Multi-Actor Dialogue on Resilience Thinking, Assessments and Mainstreaming

Dialogue seminar │ Addis Ababa, Ethiopia │ 11-14 November 2015

Co-Organisers' Summary Report

United Nations Development Programme

The United Nations Development Programme (UNDP) works in some 170 countries and territories, helping to achieve the eradication of poverty, and the reduction of inequalities and exclusion. UNDP helps countries to develop policies, leadership skills, partnering abilities, institutional capabilities and build resilience in order to sustain development results. Inclusive growth, better services, environmental sustainability, good governance, and security are fundamental to development progress. UNDP is working to strengthen new frameworks for development, disaster risk reduction and climate change. UNDP supports countries' efforts to achieve the Sustainable Development Goals, which will guide global development priorities for the coming 15 years.

SwedBio at Stockholm Resilience Centre

SwedBio is a knowledge interface, at the Stockholm Resilience Centre (SRC), contributing to poverty alleviation, equity, sustainable livelihoods and social-ecological systems rich in biodiversity that persist, adapt and transform under global change such as climate change. SwedBio enables knowledge generation, dialogue and exchange between practitioners, policy makers and scientists for development and implementation of policies and methods at multiple scales.

Established in 2007, SRC is a world-leading transdisciplinary research centre that promotes the understanding of complex social-ecological systems to secure ecosystem services for human well-being and long-term resilience, and develops the scientific advancements of this research within practice, policy, and in academic training. SRC advises policy makers and develops innovative collaboration with relevant actors at local to global arenas.

MELCA – Ethiopia

MELCA is an organisation based in Ethiopia that aims at connecting generations to conserve biodiversity, connecting traditional ecological knowledge with scientific knowledge, and connecting biodiversity with livelihoods. It is a movement for ecological action. MELCA has more than 20 partners including government offices at regional, zonal and woreda levels, local non-governmental organisations (NGOs) and community-based organisations as well as a number of non-Ethiopian NGOs operating locally in other countries and internationally including Ethiopia. It has a broad membership base, comprising, foresters, lawyers, ecologists, sociologists, environmentalists, youth groups and women's associations.

MELCA - Ethiopia

The views reported in this publication do not necessarily represent those of the workshop conveners, organisers or donors.

November 2016

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Acronyms

CBD	Convention on Biological Diversity
DHAN	Development of Humane Action Foundation
DIF	Integrated Development in Focus
FPIC	Free, prior and informed consent
KATC	Kasisi Agricultural Training Centre
GEF	Global Environment Facility
IUCN	International Union for the Conservation of Nature
MEB	Multiple Evidence Base approach
MELCA	Movement for Ecological Learning and Community Action
NBSAP	National Biodiversity Strategy and Action Plan
SDG	Sustainable Development Goal
SRC	Stockholm Resilience Centre
STAP	Scientific and Technical Advisory Panel
UDO	Utooni Development Organization
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nation Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
ZWD	Zenab Association for Women in Development

Preface

Organisers

The Dialogue organisers – Jamison Ervin, United Nations Development Programme (UNDP); Maria Schultz and Sara Elfstrand, SwedBio at Stockholm Resilience Centre (SRC); and Million Belay, MELCA-Ethiopia – have prepared this summary report of the seminar 'Resilience Thinking, Assessments and Mainstreaming' and take full responsibility for it. The report has been produced with the help of rapporteurs Heena Ahmed, UNDP, and Tristan Tyrrell, UNDP and later SwedBio, with contributions from participant rapporteurs from Working Group sessions. The organisers were supported by the logistical support of the United Nations Office for Project Services (UNOPS).

Background

The Multi-Actor Dialogue on Resilience Thinking, Assessments and Mainstreaming was held as part of a SwedBio-funded, UNDP-executed, two-year project to explore the dimensions of resilience, resilience assessments and resilience mainstreaming. The Dialogue also contributed to a Flanders Government-funded, UNDP-executed, three-year project to integrate resilience principles into National Biodiversity Strategies and Action Plans (NBSAPs), as well as a Norway Government-funded, UNDP-executed project on integrating biodiversity into national sustainable development goals and plans. The Dialogue built upon resilience assessment theories and assessment methodologies developed by, e.g. the Resilience Alliance including the SRC, the Scientific and Technical Advisory Panel (STAP) of the Global Environment Facility (GEF), MELCA (Movement for Ecological Learning and Community Action) and UNDP's Community Development and Knowledge Management for the Satoyama Initiative (COMDEKS) and Community-Based Resilience Analysis (CoBRA) projects, and experiences in practice. Finally, the Dialogue was enhanced by the presence of representatives from the local community of Telecho as well as seven representatives of the Equator Initiative, a partnership that recognises and celebrates local actions on resilience.

