000
		Turkey	117,600	950,000	305,300	22,876,000	867,000
	Total		1,398,355	3,977,000	9,119,400	33,905,362	10,989,816
	SD		547568.06	1238246.44	4310756.415	7353119.636	2308352.741
	CV				189.0807	216.8718	
			156.6320	124.5407	202.98		210.0447
AU[325]		Algeria	40,000	5,202,000	61,829		5,701,017
		Angola	0	0	0		10,000

[324] The decade from 1990-1999 is split between the expansion of ECO from Turkey, Iran, and Pakistan to Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, and Azerbaijan. This division is arguably warranted, as it is a particularly large increase in the composition of the regional group.
[325] Member states that show no figures for estimated economic damages on EM-DAT for the time period include Burundi, Cote d'Ivoire, Equatorial Guinea, Gabon, Guinea, Guinea Bissau, Lesotho, Mali, and Sao Tome et Principe.

Regional Organization	*Country*	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2009*
AU	Benin	200	5,451	3,315	0
	Botswana	2,050	0	0	5,000
	Burkina Faso	0	0	0	150,000
	Cameroon	1,500	0	1,700	0
	Cape Verde Is	0	3,000	0	0
	Central African Rep	0	125	0	0
	Chad	0	157	0	1,000
	Comoros	0	42,804	0	0
	Congo	0	0	59	0
	Djibouti	2,500	1,100	2,119	0
	Egypt	14,000	0	1,342,000	0
	Eritrea	n.a	n.a	5,165	0
	Ethiopia	76,000	0	22,300	9,400
	Gambia	200	0	0	0
	Ghana	100	0	33,500	0
	Kenya	11,500	0	11,800	100,538
	Liberia	0	0	47,000	0
	Libyan Arab Jamah	0	0	42,200	0
	Madagascar	419,820	925,000	63,700	709,000
	Malawi	0	28,000	24,089	7,700
	Mauritania	25,500	0	0	0
	Mauritius	375,000	60,973	310,400	50,000
	Morocco	30,100	0	n.a	n.a
	Mozambique	118,500	75,500	76,950	650,200

Regional Organization	*Country*	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2009*
AU	Namibia	n.a	n.a	51,000	8,490
	Niger	1,000	10,200	0	0
	Nigeria	0	79,103	66,500	12,422
	Rwanda	0	0	0	9
	Senegal	302,000	1,406	0	40,979
	Seychelles	0	0	1,700	30,000
	Sierra Leone	3,600	0	0	0
	Somalia	0	0	0	100,020
	South Africa	n.a	n.a	226,460	866,305
	Sudan	25,000	0	40,200	486,000
	Swaziland	0	54,152	1,739	50
	Tanzania Uni Rep	3,000	0	3,790	0
	Togo	500	0	0	0
	Tunisia	5,000	90,000	242,800	0
	Uganda	0	0	72,600	71
	Zaire/Congo Dem Rep	0	0	0	16,000
	Zambia	200	0	20,700	0
	Zimbabwe	n.a	2,500,000	50,000	277,700
Total		*1,457,270*	*9,078,971*	*2,825,615*	*9,231,901*
SD		*89991*	*823024*	*192559*	*803183*
CV		*305.94*	*444.19*	*354.37*	*452.40*
OAS[326]	Antigua and Barbuda	n.a	80,000	450,000	0

[326] Suriname shows no figures for estimated economic damages from EM-DAT from the period 1970-2007.

Regional Organization	*Country*	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2009*
OAS	Argentina	105,000	3,930,000	2,752,000	2,268,210
	Bahamas	n.a	0	700,400	1,850,000
	Barbados	500	101,500	0	5,200
	Belize	n.a	n.a	550	552,004
	Bolivia	20,500	1,464,000	670,000	847,000
	Brazil	3,343,200	4,298,000	755,800	4,317,370
	Canada	n.a	n.a	5,254,100	1,860,000
	Chile	255,700	1,695,200	897,060	456,900
	Colombia	167,250	14,68,400	1,967,669	20,000
	Costa Rica	30,200	70,000	694,890	327,000
	Dominica	44,650	22,000	195,000	20,000
	Ecuador	8,570	1,747,100	798,000	1,181,475
	El Salvador	0	1,780,000	560,610	3,192,600
	Grenada	4,700	5,300	5,500	889,000
	Guatemala	1,002,500	105,000	759,500	1,002,550
	Guyana	n.a	n.a	29,000	634,100
	Haiti	959	491,286	230,100	102,520
	Honduras	561,000	101,000	4,055,900	255,079
	Jamaica	1,700	1,176,640	45,000	1,378,215
	Martinique	81,000	68,000	160,010	300,000
	Mexico	254,300	4,954,800	7,737,810	13,299,600
	Nicaragua	847,380	756,000	1,122,022	3,050
	Panama	15,050	60,350	17,050	18,800
	Paraguay	50	82,000	6,687	30,820

Regional Organization	*Country*	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2009*
OAS	Peru	592,500	1,021,000	349,000	900,050
	St Kitts and Nevis	n.a	46,500	638,400	0
	St Lucia	n.a	1,089,280	0	40,500
	St Vincent and The Grenadines	n.a	26,600	0	16,000
	Suriname	n.a	0	0	0
	Trinidad and Tobago	5,000	0	25,127	1,000
	United States	11,556,000	35,362,570	156,010,150	344,251,790
	Uruguay	0	0	255,000	70,000
	Venezuela	0	6,800	3,245,500	54,000
	Virgin Is (US)	0	21,800	1,216,000	0
Total		*18,897,709*	*62,031,126*	*191,603,835*	*380,144,833*
SD		*2195544*	*6332246*	*26247767*	*58058285*
CV		*336.92*	*316.69*	*465.84*	*520.14*
SADC[327]	Angola	0	0	0	10,000
	Botswana	2,050	0	0	5,000
	Namibia	n.a	n.a	51,000	8,490
	South Africa	n.a	n.a	226,460	866,305
	Swaziland	0	54,152	1,739	50
	Madagascar	n.a	n.a	n.a	305,000
	Malawi	0	28,000	24,089	7,700
	Mauritius	n.a	n.a	175,000	50,000
	Mozambique	118,500	75,500	76,950	650,200

[327] Member states that show no figures for estimated economic damages from EM-DAT from the period 1970-2007 include Lesotho and the DRC.

