

WORKINGPAPER

UNU-EHS PUBLICATION SERIES

No. 22 | December 2015

**Livelihood resilience in a changing world –
6 global policy recommendations for a more sustainable future**

*Edited by Sonja Ayeb-Karlsson, Thomas Tanner,
Kees van der Geest and Koko Warner*

Contributing authors:

*Helen Adams, Istiak Ahmed, Ryan Alaniz, Stephanie Andrei,
Christian Barthelt, Malashree Bhargava, Robin Bronen,
Diana M. Contreras, Nicholas Cradock-Henry, Nishara Fernando,
Sarah Henly-Shepard, Saleemul Huq, Christopher Lawless,
David Lewis, Thomas Loster, Karen McNamara, Andrea Milan,
Tom Mitchell, Raphael Nawrotzki, Laura Olson, Vivek Prasad,
Ashiqur Rahman, Jakob Rhyner, Andrea Rivera Sosa, Diana Sietz,
Roger-Mark de Souza, Frank Thomalla, Elizabeth Tellman,
Gaetano Vivo, Casey Williams, David Wrathall and Zinta Zommers*



UNITED NATIONS
UNIVERSITY

UNU-EHS



Munich Re
Foundation
From Knowledge
to Action



ICCCAD

International Centre for
Climate Change and
Development
at
Independent University, Bangladesh
In partnership with BCAS and IIED

Livelihood resilience in a changing world: 6 global policy recommendations for a more sustainable future

December 2015

Edited by: Sonja Ayeb-Karlssonⁱ, Thomas Tannerⁱⁱ, Kees van der Geestⁱ and Koko Warnerⁱ

Contributing authors: Helen Adamsⁱⁱⁱ, Istiak Ahmed^{iv}, Ryan Alaniz^v, Stephanie Andrei^{iv}, Christian Barthelt^{vi}, Malashree Bhargava^{vii}, Robin Bronen^{viii}, Diana M. Contreras^{ix}, Nicholas Cradock-Henry^x, Nishara Fernando^{xi}, Sarah Henly-Shepard^{xii}, Saleemul Huq^{iv}, Christopher Lawless^{xiii}, David Lewis^{xiv}, Thomas Loster^{vi}, Karen McNamara^{xv}, Andrea Milanⁱ, Tom Mitchellⁱⁱ, Raphael Nawrotzki^{xvi}, Laura Olson^{xvii}, Vivek Prasad^{xviii}, Ashiqur Rahman^{xix}, Jakob Rhynerⁱ, Andrea Rivera Sosa^{xx}, Diana Sietz^{xxi}, Roger-Mark de Souza^{xxii}, Frank Thomalla^{xxiii}, Elizabeth Tellman^{xxiv}, Gaetano Vivo^{xxv}, Casey Williams^{iv}, David Wrathallⁱ and Zinta Zommers^{xxvi}

The six recommendations, mentioned in the title, were originally drafted by participants of the second Resilience Academy, listed as contributing authors, and subsequently edited by Sonja Ayeb-Karlsson, Thomas Tanner, Kees van der Geest and Koko Warner who take full responsibility for the content. For each recommendation, the paper states who were the original contributors.

ⁱ United Nations University Institute for Environment and Human Security (UNU-EHS)

ⁱⁱ Overseas Development Institute (ODI)

ⁱⁱⁱ University of Exeter

^{iv} International Centre for Climate Change and Development (ICCCAD)

^v California State Polytechnic University

^{vi} Munich Re Foundation (MRF)

^{vii} GIZ-DETA

^{viii} University of Alaska

^{ix} University of Salzburg

^x Landcare Research

^{xi} University of Colombo

^{xii} AmeriCares

^{xiii} Durham University

^{xiv} London School of Economics

^{xv} University of Queensland

^{xvi} University of Colorado

^{xvii} George Washington University

^{xviii} George Mason University

^{xix} University of South Florida

^{xx} National Autonomous University of Honduras

^{xxi} Wageningen University

^{xxii} Woodrow Wilson International Centre

^{xxiii} Stockholm Environment Institute (SEI)

^{xxiv} Arizona State University

^{xxv} World Bank

^{xxvi} UNEP

Acknowledgements

As a part of the 2013/2014 Resilience Academy, participants collaborated on a wide variety of research topics which resulted in a UNU-EHS working paper series published earlier this year together with a conceptual piece on “Livelihood resilience in the face of climate change”, which appeared in Nature Climate Change. Besides the working papers the participants worked in groups to draft policy recommendations based on the core concepts of livelihood resilience. The policy recommendations presented in this document represent the outcome of the working group discussions which argue for a better inclusion of livelihood resilience in the upcoming post-2015 sustainable development agenda.

We would like to thank the UNU-EHS Communication Unit for their support in publishing this paper.

Forewords

In 2013, the United Nations University Institute for Environment and Human Security (UNU-EHS), the International Centre for Climate Change and Development (ICCCAD) and Munich Re Foundation (MRF) began the five-year partnership research-to-action project Gibika (“livelihood” in Bengali) focused on livelihood resilience in Bangladesh. The Gibika project explores local research-based solutions and their transferability to other geographical and socio-economic contexts.

As an important complement to the locally based Gibika project, the project consortium is organizing the annual Resilience Academy, which aims to foster a broader and more overarching discussion of livelihood development. The Resilience Academy emphasizes the global importance of understanding and supporting livelihood resilience, especially among the most vulnerable population groups. In the last several years, the concept of resilience has attracted more and more attention in academia, among policy makers and within the development cooperation community. The concept’s growing popularity is evidenced by the 2014 UNDP Human Development Report, entitled “*Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience*”. The 2014 Human Development Report aims to provide a new perspective on vulnerability and proposes different ways of strengthening resilience. Despite these and other efforts, the many different ways of understanding the concept of livelihood resilience have produced a rather cumbersome discourse, limiting the concept’s applicability and usefulness in practice.

There are four important international processes that mark crucial milestones in 2015: The 3rd World Disaster Risk Reduction Conference on the Post Hyogo Framework in March 2015 in Sendai, Japan, the Third International Conference on Financing for Development in Addis Ababa, Ethiopia, the formulation of the Sustainable Development Goals, and the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP 21) in December 2015 in Paris.

Although these processes are global, livelihood resilience is where the rubber finally hits the road. One of the goals of the Resilience Academy is to analyse the different strands of the current livelihood resilience discussions and propose ways to connect academic discourse with global policymaking processes on the one hand, and local development practice on the other. This Policy Paper summarizes the dialogues and presents the preliminary findings and recommendations of the two first Resilience Academies, which took place in 2013 in Dhaka, Bangladesh and in 2014 in Chiemsee, Germany. I’m confident that this document will contribute to a clearer understanding of the linkage between livelihood resilience and human development.

Jakob Rhyner

Director

United Nations University - Institute for Environment and Human Security (UNU-EHS) &

United Nations University Vice-Rector in Europe (UNU-VIE)

Resilience is not just a new buzzword in the development and climate change adaptation community. The concept of resilience also provides one of the most promising approaches to poverty reduction, development, growth and sustainability.

Working with around 30 specialists in the Resilience Academy to discuss concepts for improving livelihoods in developing countries has been a privilege.