A note on terminology

The terms '*resilience*' and '*social-ecological resilience*' have many different meanings to different organisations and communities, and even to different people within those organisations and communities. One of the purposes of this Dialogue was to elicit the many different understandings of these terms in different contexts. Therefore, we do not attempt to advance a single definition of the terms, but rather provide multiple examples and definitions from different contexts.

Executive Summary

Resilience – the capacity of a system to deal with change and to continue to develop – provides a way of thinking about how complex adaptive systems change at multiple interacting scales. Resilience and resilience thinking provide a holistic approach for addressing interlinked social-ecological systems and for managing these systems in a world that is increasingly characterised by rapid changes. 'Resilience thinking' is increasingly used in development policies and programming as an approach to build capacity to deal with change.

In recent years, 'resilience' has become used as an all-inclusive term for thinking about sustainable development, food security and water security, development relief, disaster recovery, adaptation to climate change and poverty alleviation. Resilience and resilience thinking have proven attractive terms because they provide a way of addressing long-standing and important challenges under a single conceptual umbrella. At the same time, this all-encompassing use of the term resilience can be confusing – What exactly are the elements and principles of resilience? How can these principles be measured within a specific social-ecological context? What specific actions can be taken to foster social-ecological resilience thinking within a community or within a nation? In line with an increasing interest in resilience as a key foundation of development, there is a proliferation of frameworks and tools for assessing and measuring resilience. However, the underlying frameworks and definitions of resilience may vary, and there is a need to build understanding of how these approaches are complementary.

The aim of this Dialogue was therefore to bring together a wide variety of actors from policy, practice and science who are working on resilience at different levels in order to explore key concepts and principles, multiple approaches for assessing resilience, and to identify specific steps in integrating social-ecological resilience principles and resilience thinking into development and biodiversity planning frameworks. The overall goal and expected outcomes of the Multi-Actor Dialogue on Resilience was to identify a range of approaches to resilience thinking, assessments and mainstreaming, and to find common ground on key concepts and approaches, i.e.:

- *Resilience thinking*: To exchange experiences on resilience thinking in research, policy and practice, with an outcome of a shared understanding of the concept of social-ecological resilience;
- *Resilience assessments in practice*: To exchange diverse experiences and approaches to resilience assessments at multiple scales for multiple purposes, with an outcome of a better understanding of the range of resilience assessments, and a clearer consensus on some key steps;
- *Resilience mainstreaming*: To explore and formulate recommendations on how to integrate and mainstream resilience thinking into key policies

and practices, including into national biodiversity plans, national development plans, and community resource management practices, with an outcome of closer consensus on some key steps required to integrate resilience thinking.

51 participants attended the Dialogue, representing fourteen countries. Fourteen of the participants were from the Telecho community.

The Dialogue recognised that:

- The Multi-Actor Dialogue on Resilience offered an opportunity for policy makers, scientists and practitioners to analyse various approaches to addressing, assessing, measuring and mainstreaming resilience by focusing on how resilience is understood and managed in a variety of contexts. These opportunities should continue with representation from developing countries' organisations and institutions across different scales from the village to national and international levels. The way questions are framed relates to experience and knowledge, and to work on resilience includes recognising that value systems influence ways of thinking about, assessing and mainstreaming resilience.
- There is an urgency to increase efforts to analyse, assess, and mainstream resilience due to the impacts from global change (including climate change, biodiversity loss, changes in land use, pollution, etc.), and the urgent need to implement national sustainable development goals, including food system sustainability, water security, sustainable jobs and livelihoods, disaster risk reduction and other national goals, within planetary boundaries.
- Resilience thinking offers an opportunity and can provide a framework for understanding, addressing and measuring change within social-ecological systems (the inherent interconnections and co-evolution between people and nature).
- There was some divergence in the group on understanding resilience as a goal, property, process, attribute and/or approach. It was put forward that resilience is an important attribute to achieve certain goals (as means to a sustainable end) rather than an end in and of itself. At the same time, it was recognised that resilience as a system property (which can be good or bad) can be useful to assess or measure resilience of what, to what, for and by whom.