Regional Organization	*Country*	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2009*
SADC	Seychelles	n.a	n.a	1,700	30,000
	Tanzania	3,000	0	3,790	0
	Zambia	200	0	20,700	0
	Zimbabwe	0	2,500,000	50,000	277,700
Total		*123,750*	*2,657,652*	*631,428*	*2,210,445*
SD		*35585*	*749487*	*70972*	*270093*
CV		*316.32*	*310.21*	*157.36*	*183.28*
PIF[328]	Australia	2,850,792	8,402,834	7,154,693	10,333,454
	Cook Is	0	25,000	0	0
	Fiji	23,500	219,507	142,100	128,699
	Micronesia Fed States	0	6,000	0	500
	New Zealand	2,466	249,800	226,500	534,500
	Niue	0	0	0	40,000
	Papua New Guinea	1,750	16,025	162,228	0
	Samoa	0	78,750	478,000	151,500
	Solomon Is	0	20,000	0	0
	Tonga	2,800	22,300	2,500	60,800
	Vanuatu	0	199,000	6,000	0
Total		*2,881,308*	*9,239,216*	*8,172,021*	*11,249,453*
SD		*712213*	*2088550*	*1776552*	*2571658*
CV		*395.49*	*361.68*	*347.83*	*365.76*
Mercosur	Argentina	105,000	3,930,000	2,752,000	2,268,210

[328] Member states that show no figures for estimated economic damages from EM-DAT from the period 1970-2007 include Tuvalu, Palau, Nauru, Kiribati, and the Marshall Islands.

Regional Organization	*Country*	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2009*
Mercosur	Brazil	3,343,200	4,298,000	755,800	4,317,370
	Paraguay	50	82,000	6,687	30,820
	Uruguay	0	0	255,000	70,000
Total		*3,448,250*	*8,310,000*	*3,769,487*	*6,686,400*
SD		*1654831*	*2356579*	*1246000*	*2050473*
CV		*191.96*	*113.43*	*132.22*	*122.67*
CARICOM	Antigua and Barbuda	0	80,000	450,000	0
	Bahamas	n.a	0	700,400	1,850,000
	Dominica	44,650	22,000	195,000	20,000
	Grenada	4,700	5,300	5,500	889,000
	Haiti	n.a	n.a	n.a	102,500
	Jamaica	1,700	1,176,640	45,000	1,378,215
	St Lucia	0	1,089,280	0	40,500
	St Vincent and The Grenadines	0	26,600	0	16,000
	Trinidad and Tobago	5,000	0	25,127	1,000
	Barbados	500	101,500	0	5,200
	Montserrat	0	240,000	28,000	0
	St Kitts and Nevis	0	46,500	638,400	0
	Belize	10,000	0	5,000	552,004
	Guyana	200	0	29,000	634,100
Total		*66,750*	*2,787,820*	*2,121,427*	*5,488,519*
SD		*12694*	*413406*	*251383*	*586981*
CV		*228.21*	*192.78*	*165.90*	*160.42*

Regional Organization	*Country*	*1970-1979*	*1980-1989*	*1990-1999*	*2000-2009*
LAS[329]	Algeria	40,000	5,202,000	61,829	5,701,017
	Egypt	14,000	0	1,342,000	0
	Libyan Arab Jamah	0	0	42,200	0
	Morocco	30,100	0	964,000	603,059
	Sudan	25,000	0	40,200	486,000
	Tunisia	5,000	90,000	242,800	0
	Iraq	0	0	0	1,300
	Jordan	0	0	401,000	0
	Lebanon	0	10,000	155,000	0
	Oman	0	0	0	3,951,000
	Saudi Arabia	0	450,000	0	900,000
	Syrian Arab Rep	39,000	0	0	0
	Yemen	12,700	3,105,400	1,211,500	400,000
	Djibouti	2,500	1100	2,119	0
	Mauritania	25,500	0	0	0
	Somalia	0	0	0	100,020
Total		*193,800*	*8,858,500*	*4,462,648*	*121,42,396*
SD		*41645*	*1287986*	*410792*	*1430786*
CV		*236.38*	*305.33*	*202.51*	*259.23*

Source: EM-DAT 2011b

[329] Member states that show no figures for estimated economic damages from EM-DAT from the period 1970-2007 include Bahrain, Kuwait, Palestine (West Bank), Qatar, United Arab Emirates, and Comoros.

Explanatory Note. The estimated economic damages from natural disasters per member state of each regional organization are displayed in Table 6.6. Only those member states that were affected, or that are members of the regional organizations displayed above, are placed in the Table. Those that are not included are listed in the corresponding footnotes. SD is the Standard Deviation and CV is the Coefficient of Variation. The SD is divided by the mean to produce the coefficient of variation (CV). The SD is helpful for showing the distribution of economic costs within a region in relation to the mean: the larger the SD the wider the distribution. The CV expresses the ratio of the SD to the mean, which provides for a more coherent comparison between regions as the CV does not rely on a single mean (cf. UCLA 2012). Note also that the figures are not adjusted for inflation as the difference between, rather than the value of, the figures is important. The abbreviation 'n.a' is reflective of countries that are not yet members of a regional organization.

6.6. Country-specific intra-regional power disparities

Table 6.7 Country-specific intra-regional power disparaties*

Regional organization	Country	1970-1979			1980-1989			1990-1999			2000-2007		
		% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.
ASEAN	Brunei	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.8	0.0	0.0	0.9	0.0
	Cambodia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.8	0.7	0.5
	Indonesia	15.1	40.1	604.2	13.5	39.4	534.5	55.1	30.3	1667.5	44.5	32.9	1465.4
	Lao P Dem Rep	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.4	0.3	0.1
	Malaysia	1.9	14.0	26.8	0.4	14.0	5.0	1.8	13.9	25.7	5.3	14.9	79.0
	Myanmar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.9	0.0	0.0
	Philippines	59.9	19.4	1165.5	51.4	15.6	799.7	17.1	12.4	211.9	7.8	11.8	92.5
	Singapore	0.0	6.7	0.0	0.0	8.8	0.0	0.0	13.6	0.0	0.0	13.4	0.0
	Thailand	23.1	19.8	455.7	34.7	20.5	710.5	14.6	24.6	360.0	7.4	19.2	143.0
	Vietnam	0.0	0.0	0.0	0.0	0.0	0.0	11.3	3.5	39.4	17.9	5.8	104.4
Total				*2252.3*			*2049.7*			*2304.6*			*1884.9*
EU[330]	Poland	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.2	2.3	0.6
	Portugal	n.a	n.a	n.a	n.a	n.a	n.a	0.2	1.3	0.3	4.7	1.4	6.4
	Bulgaria	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.0	0.2	0.0
	Hungary	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.1	0.7	0.0
	Czech Rep	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.3	0.9	0.3

[330] Malta shows no figures for estimated economic damages from EM-DAT from the period 1970-2007.