I had the pleasure to join meetings and discussions during the past two Resilience Academies – the first one in Bangladesh in 2013 and the second one in Germany in 2014. It was wonderful to see how, over the course of the meetings, the participants - scientists, practitioners and policy makers - and decision makers from more than 20 countries increasingly spoke the same technical language. Sharing a common language is an important pre-condition for successful policy making: decisions must be based on sober science and developed in a multi-stakeholder dialogue that includes the people who are most at risk. A second important principle for good policy was reflected in the concluding remarks of David Wrathall, one of the organizers of the Resilience Academies: "*Only when one views resilience and livelihoods together can one develop successful strategies.*"

The participants of the Resilience Academy describe in this Policy Paper how poverty, vulnerability and resilience are linked. Understanding the root causes of vulnerability for resilient livelihoods is crucial, and solutions must be based on human rights approaches. These are only two of many findings from the Resilience Academy.

2015 is a defining year. Important global agreements such as the UN Millennium Development Goals and the global UN Disaster Risk Reduction strategy end and are redrafted. New Sustainable Development Goals (SDGs) have been developed, and the World Climate Summit at the end of the year in Paris is supposed to reset the course of climate protection.

I hope that the recommendations emerging from the Resilience Academy will find their way into important policy processes around the central themes of sustainability and development. I also hope they find your interest. One thing is for sure: if strategists implement at least some part of these recommendations, they will be on the track to fighting poverty and building a better world.

Thomas Loster

Chairman

Munich Re-Foundation

The International Centre for Climate Change and Development at Independent University Bangladesh, together with the Institute for Environment and Human Security at the United Nations University in Bonn, Germany and the Munich Re Foundation, organized and ran two successive Resilience Academies in the last two years. The first was in 2013 in Bangladesh, and the second was in 2014 in Germany. The 2013 Resilience Academy in Bangladesh hosted thirty attendants drawn from nearly four hundred applicants from around the world. The event encouraged young scholars to consider what resilience means in the context of livelihoods under climate change in a vulnerable country like Bangladesh. The scholars not only studied resilience and exchanged ideas about this important concept, but also spent time with both rural and urban communities during field trips. After discussing their experiences, the participants drafted a high-level synthesis paper on resilience in the context of climate change and livelihoods that was published in *Nature Climate Change* (Tanner et al. 2015). They also identified a number of other aspects of resilience which, during the following twelve months, turned into a working paper series on resilience and related issues.

When the group met again the following year in Germany, they brought their draft manuscripts, had them mutually reviewed and finalized papers that are now being published in different fora, including in journals and as working papers.

This Policy Paper clarifies what Resilience means in the context of both climate change and disaster risk reduction. It is aimed among others at participants of the twenty-first Conference of Parties (COP21) being held in Paris, France in December 2015.

I am sure that participants at these important global meetings will find the policy brief both interesting and useful.

Saleemul Huq

Director

International Centre for Climate Change and Development (ICCCAD) &

Senior Fellow at International Institute for Environment and Development (IIED)

Table of Contents

| | |
|---|-----------|
| Acknowledgements | 2 |
| Forewords | 3 |
| Abbreviations and Acronyms | 7 |
| Glossary | 9 |
| Summary of recommendations | 14 |
| Purpose of this Policy Paper | 15 |
| Related policy spaces for livelihood resilience | 16 |
| Resilient livelihoods in a changing world | 17 |
| How climatic stress affects the livelihoods of the most vulnerable | 17 |
| Resilience – an integrating concept | 17 |
| Livelihood resilience: normative framing for international development | 18 |
| Resilience, poverty and vulnerability | 19 |
| Recommendation 1: | 21 |
| <i>Adopt a human rights perspective on livelihood resilience</i> | 21 |
| Recommendation 2: | 22 |
| <i>Address the root causes of vulnerability to allow for resilient livelihood systems</i> | 22 |
| Recommendation 3: | 23 |
| <i>Empowerment of poor and vulnerable people is crucial in building livelihood resilience</i> | 23 |
| Recommendation 4: | 24 |
| <i>Support those who cannot migrate when places become uninhabitable due to climatic stress</i> | 24 |
| Recommendation 5: | 25 |
| <i>Include identity and attachment to place in adaptation responses</i> | 25 |
| Recommendation 6: | 26 |
| <i>Build robust methods and big datasets for research in support of resilient livelihoods</i> | 26 |
| References | 27 |
| Gibika and the Resilience Academy | 30 |
| Gibika project | 30 |
| Resilience Academy..... | 30 |

Abbreviations and Acronyms

| | |
|----------|---|
| AR5 | Fifth Assessment Report |
| CMP | Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol |
| COP | Conference of the Parties to the United Nations Framework Convention on Climate Change |
| DFID | Department for International Development |
| DRM | Disaster Risk Management |
| DRR | Disaster Risk Reduction |
| FAO | Food and Agriculture Organization |
| FfD | Financing for Development |
| GIZ-DETA | Deutsche Gesellschaft für Internationale Zusammenarbeit (German Federal Enterprise for International Cooperation) - Development-oriented Emergency and Transitional Aid |
| HDI | Human Development Index |
| HFA | Hyogo Framework for Action |
| ICCCAD | International Centre for Climate Change and Development |
| ICESR | International Covenant on Economic, Social and Cultural Rights |
| IDS | Institute of Development Studies |
| IIED | International Institute for Environment and Development |
| IPCC | Intergovernmental Panel on Climate Change |
| MDG | Millennium Development Goal |
| MRF | Munich Re Foundation |
| ODI | Overseas Development Institute |
| OECD | Organisation for Economic Co-operation and Development |
| SDG | Sustainable Development Goal |
| SEI | Stockholm Environment Institute |
| SRC | Stockholm Resilience Centre |
| UDHR | Universal Declaration of Human Rights |
| UN | United Nations |
| UNDESA | United Nations Department of Economic and Social Affairs |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |

| | |
|---------|--|
| UNFCCC | United Nations Framework Convention on Climate Change |
| UNISDR | United Nations International Strategy for Disaster Reduction |
| UNU-EHS | United Nations University Institute for Environment and Human Security |
| UNU-VIE | United Nations University Vice-Rectorate in Europe |
| WCED | World Commission on Environment and Development |
| WG1 | Working Group I |
| WG2 | Working Group II |

Glossary

Adaptation^{xxvii}: “The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects” (Glossary, IPCC WG2 AR5 2014).

Climate Change: “Climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcing such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use. Note that the Framework Convention on Climate Change (UNFCCC), in its Article 1, defines climate change as: ‘a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.’ The UNFCCC thus makes a distinction between climate changes attributable to human activities altering the atmospheric composition, and climate variability attributable to natural causes” (Glossary, IPCC WG2 AR5 2014).

Community-based adaptation: “Local, community-driven adaptation. Community-based adaptation focuses attention on empowering and promoting the adaptive capacity of communities. It is an approach that takes context, culture, knowledge, agency, and preferences of communities as strengths” (Glossary, IPCC WG2 AR5 2014).

Coping^{xxviii}: “The use of available skills, resources, and opportunities to address, manage, and overcome adverse conditions, with the aim of achieving basic functioning of people, institutions, organizations, and systems in the short to medium term” (Glossary, IPCC WG2 AR5 2014). Coping strategies are ‘erosive’ when they undermine future livelihood security (van der Geest & Dietz 2004; Warner et al. 2012).

Disaster: “Severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with vulnerable social conditions, leading to widespread adverse human, material, economic, or environmental effects that require immediate emergency response to satisfy critical human needs and that may require external support for recovery” (Glossary, IPCC WG2 AR5 2014).

Disaster risk management (DRM): “Processes for designing, implementing, and evaluating strategies, policies, and measures to improve the understanding of disaster risk, foster disaster risk reduction and transfer, and promote continuous improvement in disaster preparedness, response, and recovery practices, with the explicit purpose of increasing human security, well - being, quality of life, and sustainable development” (Glossary, IPCC WG2 AR5 2014).