Resilience thinking:

- A diversity of ideas of resilience results in the term meaning many different things to different people, and starts from values including equity and solidarity between generations, people and both between and within countries. In the seminar the participants identified aspects such as: Continuous improvement of social and ecological environment; Integrated analysis to advance sustainable development; Ability to understand the issues and respond accordingly; Ability to self-organise; Proactive approach to sustainable development; Capacity to manage change; Staying healthy and strong; Capacity to resist short term benefits and work towards

sustainability; Capacity to protect social, ecological and cultural assets from erosion; Urban dwellers dealing with environmental shock; Building Back Better; and People living in harmony with nature.

– Resilience thinking includes a diversity of approaches and concepts. Seven principles for building resilience have been identified: 1) Maintain diversity and redundancy; 2) Manage connectivity; 3) Manage slow variables and feedbacks; 4) Foster complex adaptive systems thinking; 5) Encourage learning; 6) Broaden participation; and 7) Promote polycentric governance. In the workshop, other principles were added such as the need for good leadership and change agents, happiness and identity.

- Power relations were considered to be very important: between actors within such a dialogue, within the concepts and language we use, and in the way we express, assess and analyse resilience. Many concepts and approaches currently used in resilience were developed in a "northern scientific" context, and legitimisation amongst a diversity of contexts and with diverse actors is necessary. A great opportunity exists to open up resilience assessment and mainstreaming processes to be more inclusive of alternative and diverse worldviews.

- When framing principles, there is a danger that we lock our minds into something in accordance to our own value system, that we interpret the world from our own values and contexts. It was noted that it is important to open up the mind to try to understand and build concepts in an inclusive manner, taking into account the differences in language, cultures, political contexts, spiritual belief systems, etc.

Resilience Assessments:
- There is a diversity of approaches to resilience assessments, useful on different scales and for different context and purposes. Approaches discussed in the Dialogue included the ongoing work on the Resilience, Adaptation Pathways and Transformation Assessment (RAPTA) guidelines, as commissioned by the Scientific and Technical Advisory Panel (STAP) of the Global Environment Facility (GEF); Resilience Alliance Workbook; UNU-IAS, Bioversity International, IGES and UNDP Toolkit for the Indicators of Resilience in Socio-ecological Production Landscapes and Seascapes (SEPLS); and the Communities Self-Assessing Resilience (CSAR) tool. There are many opportunities to synthesise complementary approaches to make them more accessible to practitioners, scientists, communities and policymakers.

- When discussing what should be included in resilience assessments, participants identified the importance for the assessment to: have a clear and explicit theory of change, understand the drivers of change, consider resilience of what, to what, for whom, and also by whom. It should include

benchmarks, which can be co-produced to be legitimate and appropriate for all actors, and identify status and trends in relation to thresholds. The desired goal of the system should be agreed on, which may include a differentiation between persistence, adaptation and transformation. There is a great need to focus on trajectories and dynamic processes in resilience assessments.

- The group also considered when, why and how to assess resilience with one of the main discussion outcomes being that how one assesses resilience depends on the scale of the analysis and the purpose, the sector and context. Are we assessing state, process or trends? How do we maintain openness and avoid the danger of over-framing while still providing comparable metrics and baselines? In any assessment process, we must consider the unknown unknowns and remain humble in our approach and understanding.

Resilience mainstreaming:[1]
- Integrating resilience thinking into policy and practice could be done in various ways at different scales, and for different purposes.
- Analysing the resilience of social-ecological systems is important for social, political and economic development.
- Integrating resilience thinking is important in all sectors. Resilience offers a systemic approach to development, integrating diverse sectors and aspects of development such as environment including biodiversity, climate adaptation and mitigation, gender, livelihoods, food security and disaster risk reduction.
- It is important to work with synergies and integrate resilience approaches in and between related policy and strategy documents, including national sustainable development goals, and planning and reporting of commitments under international agreements such as the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC).
- The 2030 Agenda for Sustainable Development, with its integrated approach, offers an opportunity for working with resilience thinking; and vice versa resilience thinking improves the possibility to reach and implement the Sustainable Development Goals (SDGs).
- Mainstreaming resilience offers a pro-active approach and should be done in consultations with actors in the entire policy, programme or project cycle such as during the formulation process, awareness activities, identification of the links between sectors, plans, actions, and follow up including monitoring, evaluation and learning.
- Mainstreaming resilience can offer an opportunity for identification of trade-offs and conflict between policies; and also for policy coherence.
- Resilience indicators and metrics, from local to national indicators and/or national accounting, should take into account that measurements can be of both qualitative (stories) and quantitative (numbers).

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[1] Mainstreaming means integrating into sectoral plans and policies, and using variety of methods.