Regional organization	Country	1970-1979			1980-1989			1990-1999			2000-2007		
		% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi	% eco. dam.	% R-GDP	Multi	% eco. dam.	% R-GDP	Multi
EU	Denmark	0.0	2.6	0.0	0.7	2.2	1.6	4.3	2.0	8.5	1.4	1.8	2.5
	Estonia	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.1	0.1	0.0
	Finland	n.a	n.a	n.a	n.a	n.a	n.a	0.0	1.5	0.0	0.0	1.4	0.0
	France	0.0	22.6	0.0	14.0	20.2	283.5	21.5	17.3	372.2	10.7	15.2	161.8
	Ireland	0.0	0.6	0.0	0.0	0.7	0.0	0.9	0.8	0.7	0.0	1.4	0.0
	Iceland**	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.0	0.1	0.0
	Latvia	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.3	0.1	0.0
	Sweden	n.a	n.a	n.a	n.a	n.a	n.a	0.2	3.1	0.6	2.8	2.6	7.3
	Norway**	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.1	2.1	0.3
	Romania	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.0	0.8	0.0
	Slovakia	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.4	0.4	0.2
	Slovenia	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.4	0.3	0.1
	United Kingdom	0.0	15.6	0.2	4.8	16.7	80.7	11.3	14.7	166.0	18.6	15.6	290.7
	Austria	n.a	n.a	n.a	n.a	n.a	n.a	0.3	2.5	0.8	5.0	2.2	10.8
	Belgium	0.0	4.3	0.0	0.1	3.3	0.5	1.5	3.0	4.6	0.5	2.7	1.2
	Croatia**	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.3	0.3	0.1
	Germany	33.4	32.2	1075.9	2.8	27.0	75.6	12.5	26.1	325.5	24.9	20.0	496.6
	Lithuania	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.3	0.2	0.0
	Luxembourg	0.0	0.2	0.0	0.0	0.2	0.0	0.5	0.2	0.1	0.0	0.3	0.0
	Greece	n.a	n.a	n.a	5.9	1.6	9.3	8.9	1.5	13.1	2.7	1.7	4.6
	Italy	66.6	14.4	959.9	66.7	16.1	1076.8	22.0	14.5	318.2	18.8	12.6	236.3
	Cyprus	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.0	0.1	0.0
	Netherlands	0.0	6.2	0.0	0.0	5.0	0.0	4.3	4.5	19.4	0.9	4.6	4.3
	Spain	n.a	n.a	n.a	4.9	6.9	33.8	11.8	7.1	83.6	6.5	7.9	51.9

Regional organization	Country	1970-1979			1980-1989			1990-1999			2000-2007		
		% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.
EU	*Total*			*2036.6*			*1561.8*			*1313.6*			*1276.1*
LAS[331]	Algeria	20.6	10.3	212.9	58.7	13.7	805.2	1.4	9.4	13.1	47.0	8.5	398.5
	Egypt	7.2	7.8	56.6	0.0	8.1	0.0	30.1	11.8	354.4	0.0	9.7	0.0
	Libyan Arab Jamah	0.0	0.0	0.0	0.0	0.0	0.0	0.9	5.8	5.5	0.0	4.0	0.0
	Morocco	15.5	5.8	90.4	0.0	4.3	0.0	21.6	6.3	136.1	5.0	5.2	25.8
	Sudan	12.9	3.3	42.4	0.0	3.2	0.0	0.9	2.1	1.9	4.0	2.6	10.5
	Tunisia	2.6	2.6	6.8	1.0	2.3	2.3	5.4	3.4	18.5	0.0	2.8	0.0
	Bahrain	0.0	0.0	0.0	0.0	0.9	0.0	0.0	1.1	0.0	0.0	1.2	0.0
	Iraq	0.0	10.7	0.0	0.0	10.6	0.0	0.0	1.9	0.0	0.0	3.6	0.0
	Jordan	0.0	1.0	0.0	0.0	1.3	0.0	9.0	1.2	11.0	0.0	1.2	0.0
	Kuwait	0.0	7.4	0.0	0.0	5.7	0.0	0.0	4.8	0.0	0.0	6.7	0.0
	Lebanon	0.0	0.0	0.0	0.1	0.5	0.1	3.5	2.1	7.2	0.0	2.0	0.0
	Oman	0.0	1.1	0.0	0.0	2.1	0.0	0.0	2.7	0.0	32.5	2.8	90.6
	Palestine (West Bank)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.3	0.0
	Qatar	0.0	30.9	0.0	0.0	30.9	0.0	0.0	27.8	0.0	0.0	25.3	0.0
	Saudi Arabia	0.0	1.6	0.0	5.1	1.7	8.6	0.0	1.7	0.0	7.4	4.3	32.2
	Syrian Arab Rep	20.1	3.9	78.3	0.0	3.6	0.0	0.0	2.6	0.0	0.0	2.7	0.0
	United Arab Emirates	0.0	12.8	0.0	0.0	10.5	0.0	0.0	12.7	0.0	0.0	15.8	0.0
	Yemen	6.6	0.0	0.0	35.1	0.0	0.0	27.1	1.1	31.0	3.3	1.4	4.7
	Djibouti	1.3	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
	Mauritania	13.2	0.3	3.7	0.0	0.2	0.0	0.0	0.3	0.0	0.0	0.2	0.0
	Somalia	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.8	0.0	0.0
	Total			*491.1*			*816.2*			*578.7*			*562.2*

[331] Comoros shows no figures for estimated economic damages from EM-DAT from the period 1970-2007.