Disaster risk reduction (DRR): “Denotes both a policy goal or objective, and the strategic and instrumental measures employed for anticipating future disaster risk; reducing existing exposure, hazard, or vulnerability; and improving resilience” (Glossary, IPCC WG2 AR5 2014).

^{xxvii} Reflecting progress in science, this glossary entry differs in breadth and focus from the entry used in the Fourth Assessment Report and other IPCC reports.

^{xxviii} This glossary entry builds from the definition used in UNISDR (2009) and IPCC (2012a).

Early warning system^{xxix}: “The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities, and organizations threatened by a hazard to prepare to act promptly and appropriately to reduce the possibility of harm or loss” (Glossary, IPCC WG2 AR5 2014).

Ecosystem: “An ecosystem is a functional unit consisting of living organisms, their non-living environment, and the interactions within and between them. The components included in a given ecosystem and its spatial boundaries depend on the purpose for which the ecosystem is defined: in some case they are relatively sharp, while in others they are diffuse. Ecosystem boundaries can change over time. Ecosystems are nested within other ecosystems, and their scale can range from very small to the entire biosphere. In the current era, most ecosystems either contain people as key organisms, or are influenced by the effects of human activities in their environment” (Glossary, IPCC WG2 AR5 2014).

Environmental migration: “Environmental migration refers to human migration where environmental risks or environmental change plays a significant role in influencing the migration decision and destination. Migration may involve distinct categories such as direct, involuntary, and temporary displacement due to weather-related disasters; voluntary relocation as settlements and economies become less viable; or planned resettlement encouraged by government actions or incentives. All migration decisions are multi-causal, and hence it is not meaningful to describe any migrant flow as being solely for environmental reasons” (Glossary, IPCC WG2 AR5 2014).”

Environmental stressor^{xxx}: An event or trend, related to the natural environment, which has an important effect on the system exposed and can increase vulnerability to climate-related risk (adapted from Glossary, IPCC WG2 AR5 2014).

Extreme weather event: “An extreme weather event is an event that is rare at a particular place and time of year. Definitions of rare vary, but an extreme weather event would normally be as rare as or rarer than the 10th or 90th percentile of a probability density function estimated from observations. By definition, the characteristics of what is called extreme weather may vary from place to place in an absolute sense. When a pattern of extreme weather persists for some time, such as a season, it may be classed as an extreme climate event, especially if it yields an average or total that is itself extreme (e.g., drought or heavy rainfall over a season)” (Glossary, IPCC WG2 AR5 2014).

Food security^{xxxi}: “A state that prevails when people have secure access to sufficient amounts of safe and nutritious food for normal growth, development, and an active and healthy life” (Glossary, IPCC WG2 AR5 2014).

Hazard: “The potential occurrence of a natural or human-induced physical event or trend, or physical impact, that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, and environmental resources. In this report [IPCC WG2 AR5], the term hazard usually refers to climate-related physical events or trends or their physical impacts” (Glossary, IPCC WG2 AR5 2014).

Human security: “A condition that is met when the vital core of human lives is protected, and when people have the freedom and capacity to live with dignity. In the context of climate change, the vital

^{xxix} This glossary entry builds from the definition used in UNISDR (2009) and IPCC (2012a).

^{xxx} The IPCC WG2 AR5 glossary only includes an entry for 'stressor' and not for environmental stressor.

^{xxxi} This glossary entry builds from definitions used in FAO (2000) and previous IPCC reports.

core of human lives includes the universal and culturally specific, material and non-material elements necessary for people to act on behalf of their interests and to live with dignity” (Glossary, IPCC WG2 AR5 2014).

Industrialized/developed/developing countries: “There are a diversity of approaches for categorizing countries on the basis of their level of development, and for defining terms such as industrialized, developed, or developing. Several categorizations are used in this report. In the United Nations system, there is no established convention for the designation of developed and developing countries or areas. The United Nations Statistics Division specifies developed and developing regions based on common practice. In addition, specific countries are designated as least developed countries, landlocked developing countries, small island developing states, and transition economies. Many countries appear in more than one of these categories. The World Bank uses income as the main criterion for classifying countries as low, lower middle, upper middle, and high income. The UNDP aggregates indicators for life expectancy, educational attainment, and income into a single composite human development index (HDI) to classify countries as low, medium, high, or very high human development” (Glossary, IPCC WG2 AR5 2014).

Livelihood: “The resources used and the activities undertaken in order to live. Livelihoods are usually determined by the entitlements and assets to which people have access. Such assets can be categorized as human, social, natural, physical, or financial” (Glossary, IPCC WG2 AR5 2014).

Livelihood resilience: “The capacity of all people across generations to sustain and improve their livelihood opportunities and wellbeing despite environmental, economic, social and political disturbances” (Tanner et al. 2015).

Livelihood system: “An open system, interfacing with other systems and using various resources and assets to produce livelihood, with the household as the locus of livelihood generation” (Niehof 2004).

Loss and Damage: Although there is no universally agreed definition, loss and damage generally refers “the adverse effects of climate-related stressors that have not been or cannot be avoided through mitigation and adaptation efforts” (van der Geest & Warner 2015). For assessing loss and damage at local level, a more people-centred definition would be “negative effects of climate variability and climate change that people have not been able to cope with or adapt to” (Warner & van der Geest 2013).

Maladaptive actions (or maladaptation): “Actions that may lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future” (Glossary, IPCC WG2 AR5 2014).

Poverty: “Poverty is a complex concept with several definitions stemming from different schools of thought. It can refer to material circumstances (such as need, pattern of deprivation, or limited resources), economic conditions (such as standard of living, inequality, or economic position), and/or social relationships (such as social class, dependency, exclusion, lack of basic security, or lack of entitlement)” (Glossary, IPCC WG2 AR5 2014).

Poverty trap: “Poverty trap is understood differently across disciplines. In the social sciences, the concept, primarily employed at the individual, household, or community level, describes a situation in which escaping poverty becomes impossible due to unproductive or inflexible resources. A poverty trap can also be seen as a critical minimum asset threshold, below which families are unable

to successfully educate their children, build up their productive assets, and get out of poverty. Extreme poverty is itself a poverty trap, since poor persons lack the means to participate meaningfully in society. In economics, the term poverty trap is often used at national scales, referring to a self-perpetuating condition where an economy, caught in a vicious cycle, suffers from persistent underdevelopment (Matsuyama 2008). Many proposed models of poverty traps are found in the literature” (Glossary, IPCC WG2 AR5 2014).

Resilience: “The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation (Arctic Council 2013)” (Glossary, IPCC WG2 AR5 2014).

Risk^{xxxii}: “The potential for consequences where something of human value (including humans themselves) is at stake and where the outcome is uncertain. Risk is often represented as probability of occurrence of hazardous events or trends multiplied by the consequences if these events occur” (Glossary, IPCC WG2 AR5 2014).

Social protection: “In the context of development aid and climate policy, social protection usually describes public and private initiatives that provide income or consumption transfers to the poor, protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalized, with the overall objective of reducing the economic and social vulnerability of poor, vulnerable, and marginalized groups (Devereux & Sabates-Wheeler 2004). In other contexts, social protection may be used synonymously with social policy and can be described as all public and private initiatives that provide access to services, such as health, education, or housing, or income and consumption transfers to people. Social protection policies protect the poor and vulnerable against livelihood risks and enhance the social status and rights of the marginalized, as well as prevent vulnerable people from falling into poverty” (Glossary, IPCC WG2 AR5 2014).