Overarching general reflections:

- The co-production of knowledge and learning is essential.
- Deliberative communication of resilience in a way that people understand it adapted to different actors, situations and contexts is important, with approaches for this including story-telling and indicators.
- There are ethical aspects of engaging around resilience with actors. Aspects such as expectations; timeframes; how to handle information; Free, Prior and Informed Consent (FPIC); local ownership; reciprocity; mutual learning and mutual sharing; trust; meaningful and culturally appropriate participation; transparent process; and gender dimensions. An approach to deal with some of these aspects is the Multiple Evidence Base (MEB) approach.[2]

Recommendations:

Resilience Thinking
We encourage processes to create principles of resilience relevant to particular contexts, in addition to the seven principles and to focus assessment and mainstreaming on trajectories rather than equilibrium stable states.

Resilience Assessment
We recommend synthesising complementary approaches to make them more accessible to practitioners, scientists, communities and policymakers.

Resilience Mainstreaming
We recommend that institutions, governments, communities, sectors, implementing agencies and others consider how to integrate resilience thinking into their sectoral and development plans, programmes, and policy frameworks.

Pre-meeting: Preceding the Multi-Actor Dialogue on Resilience was a one-day informal dialogue on integrating biodiversity, ecosystems and resilience indicators into national sustainable development goals, plans and policy frameworks. See Annex 3 for more details.

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[2] The Multiple Evidence Base (MEB) approach emphasises: Complementarity of knowledge systems; Letting each knowledge system speak for itself; and Respecting mechanisms within each system to evaluate knowledge.

About the Multi-Actor Dialogue on Resilience

Background

Resilience can be defined as the capacity of a system to deal with change and to continue to develop – providing a way of thinking about how complex adaptive systems change at multiple interacting scales (SRC 2014). Resilience and resilience thinking provide a holistic approach for addressing interlinked social-ecological systems and for managing these systems in a world that is increasingly characterised by rapid changes. 'Resilience thinking' is increasingly used in development policies and programming as an approach to build capacity to deal with change (SRC 2014).

In recent years, 'resilience' has become an all-inclusive term for thinking about sustainable development, food security and water security, development relief, disaster recovery, adaptation to climate change and poverty alleviation (e.g., Levine 2014). Resilience and resilience thinking have proven attractive terms because they provide a way of addressing long-standing and important challenges under a single conceptual umbrella. At the same time, this all-encompassing use of the term resilience can be confusing – what exactly are the elements and principles of resilience? How can these principles be measured within a specific social-ecological context? What specific actions can be taken to foster social-ecological resilience thinking within a community or within a nation?

In line with an increasing interest in resilience as a key foundation of development, there is a proliferation of frameworks and tools for assessing and measuring resilience. However, the underlying frameworks and definitions of resilience may vary, and there is a need to build understanding of how these approaches are complementary.

The Multi-Actor Dialogue on Resilience offered an opportunity for policy makers, scientists and practitioners to analyse various approaches to assessing, measuring and mainstreaming resilience by focusing on how resilience is understood and managed in a variety of contexts. The Dialogue sought to convene a variety of actors from policy, practice and science working on resilience at different scales in order to explore key concepts and principles, multiple approaches for assessing resilience, and to identify specific steps in integrating social-ecological resilience principles and resilience thinking into development and biodiversity planning frameworks.

Dialogue purpose and objectives

The overall goal and expected outcomes of the Dialogue was to identify a range of approaches to resilience thinking, assessments and mainstreaming, and to find common ground on key concepts and approaches, i.e.:

- ***Resilience thinking*:** To exchange experiences on resilience thinking in research, policy and practice, with an outcome of a shared understanding of the concept of social-ecological resilience;

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- ***Resilience mainstreaming*:** To explore and formulate recommendations on how to integrate and mainstream resilience thinking into key policies and practices, including into national biodiversity plans, national development plans, and community resource management practices, with an outcome of closer consensus on some key steps required to integrate resilience thinking.

The Dialogue was conducted to enhance understanding among participants with a view to inform resilience-related discussions at the Conference of Parties to the Convention on Biological Diversity (CBD) in Mexico in December 2016, to contribute to resilience discussions at the World Conservation Congress of the International Union for the Conservation of Nature (IUCN) in September 2016, and to contribute to the ongoing development of resilience materials, including assessment methodologies and e-learning modules, among others.

The 51 participants included global experts, government officials, and biodiversity practitioners coming from different approaches. Five Equator Prize winners who have been recognised globally for excellence in resilience within their communities also attended the Dialogue. Leading academic and scientific institutions, including the Stockholm Resilience Centre (SRC), contributed to research and scientific perspectives. Government representatives from fourteen countries, United Nations Development Programme (UNDP) and civil society organisations also participated in the Dialogue. The Dialogue provided an effective platform for an exchange among science, community, practice and policy.