Regional organization	Country	1970-1979			1980-1989			1990-1999			2000-2007		
		% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.
OAS[332]	Antigua and Barbuda	n.a	n.a	n.a	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.01	0.00
	Argentina	0.6	2.6	1.4	6.3	2.0	12.4	1.4	2.6	3.7	0.6	1.39	0.83
	Bahamas	n.a	n.a	n.a	0.0	0.0	0.0	0.4	0.0	0.0	0.5	0.05	0.02
	Barbados	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.00
	Belize	n.a	n.a	n.a	n.a	n.a	n.a	0.0	0.0	0.0	0.1	0.01	0.00
	Bolivia	0.1	0.1	0.0	2.4	0.1	0.2	0.3	0.1	0.0	0.2	0.07	0.02
	Brazil	17.7	6.1	107.5	6.9	5.7	39.5	0.4	6.5	2.6	1.1	5.94	6.75
	Canada	n.a	n.a	n.a	n.a	n.a	n.a	2.7	6.3	17.4	0.5	6.70	3.28
	Chile	1.4	0.6	0.9	2.7	0.5	1.3	0.5	0.6	0.3	0.1	0.71	0.09
	Colombia	0.9	0.7	0.6	2.4	0.8	1.8	1.0	0.8	0.8	0.0	0.94	0.00
	Costa Rica	0.2	0.1	0.0	0.1	0.1	0.0	0.4	0.1	0.0	0.1	0.13	0.01
	Dominica	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.00	0.00
	Ecuador	0.0	0.2	0.0	2.8	0.2	0.7	0.4	0.2	0.1	0.3	0.22	0.07
	El Salvador	0.0	0.1	0.0	2.9	0.1	0.2	0.3	0.1	0.0	0.8	0.11	0.09
	Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.00	0.00
	Guatemala	5.3	0.2	1.0	0.2	0.2	0.0	0.4	0.1	0.1	0.3	0.17	0.05
	Guyana	n.a	n.a	n.a	n.a	n.a	n.a	0.0	0.0	0.0	0.2	0.01	0.00
	Haiti	0.0	0.0	0.0	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.03	0.00
	Honduras	3.0	0.1	0.2	0.2	0.1	0.0	2.1	0.0	0.1	0.1	0.06	0.00
	Jamaica	0.0	0.1	0.0	1.9	0.1	0.1	0.0	0.1	0.0	0.4	0.07	0.02
	Martinique	0.4	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.00	0.00

[332] St Vincent and the Grenadines shows no figures for estimated economic damages from EM-DAT from the period 1970-2007.

Regional organization	Country	1970-1979			1980-1989			1990-1999			2000-2007		
		% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.
OAS	Mexico	1.3	3.7	5.0	8.0	3.8	30.0	4.0	3.9	15.7	3.5	5.08	17.78
	Nicaragua	4.5	0.1	0.3	1.2	0.1	0.1	0.6	0.0	0.0	0.0	0.03	0.00
	Panama	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.10	0.00
	Paraguay	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.06	0.00
	Peru	3.1	0.6	1.9	1.6	0.4	0.7	0.2	0.5	0.1	0.2	0.52	0.12
	St Kitts and Nevis	n.a	n.a	n.a	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.00	0.00
	St Lucia	n.a	n.a	n.a	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.00
	Suriname	n.a	n.a	n.a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.00
	Trinidad and Tobago	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.10	0.00
	United States	61.2	82.6	5049.5	57.0	84.1	4795.4	81.4	76.8	6252.9	90.6	76.2	6903.8
	Uruguay	0.0	0.2	0.0	0.0	0.2	0.0	0.1	0.2	0.0	0.0	0.13	0.00
	Venezuela	0.0	1.5	0.0	0.0	1.3	0.0	1.7	0.7	1.2	0.0	1.08	0.02
	Virgin Is (US)	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.00	0.00
Total				5168.4			4882.7			6295.0			6933.0
AU	Algeria	2.7	13.4	36.7	57.3	19.6	1121.0	2.2	10.2	22.2	61.8	10.7	662.5
	Angola	0.0	0.0	0.0	0.0	2.8	0.0	0.0	1.5	0.0	0.1	3.9	0.4
	Benin	0.0	0.6	0.0	0.1	0.5	0.0	0.1	0.4	0.0	0.0	0.5	0.0
	Botswana	0.1	0.3	0.0	0.0	0.6	0.0	0.0	1.0	0.0	0.1	1.0	0.1
	Burkina Faso	0.0	0.8	0.0	0.0	0.7	0.0	0.0	0.5	0.0	1.6	0.6	0.9
	Burundi	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.1	0.0
	Cameroon	0.1	2.4	0.2	0.0	3.3	0.0	0.1	2.2	0.1	0.0	1.8	0.0
	Cape Verde Is	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
	Central African Rep	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.2	0.0

Regional organization	Country	1970-1979			1980-1989			1990-1999			2000-2007		
		% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.
AU	Chad	0.0	0.7	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0	0.5	0.0
	Comoros	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Congo	0.0	0.6	0.0	0.0	0.8	0.0	0.0	0.5	0.0	0.0	0.7	0.0
	Cote d'Ivoire	0.0	3.7	0.0	0.0	3.1	0.0	0.0	2.4	0.0	0.0	1.8	0.0
	Djibouti	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0
	Egypt	1.0	10.2	9.8	0.0	11.5	0.0	47.5	12.7	602.7	0.0	12.3	0.0
	Equatorial Guinea	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.8	0.0
	Eritrea	n.a	n.a	n.a	n.a	n.a	n.a	0.2	0.1	0.0	0.0	0.1	0.0
	Ethiopia	5.2	0.0	0.0	0.0	3.0	0.0	0.8	2.0	1.6	0.1	1.6	0.2
	Gabon	0.0	1.5	0.0	0.0	1.3	0.0	0.0	1.1	0.0	0.0	0.9	0.0
	Gambia The	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
	Ghana	0.0	2.5	0.0	0.0	1.7	0.0	1.2	1.4	1.6	0.0	1.6	0.0
	Guinea	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.7	0.0	0.0	0.4	0.0
	Guinea Bissau	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
	Kenya	0.8	3.0	2.3	0.0	2.6	0.0	0.4	2.1	0.9	1.1	2.2	2.4
	Lesotho	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.1	0.0
	Liberia	0.0	0.5	0.0	0.0	0.3	0.0	1.7	0.1	0.1	0.0	0.1	0.0
	Libyan Arab Jamah	0.0	0.0	0.0	0.0	0.0	0.0	1.5	6.2	9.3	0.0	5.1	0.0
	Madagascar	28.8	1.8	51.0	10.2	1.1	11.6	2.3	0.7	1.6	7.7	0.6	4.9
	Malawi	0.0	0.5	0.0	0.3	0.5	0.1	0.9	0.4	0.3	0.1	0.3	0.0
	Mali	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.0	0.6	0.0
	Mauritania	1.7	0.4	0.6	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.2	0.0
	Mauritius	25.7	0.3	8.5	0.7	0.5	0.3	11.0	0.8	8.5	0.5	0.7	0.4
	Morocco	2.1	7.6	15.6	0.0	6.2	0.0	n.a	n.a	n.a	n.a	n.a	n.a