Sustainable development: “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED 1987)” (Glossary, IPCC WG2 AR5 2014).

Tipping point^{xxxiii}: “A level of change in system properties beyond which a system reorganizes, often abruptly, and does not return to the initial state even if the drivers of the change are abated” (Glossary, IPCC WG2 AR5 2014).

Traditional knowledge: “The knowledge, innovations, and practices of both indigenous and local communities around the world that are deeply grounded in history and experience. Traditional knowledge: is dynamic and adapts to cultural and environmental change, and also incorporates other forms of knowledge and viewpoints. Traditional knowledge is generally transmitted orally from generation to generation. It is often used as a synonym for indigenous knowledge, local knowledge, or traditional ecological knowledge” (Glossary, IPCC WG2 AR5 2014).

Transformation: “A change in the fundamental attributes of a system, often based on altered paradigms, goals, or values. Transformations can occur in technological or biological systems, financial structures, and regulatory, legislative, or administrative regimes” (Glossary, IPCC WG2 AR5

^{xxxii} This definition builds from the definitions used in Rosa (1998) and Rosa (2003).

^{xxxiii} The WGI AR5 defines tipping point in the context of climate: “In climate, a hypothesized critical threshold when global or regional climate changes from one stable state to another stable state. The tipping point event may be irreversible.”

2014).

United Nations Framework Convention on Climate Change (UNFCCC): “The Convention was adopted on 9 May 1992 in New York and signed at the 1992 Earth Summit in Rio de Janeiro by more than 150 countries and the European Community. Its ultimate objective is the ‘stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.’ It contains commitments for all Parties. Under the Convention, Parties included in Annex I (all OECD countries and countries with economies in transition) aim to return greenhouse gas emissions not controlled by the Montreal Protocol to 1990 levels by the year 2000. The convention entered in force in March 1994. In 1997, the UNFCCC adopted the Kyoto Protocol” (Glossary, IPCC WG2 AR5 2014).

Vulnerability^{xxxiv}: “The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt” (Glossary, IPCC WG2 AR5 2014).

^{xxxiv} Reflecting progress in science, this glossary entry differs in breadth and focus from the entry used in the Fourth Assessment Report and other IPCC reports.

Summary of recommendations

1. Adopt a human rights perspective on livelihood resilience

Human rights are fundamental needs and freedoms that should be guaranteed to all people. To address the needs of the most vulnerable populations, international policy frameworks should treat resilient livelihoods as a human right.

2. Address the root causes of vulnerability to allow for resilient livelihood systems

To improve the living conditions of the poorest and most vulnerable people in the world and to establish resilient livelihood systems, policy makers must understand and address the root causes of vulnerability.

3. Empower poor and vulnerable people as a central pillar of building livelihood resilience

Empowerment and institutional support are crucial in building livelihood resilience of vulnerable people in ways that promote human rights and economic development.

4. Support those who cannot migrate when places become uninhabitable due to climatic stress

Global policy frameworks must acknowledge that not everyone affected by environmental stress or natural disasters has the capability to migrate. The people who stay behind are often the most vulnerable and in need of protection and support.

5. Include identity and attachment to place in adaptation responses

A broader understanding of socio-cultural values, such as identity and attachment to place, should be included in international policy frameworks to make adaptation measures more sustainable and effective.

6. Build robust methods and big datasets for research in support of resilient livelihoods

Innovative methodological approaches are needed to support the design of effective policy for a transition towards a more resilient future. Methods for tracking livelihood resilience should include qualitative and quantitative research tools.

Purpose of this Policy Paper

2015 is a time for opportunity. The coming years will witness the development of three inter-related international policy frameworks around sustainable development, climate change and disasters. An international policy window for climate change and development is opening up in 2015, with the coincidence of the United Nations Framework Convention on Climate Change COP 21 meeting to create a successor to the Kyoto Protocol, the 3rd World Disaster Risk Reduction Conference on the Post-Hyogo Framework for Action, and the agreement of a new set of Sustainable Development Goals with associated financing mechanisms.

This Policy Paper makes a case to international policy makers, national government representatives, UN agencies and other development actors for an integrative approach across these three inter-related international processes centred on strengthening the lives and livelihoods of all people across the world. We present recommendations that underpin an approach to tackling climate change impacts that highlights the critical importance in a rapidly changing world of livelihood resilience for all; and emphasizing the need for livelihood protection especially for the world's most vulnerable.

Related policy spaces for livelihood resilience

The global frameworks that this Policy Paper speaks to have much in common.^{xxxv} They all reflect a desire to secure wellbeing for all in the face of environmental stress and disasters; to cooperate on a global level; and to create a more sustainable world for future generations.

To summarize, these four international policy frameworks are important for several reasons:

1. ***The 3rd World Conference on Disaster Risk Reduction held in Sendai, Japan, in March 2015. The Hyogo Framework for Action (HFA) was replaced by the Hyogo Framework for Action 2 also referred to as the Sendai Framework for Disaster Risk Reduction and Resilience 2015-2030.*** There had been calls for an improved version of the past HFA, with a set of common standards, a comprehensive framework with achievable targets and a legally-based instrument for disaster risk reduction. Member states have also emphasised the need to tackle disaster risk reduction and climate change adaptation when setting the Sustainable Development Goals, particularly in light of an insufficient focus of risk reduction and resilience in the original Millennium Development Goals^{xxxvi}.
2. ***The Third International Conference on Financing for Development (FfD) took place in Addis Ababa, Ethiopia between the 13th and 16th July 2015.*** The conference aimed to assess the progress made in the implementation of the Monterrey Consensus and the Doha Declaration as well as to identify solutions to obstacles and constraints encountered in the achievement of the goals. New and emerging issues addressed included the recent multilateral efforts to promote international development cooperation. High-level policy makers gathered to agree on a new framework to *finance* the ambitious post-2015 *development* agenda and to make sure that it aligns financial flows and policies with economic, environmental and social priorities. The policy action plan by Member States includes a package with over a hundred concrete measures to support the mobilization of a global transformation to sustainable development and the SDGs^{xxxvii}.
3. ***The UN General Assembly's Rio+20 agreements have set in motion an ambitious articulation of the Post-2015 Sustainable Development Goals (SDGs) in the September 2015 Conference, New York, USA.*** The Sustainable Development Goals are to replace the Millennium Development Goals (MDGs) as they expire at the end of 2015. The current proposal of seventeen SDGs includes ending poverty and hunger, improving health and education, making cities more sustainable, combating climate change and protecting oceans and forests^{xxxviii}. While there has been a tendency for fragmentation around diffuse goals, needs and strategies, we believe that livelihood resilience could serve as a constructive 'boundary object' that can help merge discourses around one common objective: pro-poor sustainable development policy.
4. ***The United Nations Climate Change Conference, COP21 or CMP11, will be held in Paris, France in December 2015.*** This will be the 21st yearly session of the Conference of the Parties (COP 21) to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) and the 11th session of the Meeting of the Parties (CMP 11) to the 1997 Kyoto Protocol. The conference objective is to achieve a legally binding and universal agreement

^{xxxv} Roberts et al. (2015) analyse the overlap between these policy spaces in more detail.