Guidelines for the Dialogue

The Multi-Actor Dialogue on Resilience was based on the Chatham House rules. This means that participants are free to use the information received, but neither the identity nor the affiliation of participants expressing a view may be revealed. For the speakers, it was agreed that their presentations would be public, but not what they expressed in discussions. The rule allows people to speak as individuals and to express views that may not be those of their organisations, and therefore encourages free discussion. Speakers are free to voice their own opinions without concern for their personal

reputation or that of their official duties and affiliation.[3]

The Dialogue was organised in sessions with short formal presentations followed by either 'buzz' discussions in small groups in roundtable seating, or breakout working groups organised with a mix of nationalities, as far as language barriers allowed. During Day 2 of the Dialogue, all plenary sessions were simultaneously translated into Amharic (Ethiopian regional language). Organisers emphasised highly interactive approaches, with maximum group discussions and exercises that helped in eliciting strong participation.

(Photo: J. Ervin)

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[3] Additional rules for the Dialogue included the following principles, based on respect: to listen actively, e.g. 'follow flow and focus'; not to use telephones, SMS or email in the meeting room; to contribute to trust; to show respect for others, e.g. to attack issues, not persons; to ask for the turn to speak; to respect time, both as panelist and as participant; and to give the facilitator permission to run the seminar according to his/her plan throughout each session.

Multi-Actor Dialogue on Resilience Thinking, Assessments and Mainstreaming

Summary of Presentations and Discussions

Session 1: Introductory session

Facilitator: Maria Schultz, SwedBio at SRC, Jamison Ervin, UNDP and Million Belay, MELCA - Ethiopia

Opening Statements

The seminar began with welcome remarks by Mr. ***Dillip Kumar Bhanja***, UNDP Technical Advisor, Disaster Risk Management and Livelihoods, Climate Resilient Green Growth Unit, who warmly welcomed the participants on behalf of UNDP Ethiopia's Country Office. He remarked that this Dialogue is critical amidst the on-going global discussions on Sustainable Development Goals. Speaking in the context of Ethiopia, he acknowledged the dynamic and unique environment scenario, while sharing his concerns over the severe drought that the country faces today. In this context, he welcomed the seminar as being very timely and important to understand resilience thinking and mainstreaming in the context of Ethiopia as well as a platform to share best practices, challenges and even failures from other countries facing similar challenges. He concluded his remarks by inviting participants to develop a resilience agenda that can be jointly taken ahead with governments, United Nations (UN) agencies, international partners, civil society organisations, communities and mainstreamed into the Sustainable Development Goals (SDGs) and national development plans and policies. Dr ***Jamison Ervin,*** Senior Technical Advisor, UNDP, introduced the great diversity of participants in the meeting, including five Equator Prize Winners recognised globally for excellence in resilience. She emphasised on the importance of this Dialogue between science, community, practice and policy. She warmly thanked the donors – the Government of Norway, the Government of Flanders and SwedBio at Stockholm Resilience Centre – for funding the resilience project and this Multi-Actor Dialogue on Resilience. Jamison especially thanked the UNDP Ethiopia Country Office for facilitating participation at the Dialogue held in Addis Ababa. Dr ***Million Belay*** from MELCA welcomed the participants and shared MELCA's critical role for resilience in the local community context in Ethiopia. Ms. ***Maria Schultz*** from SwedBio at SRC introduced the SwedBio programme and warmly welcomed the participants.

Introductions

Million Belay described the three-day agenda to the participants, followed by a round of introductions of participants. Jamison Ervin thanked the organising committee for their relentless work in successfully coordinating the Multi-

Actor Dialogue on Resilience. Maria Schultz explained the methodology and house-rules for conducting the Dialogue. The seminar began with group perspectives on resilience thinking followed by a plenary discussion.

Session 2: Resilience Thinking

The expected outcome of this session was to exchange experiences on resilience thinking in research, policy and practice, with an outcome of a shared understanding of the concept of social-ecological resilience.