Regional organization	Country	1970-1979			1980-1989			1990-1999			2000-2007		
		% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.
AU	Mozambique	8.1	0.0	0.0	0.8	1.2	1.0	2.7	0.6	1.7	7.0	0.7	4.9
	Namibia	n.a	n.a	n.a	n.a	n.a	n.a	1.8	0.7	1.2	0.1	0.7	0.1
	Niger	0.1	1.0	0.1	0.1	0.7	0.1	0.0	0.4	0.0	0.0	0.4	0.0
	Nigeria	0.0	22.6	0.0	0.9	12.9	11.3	2.4	6.3	14.9	0.1	12.1	1.6
	Rwanda	0.0	0.5	0.0	0.0	0.6	0.0	0.0	0.4	0.0	0.0	0.3	0.0
	Sao Tome et Principe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Senegal	20.7	1.7	34.8	0.0	1.4	0.0	0.0	1.1	0.0	0.4	0.9	0.4
	Seychelles	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.3	0.1	0.0
	Sierra Leone	0.2	0.6	0.1	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.1	0.0
	Somalia	0.0	0.5	0.0	0.0	0.3	0.0	0.0	0.2	0.0	1.1	0.0	0.0
	South Africa	n.a	n.a	n.a	n.a	n.a	n.a	8.0	28.2	226.3	9.4	22.9	215.0
	Sudan	1.7	4.3	7.3	0.0	4.5	0.0	1.4	2.3	3.3	5.3	3.3	17.4
	Swaziland	0.0	0.2	0.0	0.6	0.2	0.1	0.1	0.3	0.0	0.0	0.2	0.0
	Tanzania Uni Rep	0.2	0.0	0.0	0.0	1.7	0.0	0.1	1.3	0.2	0.0	1.6	0.0
	Togo	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0	0.2	0.0
	Tunisia	0.3	3.4	1.2	1.0	3.2	3.2	8.6	3.7	31.5	0.0	3.5	0.0
	Uganda	0.0	1.8	0.0	0.0	1.3	0.0	2.6	1.0	2.6	0.0	1.0	0.0
	Zaire/Congo Dem Rep	0.0	8.5	0.0	0.0	3.7	0.0	0.0	1.5	0.0	0.2	0.8	0.1
	Zambia	0.0	2.1	0.0	0.0	1.2	0.0	0.7	0.7	0.5	0.0	0.8	0.0
	Zimbabwe	n.a	n.a	n.a	27.5	2.6	72.2	1.8	1.6	2.8	3.0	0.6	1.9
	Total			*168.4*			*1221.0*			*934.1*			*913.2*
SADC	Angola	0.0	0.0	0.0	0.0	19.0	0.0	0.0	3.8	0.0	0.5	11.1	5.0
	DRC	0.0	56.4	0.0	0.0	25.2	0.0	0.0	3.9	0.0	0.0	2.3	0.0
	Botswana	1.7	2.1	3.4	0.0	4.0	0.0	0.0	2.5	0.0	0.2	2.9	0.7

Regional organization	Country	1970-1979			1980-1989			1990-1999			2000-2007		
		% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.
SADC	Lesotho	0.0	0.9	0.0	0.0	1.0	0.0	0.0	0.4	0.0	0.0	0.4	0.0
	Namibia	n.a	n.a	n.a	n.a	n.a	n.a	8.1	1.7	13.7	0.4	2.1	0.8
	South Africa	n.a	n.a	n.a	n.a	n.a	n.a	35.9	72.8	2611.0	39.2	64.9	2544.6
	Swaziland	0.0	1.5	0.0	2.0	1.4	2.8	0.3	0.8	0.2	0.0	0.7	0.0
	Madagascar	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	13.8	1.8	24.9
	Malawi	0.0	3.6	0.0	1.1	3.1	3.3	3.8	1.0	3.9	0.3	0.9	0.3
	Mauritius	n.a	n.a	n.a	n.a	n.a	n.a	27.7	2.0	55.2	2.3	2.0	4.5
	Mozambique	95.8	0.0	0.0	2.8	8.5	24.0	12.2	1.6	19.3	29.4	2.0	58.4
	Seychelles	n.a	n.a	n.a	n.a	n.a	n.a	0.3	0.3	0.1	1.4	0.2	0.3
	Tanzania	2.4	0.0	0.0	0.0	11.9	0.0	0.6	3.3	2.0	0.0	4.4	0.0
	Zambia	0.2	14.2	2.3	0.0	8.0	0.0	3.3	1.8	6.0	0.0	2.4	0.0
	Zimbabwe	0.0	21.3	0.0	94.1	18.1	1699.6	7.9	4.1	32.3	12.6	1.8	22.5
Total				*5.7*			*1729.8*			*2743.7*			*2662.1*
PIF[333]	Australia	98.9	85.0	8411.1	90.9	85.3	7759.5	87.6	85.5	7486.5	91.9	86.1	7908.5
	Cook Is	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fiji	0.8	0.6	0.5	2.4	0.5	1.2	1.7	0.4	0.7	1.1	0.3	0.4
	Marshall Is	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Micronesia Fed States	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	New Zealand	0.1	12.8	1.1	2.7	12.7	34.3	2.8	12.7	35.2	4.8	12.6	60.0
	Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
	Palau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Papua New Guinea	0.1	1.4	0.1	0.2	1.2	0.2	2.0	1.0	2.1	0.0	0.7	0.0
	Samoa	0.0	0.0	0.0	0.9	0.0	0.0	5.8	0.0	0.2	1.3	0.1	0.1

[333] Nauru, Kiribati, and Tuvalu show no figures for estimated economic damages from EM-DAT from the period 1970-2007.