^{xxxvi} UNISDR (2015) <http://www.unisdr.org/we/coordinate/sendai-framework>

^{xxxvii} UNDESA (2015) <http://www.un.org/esa/ffd/ffd3/conference.html>

^{xxxviii} UNDESA (2015) <http://www.un.org/en/development/desa/news/sustainable/un-adopts-new-global-goals.html>

on climate change, with the aim of keeping global warming below 2°C and to achieve full climate neutrality by the end of the century. The meeting will mark a decisive stage in the negotiations on the future international agreement for a post-2020 regime^{xxxix}.

Much is at stake, and it is important not to forget those who are in most need of international frameworks: the poor and most vulnerable. The risk when establishing four parallel framework tracks of this size is that they may lack coherence and result in separate outputs.

Resilient livelihoods in a changing world

How climatic stress affects the livelihoods of the most vulnerable

Livelihood systems are an essential framework for human organization. They include social and economic networks, maintain cultural practices and enable upward socio-economic mobility over generations. Livelihoods are sustainable when they enhance the wellbeing of current and future generations without degrading the environment or depleting resource bases (Chambers & Conway 1992). Livelihood shocks, whether economic, environmental, socio-cultural or health-related, can undermine long-term development prospects and push people into cycles of poverty and unhealthy living conditions (Wilkinson & Peters 2015).

Climate change increases the pressure on already vulnerable livelihoods, and particularly those that depend on natural resources. It also prolongs already existing poverty loops, expands inequalities, heightens food-insecurity and inhibits economic growth, poverty reduction and sustainable development. Recovery from losses and damages is more difficult for the most vulnerable people whose livelihood security depends on land and other natural resources. Disaster risk reduction, access and control of local resources, social safety nets, diverse livelihood opportunities and secure income assets are key priorities that should be included in a sustainable development model. Cooperation between individuals and governments, and between national and sub-national levels, is crucial in ensuring effective adaptation responses to climatic stress. Poor planning which only focuses on short-term solutions or which is incapable to assess longer-term consequences, will likely result in mal-adaptation, which in turn will increase the vulnerability of already vulnerable groups, and limit future choices by locking vulnerable people into cycles of dependence (IPCC WG2 AR5 2014).

Resilience – an integrating concept

Definitions of resilience are heavily informed by work on linked social-ecological systems. According to this research, a resilient system is one that is able to retain core structures and functions in the face of significant disturbances, while still retaining the ability to change and develop (Nelson et al. 2010). The resilience concept has proved popular as a way of thinking beyond coping strategies and moving towards adaptation to changing environmental conditions that entail the capacity to cooperate, learn and further enhance resilience under future conditions (Moser 2008).

Resilience has emerged as an increasingly popular concept in the context of climate change and development, bringing together a range of overlapping issues, including adaptation, disaster risk reduction, poverty reduction, food security, nutrition and conflict. According to Bahadur et al. (2013)

^{xxxix} UNFCCC (2015) http://unfccc.int/meetings/paris_nov_2015/meeting/8926.php

resilience thinking extends our understanding of how to reduce and manage risks in the following aspects:

- **A high level of diversity** in terms of adaptation options, livelihood strategies and opportunities, access to assets, and community engagement, as well as the use of diverse sources of knowledge in making decisions.
- **An understanding of multiple and overlapping systems affecting livelihoods**, their inter-relationships and different rates of change.
- **Effective institutions that are connected across scales**, able to facilitate learning processes and perform specialised functions such as translating scientific climate data for policy making as well as help protecting the livelihood security of the most vulnerable.
- **Embracing uncertainty and change** rather than resisting them, by building in redundancy within systems so that partial failure does not lead to system collapse, and by rejecting the idea of restoring systems to prior state after a disturbance, given that the prior state may have contributed to its vulnerability.
- **A high degree of equity**, both social and economic, enabling resilient systems to distribute risks fairly across different parts of the system or community.

Livelihood resilience: normative framing for international development

A resilience approach, in which systems become the unit of analysis and policy prescription, tends to ignore the people within these systems and their different capacities to cope with shocks and adapt to change. How much a given disturbance affects a person's livelihood depends on several inter-related factors, such as resource access, power structure, risk management and social capital. The imbalance of these factors plays an important role in determining how big the loss and suffering will be in relation to the environmental stress (Tanner et al. 2015).

Moving the concept of resilience from its roots in engineering and ecological theory to apply to human system requires an additional normative layer that asks: *What kind of Resilience? Resilience for whom? Who decides what and who is resilient? And based on what value system?* In addition, resilience should not be seen as a quick fix providing a new desired end goal for development efforts. Resilience should rather be seen as a process that helps ensure that trajectories of reduced poverty and improved wellbeing are maintained and enhanced.

A normative examination of resilience is particularly important in the light of ethical dimensions of climate change. Climate change is not exclusively an environmental problem that needs to be addressed in scientific or technical ways. It must also be studied through a justice lens. Because of the unequal distribution of resources climate change poses the greatest threat for those who have done the least to cause it, including minority groups in some cases and future generations.

Livelihood resilience is defined as *“the capacity of all people across generations to sustain and improve their livelihood^{xi} opportunities and wellbeing despite environmental, economic, social*

^{xi} 'Livelihood' is understood as 'capabilities, assets (stores, resources, claims or access) and activities required for a means of living'; "A livelihood is sustainable when it can cope with and recover from stresses or shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base." (Carney 1998)

and political disturbances” (Tanner et al. 2015:23). Applying resilience from a livelihood perspective helps to bring some of these crucial normative questions to the fore. Resilience is not only a question about meeting needs, but also about whose needs are being met. Increasing some people’s livelihood resilience might result in less resilient livelihoods for other people. This makes people and their wellbeing the central focus, underpinned by an emphasis on rights and justice. Livelihood resilience also relates to wider development processes that transform adaptive capacities and livelihood opportunities.

Resilience, poverty and vulnerability

Vulnerability is often used as an antonym of resilience, and yet, in some contexts they coexist. Poor households can be both highly resilient and highly vulnerable to shocks and stresses. If we look at resilience to adversity associated with one’s environment, those in poverty are certainly more vulnerable than the wealthy. In poor communities, the environment presents individuals with more risks and fewer services than in wealthy communities. On the other hand, people living in economically poor communities often have a great deal of social capital, such as informal reciprocal relationships between individuals and families and broader networks, like community organizations. Social capital can provide sources of strength, both during and after a crisis.

Poverty does not equate to helplessness. The economically poor usually work hard to build their resilience. The provision of direct solutions to poverty, such as new housing, employment opportunities and health care services might reduce adversity and move some out of poverty. But it does not necessarily build resilience. People have endogenous ways to cope with adversity and to self-organize to increase resilience but they are not always successful. Also, poorly designed institutions, even well-meaning ones, can erode people’s adaptive capacity (Martin-Breen & Anderies 2011).

In drafting policy to protect the most vulnerable it is crucial to remember that resilience is not only about increased income. Higher income does not automatically equal increased resilience, nor does low income automatically result in decreased resilience. Additional factors such as social, cultural, health or wellbeing play an important role in the ultimate outcome. Not all the vulnerable are poor and not all the resilient are rich. It is also important to recognize the impact or self-fulfilling prophecy of reproducing someone as resilient or vulnerable (Cannon & Müller-Mahn 2010). This is a common theme across resilience-focused fields.

Individuals who have risen out of poverty, but who lack social capital and supportive relationships, may be highly vulnerable to economic shocks, even if they are currently employed and have access to adequate health care, food and shelter. Conversely, individuals who live in poverty but who have rights to their homes, supportive households and a high degree of social capital can weather a great deal. If the poor are assumed to be helpless victims, policy frameworks are more likely to target only the economic aspect of poverty and exclude social and cultural aspects of poverty. This reduces existing sources of resilience, such as social networks, identity, cultural well being etc. Recognizing existing sources of strength and fostering them are necessary steps in promoting resilience (Martin-Breen & Anderies 2011). Reproducing people as highly resilient can have the opposite effect as questions such as *why do already resilient people need support and protection?* arise. A clear understanding and awareness of the social values included in the resilience concept are therefore crucial.