Exercise 1: Group perspectives on resilience thinking

Facilitator: Maria Schultz, SwedBio at SRC

Participants were asked to explain what resilience meant in their context. Each participant was asked to reflect individually, followed by group discussions, ending with a plenary reflection. The participants shared the following reflections from the exercise:

Plenary discussion:

- Participants reflected that resilience can have a diversity of meanings to different people, and starts from values including equity, solidarity, between generations, and people between countries and in countries. During the Dialogue, participants identified the following diverse aspects of resilience: Continuous improvement of social and ecological environment; Integrated analysis to advance sustainable development; Ability to understand and respond; Ability to self-organise; Proactive approach to sustainable development; Capacity to manage change; Staying healthy and strong; Capacity to resist short term benefits and work towards sustainability; Capacity to protect social, ecological and cultural assets from erosion; Attribute of a person's or community's psychology and their adaptive nature; Urban dwellers dealing with environmental shock; Building Back Better (BBB); and People living in harmony with nature.
- It was discussed that the resilience discourse is often focused on climate change or responses to shocks, but the concept of resilience applies to broader development challenges. Also, it was raised that resilience is a concept of tension between stability and change. Managing resilience is about changing the things you need to change in order to preserve the things you really care about.

Research perspectives on resilience

Elin Enfors Kautsky, Researcher and Theme Leader, SRC, gave a brief presentation on resilience of social-ecological systems from a scientific perspective. She emphasised that Earth is deeply marked by

human presence and that we have entered the Anthropocene, a geological epoch where human actions have become the main driver of global environmental change. This could see human activities push the Earth system outside "planetary boundaries"[4] whose thresholds should not be crossed in order to avoid the disruption of the Earth's stability domain (Figure 1). Elin further explained that pathways for sustainable development must be sought between the planetary boundaries of the safe operating space and the boundaries for a socially just operating space (Figure 2). She demonstrated how an ecosystem services perspective can be useful for analysing different potential development pathways within this space.
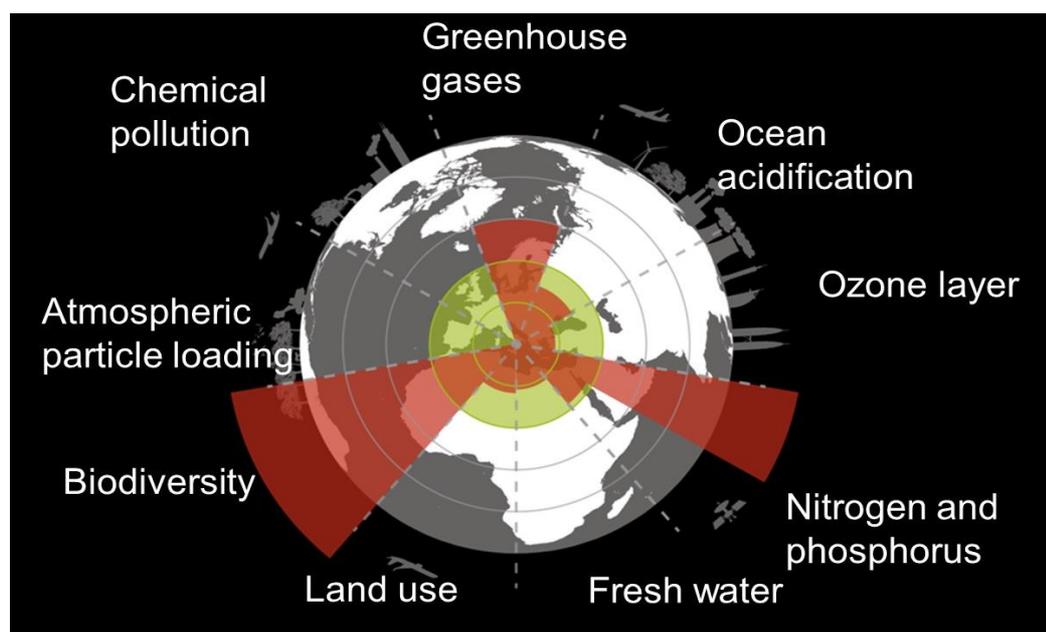

Figure 1: The nine planetary boundaries showing unsustainable use of biodiversity, nitrogen & phosphorous, and greenhouse gases (adapted from Rockström *et al.* 2009).

Elin further discussed how resilience can be understood as an attribute of social-ecological systems in this context. Resilience has three facets; resistance (the amount of disturbance a system can absorb and still remain essentially the same), adaptability (the degree to which the system is capable of self-organisation to stay on the same pathway), and transformability (the degree to which the system is capable of switching to a fundamentally new development pathway when the current one is deemed unsustainable). The challenge of sustainable development can thus be seen as the challenge of transforming social-ecological systems to pathways located within the safe and just operating space, and building the resilience of those systems.