Regional organization	Country	1970-1979			1980-1989			1990-1999			2000-2007		
		% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.
PIF	Solomon Is	0.0	0.1	0.0	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
	Tonga	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
	Vanuatu	0.0	0.1	0.0	2.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0
Total				*8412.8*			*7795.4*			*7524.7*			*7968.9*
Mercosur	Argentina	3.0	28.8	87.7	47.3	24.7	1168.5	73.0	27.7	2025.3	33.9	18.5	628.8
	Brazil	97.0	68.2	6608.3	51.7	72.1	3731.1	20.1	69.4	1391.9	64.6	79.0	5101.4
	Paraguay	0.0	0.9	0.0	1.0	1.2	1.2	0.2	0.8	0.1	0.5	0.8	0.3
	Uraguay	0.0	2.2	0.0	0.0	2.0	0.0	6.8	2.0	13.7	1.0	1.7	1.8
Total				*6696.0*			*4900.7*			*3431.0*			*5732.3*
CARICOM	Antigua and Barbuda	0	1.36	0	2.9	1.5	4.3	21.2	2.4	51.0	0	2.1	0
	Bahamas	n.a	n.a	n.a	0.0	15.0	0.0	33.0	18.5	612.0	33.7	15.0	505.1
	Dominica	66.9	0.74	49.2	0.8	0.7	0.6	9.2	1.0	9.5	0.4	0.8	0.3
	Grenada	7.0	1.16	8.2	0.2	0.9	0.2	0.3	1.3	0.3	16.2	1.3	21.4
	Haiti	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	1.9	9.1	17.0
	Jamaica	2.5	40.78	103.9	42.2	21.9	924.4	2.1	28.2	59.8	25.1	22.3	561.2
	St Lucia	0.0	0.18	0.0	39.1	1.4	55.3	0.0	2.6	0.0	0.7	1.8	1.3
	St Vincent and The Grena-dines	0.0	0.58	0.0	1.0	0.8	0.8	0.0	1.2	0.0	0.3	1.1	0.3
	Trinidad and Tobago	7.5	39.30	294.4	0.0	43.6	0.0	1.2	26.1	31.0	0.0	31.0	0.6
	Barbados	0.7	6.67	5.0	3.6	8.5	31.1	0.0	9.1	0.0	0.1	6.1	0.6
	Monstrerrat	0.0	0.00	0.0	8.6	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0
	St Kitts and Nevis	0.0	0.49	0.0	1.7	0.6	1.0	30.1	1.1	32.4	0.0	1.1	0.0
	Belize	15.0	1.72	25.8	0.0	1.6	0.0	0.2	2.8	0.7	10.1	2.2	22.4
	Guyana	0.3	7.04	2.1	0.0	3.3	0.0	1.4	2.6	3.6	11.6	2.4	27.3

Regional organization	Country	1970-1979			1980-1989			1990-1999			2000-2007		
		% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.	% eco. dam.	% R-GDP	Multi.
CARICOM	Suriname	0	0.00	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	3.7	0.0
Total				*488.5*			*1017.5*			*800.2*			*1157.5*
ECO	Afghanistan	3.7	2.3	8.7	6.8	1.5	9.9	0.4	0.0	0.0	0.2	0.9	0.2
	Iran Islam Rep	4.2	44.5	187.6	69.2	54.8	3791.8	60.8	24.9	1514.5	10.5	23.0	241.5
	Pakistan	83.7	11.9	996.4	0.1	13.0	1.6	2.1	14.4	29.6	68.6	12.7	869.6
	Kazakhstan	n.a	n.a	n.a	n.a	n.a	n.a	0.1	5.9	0.3	1.3	7.2	9.2
	Kyrgyzstan	n.a	n.a	n.a	n.a	n.a	n.a	0.3	0.5	0.2	0.0	0.3	0.0
	Tajikistan	n.a	n.a	n.a	n.a	n.a	n.a	0.8	0.4	0.3	9.5	0.3	2.8
	Turkmenistan	n.a	n.a	n.a	n.a	n.a	n.a	0.1	0.7	0.1	0.0	1.1	0.0
	Uzbekistan	n.a	n.a	n.a	n.a	n.a	n.a	0.0	3.7	0.0	0.5	2.0	0.9
	Azerbaijan	n.a	n.a	n.a	n.a	n.a	n.a	0.1	1.3	0.1	1.5	2.2	3.3
	Turkey	8.4	41.3	347.3	23.9	30.9	738.3	35.4	48.2	1706.9	7.9	50.4	397.7
Total				*1539.9*			*4541.6*			*3252.1*			*1525.2*

Source: EM-DAT 2011b; World Bank 2012.

* % eco. dam. = per cent of economic damages; R-GDP = Regional GDP; Multi. = Multiplication

** Note that while Iceland, Norway and Croatia are not members of the EU they are included in the last decade (2000-2007) because they are subsidiary members and active participants in EU community mechanism for civil protection.

Explanatory Note. The figures represented in Table 6.6 depict the calculations made for establishing the level of power disparities for each regional organization. This is achieved by calculating the percentage of regional GDP (per member state) and multiplying this with the percentage of regional estimated economic damages (per member state). The higher the number, the higher the concentration of total regional GDP and estimated economic damages in a single country. The GDP statistics are sourced from the World Bank database and the estimated economic damages are sourced from EM-DAT. For more on this see Chapter 3, p.100. The abbreviation 'n.a' is reflective of countries that are not yet members of a regional organization.

6.7. Change in the explanatory condititions over time

Table 6.8 Fuzzy-value comparison: increase in the explanatory values from nascent to advanced regional DRM cooperation

Regional Organization	*fv* STI			*fv* EXP			*fv* ASY			*fv* IPD		
	1970s	*2000s*	%	*1970s*	*2000s*	%	*1970s*	*2000s*	%	*1970s*	*2000s*	%
EU	0.66	0.89	34.9	0.12	0.08	-33.3	0.72	0.69	-4.2	0.36	0.18	-50.0
ASEAN	0.88	0.87	-1.1	0.99	0.20	-79.8	0.55	0.58	5.5	0.42	0.32	-23.8
PIF	0.87	0.91	4.6	0.96	0.10	-89.6	0.92	0.90	-2.2	0.96	0.95	-1.0
CARICOM	0.95	0.97	2.1	0.27	1.00	270.4	0.75	0.63	-16.0	0.07	0.16	128.6
Mercosur	0.82	0.95	15.9	0.87	0.08	-90.8	0.69	0.55	-20.3	0.90	0.85	-5.6
SADC	0.65	0.96	47.7	0.16	0.07	-56.25	0.86	0.67	-22.1	0.04	0.52	1200
LAS	0.16	0.66	312.5	0.34	0.10	-70.6	0.76	0.79	4.0	0.08	0.08	0.0
AU	0.06	0.92	1433.3	0.25	0.12	-52.0	0.85	0.95	11.8	0.05	0.12	140
OAS	0.83	0.88	6.02	0.34	0.16	-52.9	0.88	0.97	10.2	0.81	0.91	12.4
ECO	0.02	0.66	3200	0.94	0.12	-87.2	0.62	0.72	16.1	0.23	0.23	0.0
Total mean percentage change			505.6			-34.2			-1.7			140.0
*Total mean percentage change for advanced DRM**			230.0			-20.6			-1.6			175.8

Source: cf. Tables 3.3, 3.5, 3.7, 3.9* ECO and Mercosur excluded from analysis as they have are still more out than in the set of regional DRM.