This Policy Paper highlights focus areas that need to be taken into consideration when designing policy on disaster risk reduction, sustainable development and climate change. To be able to ensure the wellbeing of and livelihood opportunities for all human beings, the following policy recommendations must be brought into the policy consultations.

Recommendation 1:

Adopt a human rights perspective on livelihood resilience^{xli}

Human rights are fundamental needs and freedoms that should be guaranteed to all people. These rights are considered entitlements that supersede the sovereignty of nation states. The universal principles that guarantee the right to food, housing, health and property form a normative and legal basis for defining, measuring and promoting 'desirable states'. These rights are crucial to human dignity and need to be better incorporated into the resilience approach of global policy frameworks.

The meaning of 'livelihood resilience' is reflected in several of the Articles of the Universal Declaration on Human Rights (UDHR^{xlii}) and in the International Covenant on Economic, Social and Cultural Rights (ICESCR^{xliii}). These are the most important sources of international legal protection of economic, social and cultural rights. There remains a need, however, to reproduce and establish a general understanding of a human rights approach to 'livelihood resilience' in the UNFCCC, HFA and SDG policy frameworks. Introducing a human rights perspective to livelihood resilience of the most vulnerable on a global level demands for protection of for example life, health, education, culture, wellbeing and food-security of climate induced migrants and victims of natural disasters.

A human rights approach would focus on the harm caused by climate-induced environmental change and establish a moral and legal responsibility to respond. Reframing livelihood resilience in terms of human rights places a duty on nation states to improve the living conditions of their inhabitants. This is particularly important in the case of poor and vulnerable people who live under extreme pressure. If nation-states do not have the resources to protect the rights of their inhabitants, an international policy with a strong human rights perspective should help states to build their capacity to fulfil obligations to their people.

^{xli} This recommendation was originally drafted by *Robin Bronen and Ryan Alaniz* during the second Resilience Academy and subsequently edited by Sonja Ayeb-Karlsson, Thomas Tanner, Kees van der Geest and Koko Warner who take full responsibility for the content.

^{xlii} The Universal Declaration on Human Rights (UDHR), adopted by the UN General Assembly in 1948, recognizes the right to social security in Article 22, the right to work in Article 23, the right to rest and leisure in Article 24, the right to an adequate standard of living in Article 25, the right to education in Article 26, and the right to benefits of science and culture in Article 27.

^{xliii} The International Covenant on Economic, Social and Cultural Rights (ICESCR) is the primary international legal source of economic, social and cultural rights. The Covenant recognized and protects the right to work and to just and favourable working conditions in Article 6 and 7, the right to join trade unions and take collective labour action in Article 8, the right to social security in Article 9, the right to protection of the family, including protection for mothers and children, in Article 10, the right to an adequate standard of living, including the right to food and the right to housing, in Article 11, the right to health in Article 12, the right to education in Article 13, as well as the right to participate in cultural life and the right to benefits of science and culture in Article 15. The International Covenant on Civil and Political Rights, adopted at the same time as the ICESCR, recognizes and protects a number of core economic, social and cultural rights, including the right to join trade unions in Article 22, and the right of ethnic, religious or linguistic minorities to engage in their culture, practice their religion and use their language in Article 27.

Recommendation 2:

Address the root causes of vulnerability to allow for resilient livelihood systems^{xliv}

Local livelihood systems are dynamic and complex and include the resources humans rely on to live. These include, for example, freshwater, arable land, favourable climates, social networks, education opportunities, physical infrastructure, telecommunications and financial assets.

When drafting global policy frameworks, attention needs to be drawn to structures and norms that influence and control access to these resources or which restrict transitions to more resilient livelihoods.

Current efforts to build resilience to climate change and disaster risk are being undermined by our lack of consideration of the root causes of vulnerability. Examples of root causes of vulnerability are:

- Social norms or governance dynamics that marginalise women and prevent their access to decision-making processes.
- Local power relations that provide conditions for 'elite capture' or restrict people's access to natural resources that are crucial for sustainable livelihoods.
- Unequal distribution of land and other livelihood assets in rural communities.

Inequalities, whether relating to voice and power, resource access and landlessness, or a combination of these can create conditions in which certain people get trapped in cycles of poverty and vulnerability. Without understanding and addressing root causes of vulnerability, there is a high risk of failure in development policy, climate change adaptation and disaster risk reduction. Moreover, a failure to address root causes of vulnerability in these policy arenas can further marginalize people and worsen their livelihood conditions.

^{xliv} This recommendation was originally drafted by *Karen McNamara, Roger-Mark de Souza, Laura Olson and Vivek Prasad* during the second Resilience Academy and subsequently edited by *Sonja Ayeb-Karlsson, Thomas Tanner, Kees van der Geest and Koko Warner* who take full responsibility for the content.

Recommendation 3:

Empowerment of poor and vulnerable people is crucial in building livelihood resilience^{xlv}

New approaches are urgently needed to uphold social justice in years to come. Opportunities exist for institutions to address the needs of vulnerable people in ways that promote human rights and economic development. These institutions include government, the private sector and civil society. Civil society can play a role in organizing community-level structures and shaping demands for change. Existing humanitarian, development and climate financing can be leveraged to provide measures for safeguarding the livelihoods of vulnerable populations from the impacts of climate change and other environmental stressors.

The poorest and most vulnerable members of society suffer the most from climate change, despite contributing the least. These groups may become further exposed to inequalities and power imbalances, seriously inhibiting economic development.

A range of policy options can protect the most vulnerable from climate change and environmental hazards, including:

- Social safety nets (e.g. conditional or unconditional cash transfer, vulnerable group feeding etc.)
- Risk transfer tools (e.g. micro-insurance or social insurance)
- Labour market interventions (e.g. minimum wage legislation)
- Community-based or 'informal' social protection (e.g. community-level savings groups)
- Good Governance (e.g. stringent legal frameworks to implement social protection programmes)

Social protection measures should be given priority when considering ways of maintaining the rights of vulnerable communities. Exploitative political-economic conditions at all levels including international, national, sub-national and grassroots hinder the resilience of the most vulnerable groups. It is vital to identify these conditions to improve the lives of vulnerable people. A strong political will for good governance is required to develop stringent legal frameworks to implement social protection schemes in response to climate change. Without such frameworks vulnerable groups will be even more susceptible to the socio-economic consequences of climate change.

^{xlv} This recommendation was originally drafted by *Christopher Lawless, David Lewis, Raphael Nawrotzki, Gaetano Vivo, Zinta Zommers, Sarah Henly-Shepard, Malashree Bhargava and Saleemul Huq* during the second Resilience Academy and subsequently edited by *Sonja Ayeb-Karlsson, Thomas Tanner, Kees van der Geest and Koko Warner* who take full responsibility for the content.

Recommendation 4:

Support those who cannot migrate when places become uninhabitable due to climatic stress^{xlvi}

Environmental changes have the potential to uproot people from their land and force them to migrate. Climate-induced migrants have received more and more attention in the past decade, but policy discussions still lack focus on the ‘capacity to migrate.’ There is a need to support trapped populations who cannot migrate when their land and home become uninhabitable (Afifi et al. 2015).