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[4] http://www.stockholmresilience.org/research/planetary-boundaries/planetary-boundaries/about-the-research/the-nine-planetary-boundaries.html
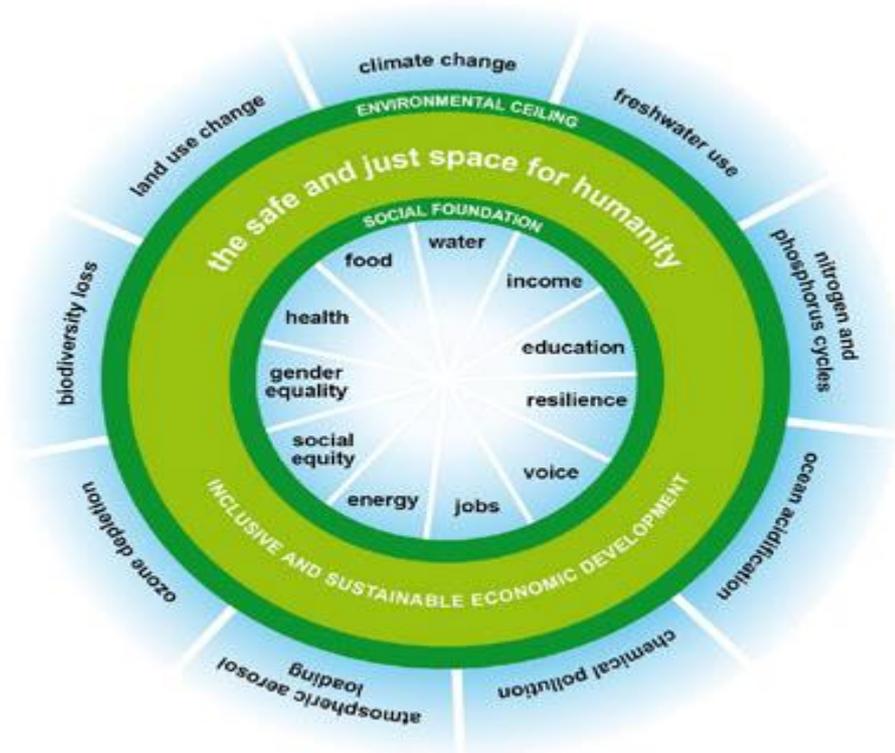
Figure 2: The safe and just operating space (Raworth 2012)

Elin ended by highlighting the following key take-away messages:
- Managing resilience is not about not changing
- Resilience, per se, is neither 'good' nor 'bad', it depends on trajectory
- Are we managing for adaptation or transformation?
- Out of the nine planetary boundaries, we have already exceeded three (rate of biodiversity loss, climate change, and human interference with the nitrogen cycle)
- Pathways for Sustainable development must be sought in the space between the safe and the just operating space

Elin's presentation is available at: http://nbsapforum.net/uploads/1629.pdf

Presentation reflections

A few important questions that were raised by participants concerned:
- Where in this schematic that the significance of power relations and decision-making is taken into account? It was clarified that this is an integrated part of this approach when we discuss what kind of man-made services we need, and how those services provide well-being to different groups of people at different scales. Also, when we discuss what constitutes a desirable development trajectory and for whom. We need to address what is resilience for? For whom are we building resilience? What systems dynamics are we dealing with?
- Participants also expressed that there is a need to build the capacity to learn in order to apply resilience. For example, for implementing new

policies and programmes, we conduct research and develop new policies and programmes. However, execution of these policies is slow due to the lack of capacity to learn quickly.

UNDP's Perspective on Resilience

Assan Ng'ombe, Policy Specialist, UNDP Global Policy Centre, presented UNDP's perspective on resilience, focusing on how UNDP conceptualises resilience, sharing examples of UNDP's resilience-related initiatives, along with relevant trends and statistics. Assan remarked that UNDP has a human-centric approach focused on disaster, conflict, economic and financial, and environmental risks. UNDP is also contributing to the conceptualisation of resilience building in poverty reduction, economic recovery, disaster risk reduction, conflict prevention, rule of law, and governance.

Presentation reflections

- Development is a continuous process. A desirable trajectory today may be completely undesirable in a decade. Sustainable development is a moving target, however, that does not imply that everything is relative. There is a need to constantly re-assess and integrate our aims and goals.
- In the cycle of learning, there is constant change, feedback loops and adaptation. However, we are striving for a positive trend, and a balance between humans and environment.