Explanatory Note. Table 6.9 depicts the per cent increase of the explanatory conditions from the 1970s and 2000s. These figures are based on the fuzzy values from chapter 3, p. 104.

6.8. Comparison of regional DRM definitions and key terms

Table 6.9 Regional DRM framework definitions of key terms

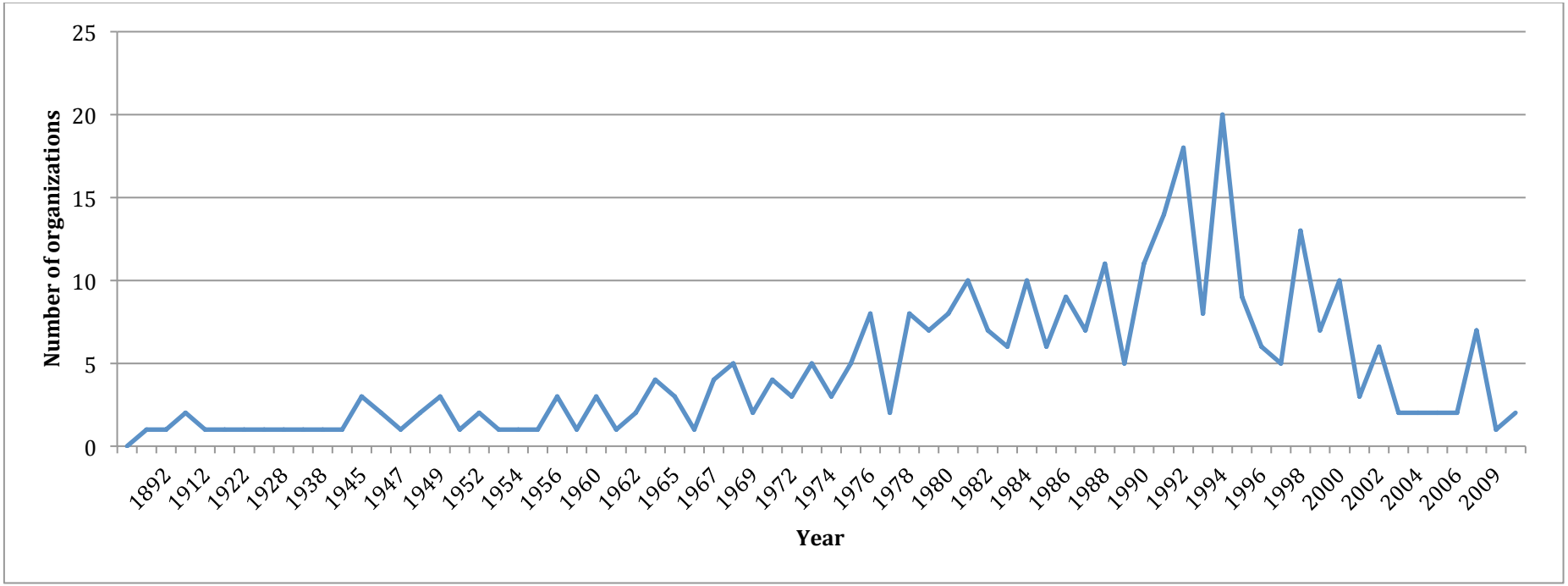
	EU	ASEAN	CARICOM	SADC	UNISDR
Disaster	'Major emergency: any situation which has or may have an adverse impact on people, the environment or property and which may result in a call for assistance under the Mechanism' (European Council 2007b).	'A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses' (ASEAN 2005).	'[A] sudden event attributable directly and solely either to the operation of the forces of nature or to human intervention or to both of them and characterised by widespread destruction of lives or property accompanied by extensive dislocation of public services, but excluding events occasioned by war, military confrontation or mismanagement' (CARICOM 1991).	'Disruption of functioning of society, causing widespread human, material, environmental losses exceeding the ability of the affected society to cope using its own resources' (SADC 2001a).	'A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources' (UNISDR 2004b).
Response	'Any action taken under the Mechanism during or after a major emergency to address its immediate consequences' (European Council 2007b).	'The provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or protracted duration' (ASEAN 2011b).	'The provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or protracted duration' (CARICOM 2007).	'Activates implemented immediately prior to and following a disaster including the activation of short as well as long-term disaster preparedness measures' (SADC 2001a).	'The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected' (UNISDR 2009g).

Preparedness	'A state of readiness and capability of human and material means enabling them to ensure an effective rapid response to an emergency, obtained as a result of action taken in advance' (European Council 2007b).	- Not stated -	'Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations' (CARICOM 2007).	'Measures to ensure readiness and ability of society, government, communities and organizations to forecast and take precautionary measures in advance of imminent threat and to response rapidly and effectively to disaster situations' (SADC 2001a).	'Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations' (UNISDR 2004b).
Early warning	'[T]he timely and effective provision of information that allows action to be taken to avoid or reduce risks and ensure preparedness for an effective response' (European Council 2007b).	'The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response' (ASEAN 2011b).	'The provision of the means by which people or organizations, use available resources and abilities to face adverse consequences that could lead to a disaster. In general, this involves managing resources, both in normal times as well as during crises or adverse conditions. The strengthening of coping capacities usually builds resilience to withstand the effects of natural and human-induced hazards' (CARICOM 2007).	- Not stated -	'The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response' (UNISDR 2004b).
Disaster Risk Management	- Not stated -	'The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disas-	'The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including	'Activates, decision and policies aimed at reducing the potential losses from hazards, assuring prompt and appropriate assistance to victims when necessary, and at achieving rapid and durable recovery' (SADC 2001a).	'The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid

		ters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards' (ASEAN 2011a)	structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards' (CARICOM 2007).		(prevention) or to limit (mitigation and preparedness) adverse effects of hazards' (UNISDR 2004b).
Disaster Risk Reduction	The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development. (European Commission 2008a, 5).	'A conceptual framework of elements considered with the possibilities to minimise vulnerabilities and disaster risks throughout a society, to avoid through prevention or to limit through mitigation and preparedness the adverse impacts of hazards, within the broad context of sustainable development' (ASEAN 2005).	'The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development' (CARICOM 2007).	'A systematic development and applications of policies, strategies and practices to minimize vulnerabilities and disaster risk and avoid (prevent) or limit (mitigate and prepare) the adverse impact of hazards within the broader context of sustainable development' (SADC 2001a).	'The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development' (UNISDR 2004b).