The most vulnerable people are those whose livelihoods depend on land and other natural resources, such as farmers, fishermen, and livestock herders. Vulnerable people are sometimes forced to stay in uninhabitable places, grapple with food insecurity, face economic shortages and suffer health problems. These challenges increase vulnerability by pushing people deeper into poverty and reducing their quality of life and wellbeing.

Research shows that few people migrate internationally in response to climate stressors, primarily because of limited access to legal migration documents, social networks abroad and financial resources. Those whose livelihoods are directly linked to natural resources tend to move from uninhabitable places to neighbouring areas. Those who are not able to move at all, because they lack the economic and social capital to do so, are the most vulnerable (Warner & Afifi 2014).

This Policy Paper calls for better incorporation of ‘migration support’ into global policy frameworks. Populations who are forced to migrate require socio-economic support and migration options. Global problems need global solutions, and nations receiving climate migrants need to accept their obligations and responsibilities towards climate refugees. Livelihood resilience, living opportunities and human rights protection maintained through a global support system need to be established for those who are not able to move or migrate.

^{xlvi} This recommendation was originally drafted by *Andrea Rivera Sosa, Elizabeth Tellman, Nishara Fernando and Diana M. Contreras* during the second Resilience Academy and subsequently edited by *Sonja Ayeb-Karlsson, Thomas Tanner, Kees van der Geest and Koko Warner* who take full responsibility for the content.

Recommendation 5:

Include identity and attachment to place in adaptation responses^{xlvii}

Global policy framework should consider people who are at risk of natural disasters or environmental stressors and who are not willing to migrate because they strongly identify with or feel attached to the place where they live. Adaptation strategies that allow people to live in places where they can function most effectively should be supported. Such strategies enable livelihoods to be compatible with a sense of identity and attachment to place. Adaptation strategies that include an understanding of sense of identity and attachment to place can help build livelihood resilience and protect socio-cultural wellbeing without giving rise to popular resistance.

Identity and place attachment are key contributors to wellbeing since they influence one's sense of security, good social relations and one's ability to control their environment (Narayan et al. 2000; Stedman 2002; Lewicka 2011). A shared sense of identity is important for community cohesion, problem solving and successful group action against threats to livelihoods (Morrissey & Oliver-Smith 2013; Fresque-Baxter & Armitage 2012; Devine-Wright 2013). Therefore, place attachment and identity can increase resilience by producing high levels of self-efficacy and enabling positive interactions with other members of the community.

Livelihoods can be a strong determinant of identity and wellbeing, especially in places where people are dependent on particular sets of natural resources. For many people, switching to alternative income sources is highly undesirable and sometimes even impossible. For example, some traditional fishermen in Bangladesh will not take up casual labour opportunities, even if they are struggling financially, because they see alternative livelihoods as less honourable. Additionally, difficulties can also arise when people have to make decisions between *sense of identity* (moving location but maintaining livelihood source) and *sense of place* (staying in location and changing livelihood source) (Marshall et al. 2012).

The consideration of socio-cultural 'unwillingness' to migrate – avoiding non-economic losses and damages such as loss of identity or loss of place-attachment – have to be included in a global adaptation response model to climatic impacts and environmental stress. When seeking to combat and confront climatic impacts, the goal needs to be ensuring human wellbeing and sustainable livelihoods for all.

^{xlvii} This recommendation was originally drafted by *Helen Adams, David Wrathall, Stephanie Andrei, Koko Warner and Sonja Ayeb-Karlsson* during the second Resilience Academy and subsequently edited by *Sonja Ayeb-Karlsson, Thomas Tanner, Kees van der Geest and Koko Warner* who take full responsibility for the content.

Recommendation 6:

Build robust methods and big datasets for research in support of resilient livelihoods^{xlviii}

Innovative methodological approaches, used to understand and track livelihood resilience, can improve the ability to design effective policy interventions, supporting the transition towards enhanced livelihood resilience.

Delivering improved outcomes for livelihood resilience requires systematic approaches to big-data collection and monitoring and evaluation of social and ecological processes. Such approaches should be based on in-depth qualitative investigation and quantitative numerical data on key processes. The two types of data should complement and validate each other to provide a more comprehensive understanding of livelihoods and opportunities to enhance resilience. Such data should be context-specific, capturing and utilising local and indigenous knowledge, and might be co-produced with stakeholders in order to identify local constraints, potentials and opportunities.

Making livelihood resilience operational requires fresh data, tailored to identify key processes for understanding livelihood resilience to environmental and socio-economic variability, change and shocks. The systematic construction of long-term databases has the potential to facilitate comparative assessments at various scales, from local to regional to global, and for monthly to decadal time series. Fresh data will also permit the exploration of non-linear dynamics and ‘surprises.’ Advancing empirical research beyond simple linear correlations can provide new insights into tipping points, attributions of causality and triggers for transformation affecting vulnerable populations.

These considerations need to be embedded within the broader context of new and emerging methodologies and technologies. The collection and processing of large amounts of data would benefit from enhanced data sharing across agencies to minimize redundancies in data collection, streamline priority monitoring and help ensure data that is of comparable form and quality.

The analysis, capture, and organization of such large and complex data sets will require greater engagement with the privacy and ethical implications of data usage for research, policy- and decision-making.

^{xlviii} This recommendation was originally drafted by *Nick Cradock-Henry, Diana Sietz, Frank Thomalla, Ashiqur Rahman and Kees van der Geest* during the second Resilience Academy and subsequently edited by *Sonja Ayeb-Karlsson, Thomas Tanner, Kees van der Geest and Koko Warner* who take full responsibility for the content.

References

- Afifi, T., Milan, A., Etzold, B., Schraven, B., Rademacher-Schulz, C., Sakdapolrak, P., Reif, A., van der Geest, K. & Warner, K. (2015). Human mobility in response to rainfall variability: Opportunities for migration as a successful adaptation strategy in eight case studies. *Migration and Development*. [Ahead-of-print 2015]: 1-21.
- Arctic Council (2013). Arctic Resilience Interim Report. Stockholm: Stockholm Environment Institute (SEI) & Stockholm Resilience Centre (SRC).
- Bahadur, A. V., Ibrahim, M. & Tanner, T. (2013). Characterising resilience: unpacking the concept for tackling climate change and development. *Climate and Development* 5(1): 55-65.
- Cannon, T. & Müller-Mahn, D. (2010). Vulnerability, resilience and development discourses in context of climate change. *Natural Hazards* 55(3): 621-635.
- Carney, D. (1998). Implementing the Sustainable Rural Livelihoods Approach. In: *Sustainable Rural Livelihoods: What contribution can we make? Papers presented at the Department for International Development's Natural Resources Advisers' Conference, July 1998*. [Carney, D., (ed.)]. London: Department for International Development (DFID). pp. 3-23.
- Chambers, R. & Conway, G. (1992). Sustainable rural livelihoods: practical concepts for the 21st century. IDS Discussion Paper 296. Brighton: Institute of Development Studies (IDS).
- Cobo, J.R.M. (1987). Study of the Problem of Discrimination against Indigenous Populations. New York: United Nations.
- Devereux, S. & Sabates-Wheeler, R. (2004). Transformative social protection. IDS Working Paper 232. Brighton: Institute of Development Studies (IDS).
- Devine-Wright, P. (2013). Explaining 'NIMBY' objections to a power line: the role of personal, place attachment and project-related factors. *Environment and Behavior* 45(6): 761-781.
- FAO (2000). State of food insecurity in the world 2000. Rome: Food and Agriculture Organization (FAO).
- Fresque-Baxter, J. A. & Armitage, D. (2012). Place identity and climate change adaptation: a synthesis and framework for understanding. *Wiley Interdisciplinary Reviews: Climate Change* 3(3): 251-266.
- IPCC (2012a). Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. Cambridge & New York: Cambridge University Press. pp. 582.
- IPCC (2014). Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge & New York: Cambridge University Press. pp. 1132.

IPCC (2014). Annex II: Glossary [Agard, J. and Schipper, E. L. F. (eds.)]. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Birkmann, J., Campos, M., Dubeux, C., Nojiri, Y., Olsson, L., Osman-Elasha, B., Pelling, M., Prather, M. J., Rivera-Ferre, M. G., Ruppel, O. C., Sallenger, A., Smith, K. R., Clair, A. L. St. (eds.)]. Cambridge & New York: Cambridge University Press. pp. 1757.

Lewicka, M. (2011). Place attachment: How far have we come in the last 40 years? *Journal of Environmental Psychology* 31(3): 207-230.

Marshall, N. A., Park, S. E., Adger, W. N., Brown, K. & Howden, S. M. (2012). Transformational capacity and the influence of place and identity. *Environmental Research Letters* 7(3): 034022.

Martin-Breen, P. & Anderies, J. M. (2011). Resilience: a literature review. New York: Rockefeller Foundation.

Matsuyama, K. (2008). Poverty Traps. In: *The New Palgrave Dictionary of Economics*. [Blume, L. & S. Durlauf (eds.)]. 2nd Edition. Volume 6. New York: Palgrave Macmillan.

Moser, S.C. (2008). Resilience in the Face of Global Environmental Change. CARRI Research Paper No.2., Prepared for Oak Ridge National Laboratory and its Community and Regional Resilience Initiative. Oak Ridge: CARRI.

Morrissey, J. & Oliver-Smith, A. (2013). Perspectives on Non-Economic Loss and Damage: Understanding values at risk from climate change. Commissioned paper for the Loss and Damage in Vulnerable Countries Initiative. Online [accessed December 2015]: <http://www.loss-and-damage.net/download/7213.pdf>

Narayan, D., Chambers, R., Shah, M. K. & Petesch, P. (2000). *Voices of the Poor: Crying out for Change*. New York: Oxford University Press for the World Bank.

Nelson, M., Kintigh, K., Abbott, D. & Anderies, J. (2010). The cross-scale interplay between social and biophysical context and the vulnerability of irrigation-dependent societies: Archaeology's long-term perspective. *Ecology and Society* 15(3): 31.

Niehof, A. (2004). The significance of diversification for rural livelihood systems. *Food Policy* 29(4): 321-338.

Roberts, E., Andrei, S., Huq, S. & Flint, L. (2015). Resilience synergies in the post-2015 development agenda. *Nature Climate Change* 5 (December): 1024-1025.

Rosa, E.A. (1998). Metatheoretical Foundations for Post-Normal Risk. *Journal of Risk Research* 1(1): 15-44.

Rosa, E.A. (2003). The logical structure of the social amplification of risk framework (SARF): Metatheoretical foundation and policy implications. In: *The social amplification of risk*. [Pidgeon, N., Kasperson, R. & Slovic, P. (eds.)]. Cambridge University Press, Cambridge, United Kingdom, pp 47-79.

Stedman, R.C. (2002). Toward a social psychology of place predicting behavior from place-based cognitions, attitude, and identity. *Environment and Behavior* 34(5): 561-581.

Tanner et al. (2015). Livelihood resilience in the face of climate change. *Nature Climate Change* 5: 23-26.

UNISDR (2009). *2009 UNISDR Terminology on Disaster Risk Reduction*. Geneva: United Nations International Strategy for Disaster Reduction (UNISDR).

van der Geest, K. & Dietz, T. (2004). A literature survey about risk and vulnerability in drylands, with a focus on the Sahel. In: *The Impact of Climate Change on Drylands*. [Dietz, T., Rueben, R. & Verhagen, J. (eds.)]. Dordrecht: Kluwer. pp. 117-146.

van der Geest, K. & Warner, K. (2015). Editorial: Emerging perspectives on loss and damage. *International Journal of Global Warming* 8(2): 133-140.

Warner, K., van der Geest, K., Kreft, S., Huq, S., Kusters, K. & de Sherbinin, A. (2012). *Evidence from the frontlines of climate change: Loss and damage to communities despite coping and adaptation*. Loss and Damage in Vulnerable Countries Initiative. Policy Report. Report No. 9. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS).

Warner, K. & van der Geest, K. (2013). Loss and damage from climate change: Local-level evidence from nine vulnerable countries. *International Journal of Global Warming* 5(4): 367-386.

Warner, K. & Afifi, T. (2014). Where the rain falls: Evidence from 8 countries on how vulnerable households use migration to manage the risk of rainfall variability and food insecurity. *Climate and Development* 6(1): 1-17.

WCED (1987). *Our Common Future*. Oxford: Oxford University Press & World Commission on Environment and Development (WCED).

Gibika and the Resilience Academy

Gibika project

A climate-resilient and sustainable future for people in vulnerable countries starts with resilient livelihoods. There is an urgent need to turn knowledge about livelihood threats, shocks, trajectories and opportunities into operable solutions.

The aims of the [Gibika](#) research-to-action project are to advance the scientific understanding of livelihood resilience in Bangladesh, and to apply conclusions towards community-led solutions that improve the living conditions of vulnerable people. When livelihood systems are not resilient, environmental shocks can have long-term impacts on human well-being and development goals. By implementing community-led action, this project can promote livelihood resilience, and sustainable development. Gibika is a five-year research-to-action partnership between International Centre for Climate Change and Development ([ICCCAD](#)), United Nations University Institute for Environment and Human Security ([UNU-EHS](#)) and Munich Re-Foundation ([MRF](#)) with the objective of improving the living conditions of people in our project sites in Bangladesh. To inform future interventions that aim at enhancing livelihood resilience in risk-prone environments, the project will share the lessons learnt in the research-to-action process with academic audiences as well as practitioners.

Resilience Academy

The annual [Resilience Academy](#) (2013-2017) is a platform for connecting communities of expertise (early phase practitioners, academics, and policy analysts), examining livelihood resilience in the face of local and regional environmental threats. Journal articles and policy briefs produced in the context of the academy aim at influencing big policy milestones in the area of Climate Change Adaptation, Disaster Risk Reduction, Humanitarian Response and Development in 2015 and beyond.

The [first](#) Resilience Academy took place in Savar, Bangladesh in 2013 and the [second](#) near Munich, Germany in 2014. They explored livelihood resilience amidst global transitions. They brought together 25 researchers and practitioners from 15 countries as well as field facilitators from Bangladesh and two senior experts. The [third](#) Resilience Academy took place near Dhaka, Bangladesh from 6-12 September 2015 on the topic “*Enhancing resilience to minimize loss and damage – providing knowledge for the UNFCCC,*” and the fourth Resilience Academy will be held near Munich, Germany from 4-10 September 2016.

The Resilience Academy builds on a long-standing partnership between MRF and UNU-EHS who together organized seven Summer Academies and a keystone conference bringing all the Summer Academy participants together one last time under the aegis of the Chair on Social Vulnerability.

For more information, please visit:

- <http://ehs.unu.edu/research/gibika.html#outline>
- <http://icccad.net/gibika/>
- <http://munichre-foundation.org/home/DisasterPrevention/Gibika-Bangladesh.html>