6.9. Emergence of DRM organizations

Table 6.10 Emergence of IGOs and INGOs in emergency and disaster relief: 1863-2010



Source: Authors own calculations; data retrieved from the Yearbook of International Organizations 2010

Explanatory note. Figure 6.2 is a graphic illustration of the number of DRM organizations that emerged from 1892 to 2009. The data was retrieved from the Yearbook of International Organizations. All conventional and nonconventional organizations were selected from the data base that appear under that key words 'emergency' or 'disaster'. For more detail see chapter 4, p. 168.

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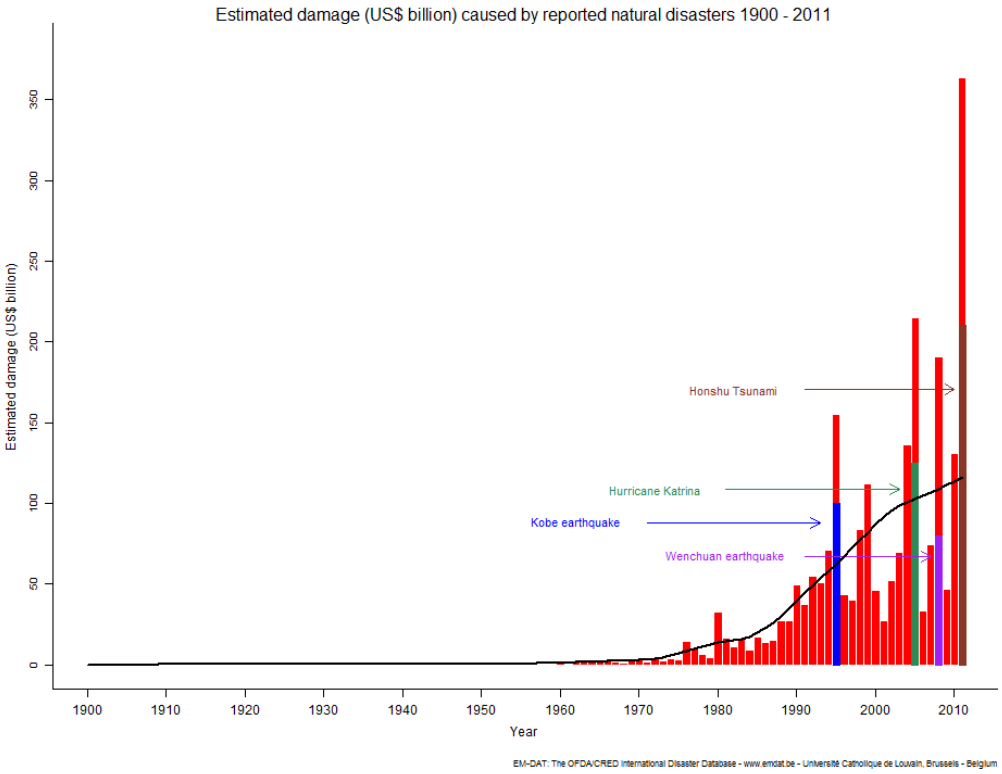
8. Appendix

8.1. Estimated damages caused by natural disasters

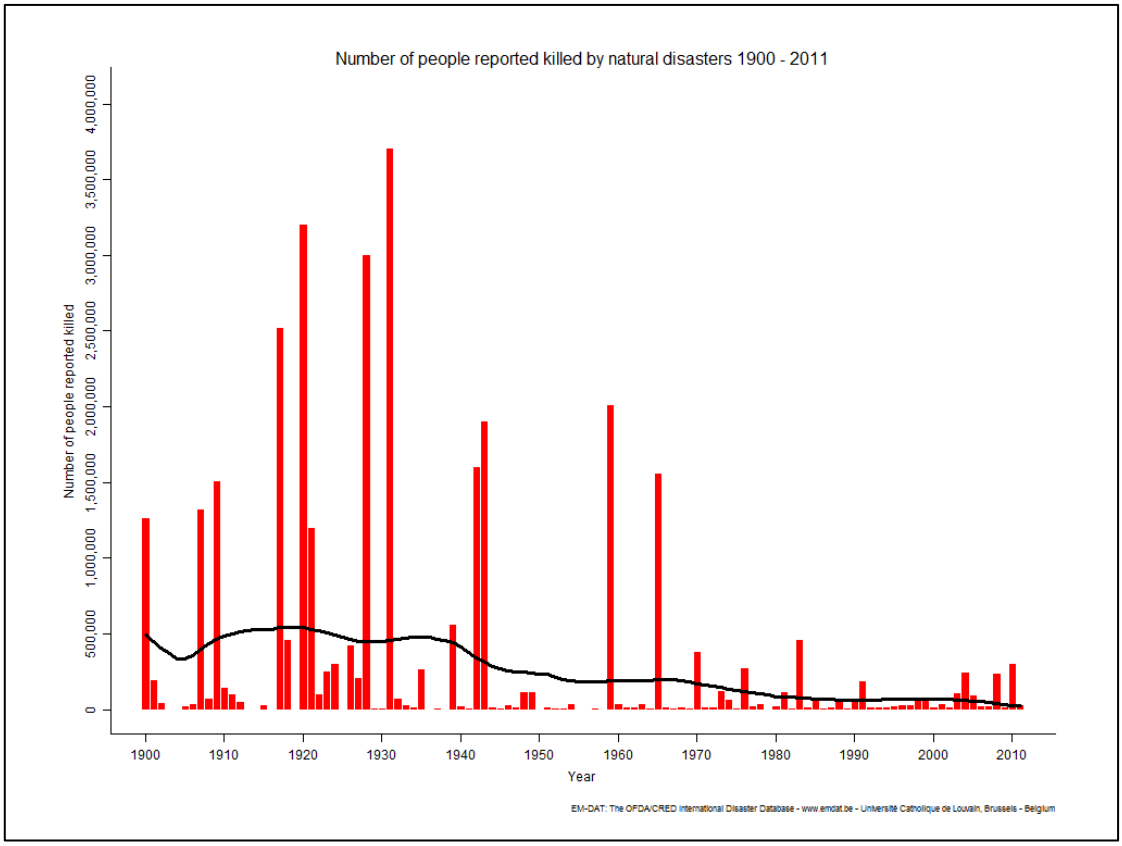
Figure 8.1 Estimated damage (US$billion) casued by reported natural disasters 1900-2011



Source: EM-DAT 2011a

8.2. Number of deaths resulting from natural disasters

Figure 8.2 Number of people reported killed by natural disasters 1900-2011



Source: EM-DAT 2011a