Community Resilience Approaches

Million Belay, MELCA, presented experiences of building community resilience through participatory three-dimensional (3D) mapping process in the Telecho Kebele community of Ethiopia.[5]

Million explained that the first stage of mapping was carried out by a group of local students who constructed a model of the landscape using layers of cardboard to create the contours of the region. He remarked that engaging young people from the community in the process at this early stage is really critical in light of the increasing community fragmentation taking place across Ethiopia and the wider continent. Parallel to the building of the model, elders from the community of both sexes came together to develop the legend, which was later presented to the bigger community and used to populate the map. Once the basic structure of the model was complete, the rest of the community was invited to bring it to life by painting in the fields, forests and rivers, sacred sites and sacred groves. The next stage was to populate the map with the communities' understanding of both land and land use in their own way. Million added that community members are the map-makers throughout this whole process and so it is essential that it is they who decide what and how to

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[5] http://www.gaiafoundation.org/galleries/albums/3d-mapping-telecho-ethiopia

visualise key areas of their landscape. Making the legend is a key process in this way.

Community members of all ages took time musing over both meanings and names; each bringing their own oral memories and history to the contours and landmarks of their landscape. The making of the 3D map is all part of a vital process of oral storytelling around the history and meanings of the landscape. It is through these stories that indigenous knowledge - often almost completely lost or forgotten - is given space to re-emerge. The knowledge and memory of the Elders becomes critical to the process, thus validating its worth in the eyes of the young whilst reinvigorating confidence in the Elders. The map enabled the community to fully understand the past and present changes in their landscape, strengthens social cohesion, reaffirm identity, and mobilise their knowledge and practices.

Million ended his presentation by informing the participants that the map is now being used by the Telecho community, with the support of MELCA Ethiopia, to open dialogue with local authorities, and together embark upon rehabilitating the area. The picture below illustrates the process of creating the model.

Community members engaged in participatory 3D mapping (Photo: M. Belay)

Presentation reflections:

- Mapping is a living space and, in the case of Telecho, the community began with sketch mapping, then moved on to participatory 3D mapping and now they are re-doing the map to ensure precision.

- Peer-to-peer capacity building is an important component. Members from other communities are visiting Telecho to see the map, learning from the Telecho community and replicating the same in their villages.
- Key perspectives for applying a resilience perspective on mapping and other tools are to address issues such as scale and drivers.

Applying resilience – principles for building resilience

Lisa Deutsch, Senior Lecturer and Director of Studies, SRC, presented seven principles considered crucial for building resilience of ecosystem services in social-ecological systems, support human well-being and how these principles can be practically applied (SRC 2014).

(Designed by Azote for SRC)

Below is a brief introduction to the seven principles:

1. Maintain diversity and redundancy
Systems with many different components, be they species, actors or sources of knowledge, are generally more resilient than systems with few components. This leads to redundancy that provides 'insurance' by allowing some components to compensate for the loss or failure of others.

2. Manage connectivity

Connectivity can be both a good and a bad thing. Well-connected systems can recover from disturbances more quickly, but overly connected systems may lead to rapid spread of disturbances.

3. Manage slow variables and feedbacks

Managing slow variables and feedbacks is often crucial to make sure ecosystems produce essential services. If these systems shift into a different configuration or regime, it can be extremely difficult to reverse. Feedbacks are the two-way 'connectors' between variables that can either reinforce (positive feedback) or dampen (negative feedback) change.

4. Foster complex adaptive systems thinking

A complex adaptive systems (CAS) approach means accepting that within a social-ecological system, several connections are occurring at the same time on different levels. It also means accepting unpredictability and uncertainty, and acknowledging a multitude of perspectives.

5. Encourage learning

Social-ecological systems are always in development so there is a constant need to revise existing knowledge and stimulate learning. More collaborative processes can also help.

6. Broaden participation

There is a range of advantages to a broad and well-functioning participation. An informed and well-functioning group have the potential to build trust and a shared understanding – both fundamental ingredients for collective action, e.g. during decision-making processes, including women and other traditionally vulnerable sectors in processes, can help deliver more robust outcomes to conservation and development projects.

7. Promote polycentric governance

Polycentricity, or when multiple governing bodies interact to make and enforce rules within a specific policy arena or location, is considered to be one of the best ways to achieve collective action.

Lisa ended her presentation with a video explaining the seven principles for building resilience in social-ecological systems.[6]

Lisa highlighted the following key take-away messages:
- Increased connectivity can enhance resilience by providing links to sources of recovery after a disturbance or providing new information and building trust in social networks. However, if connectivity is too high a localised disturbance can spread throughout the system or knowledge can become overly homogenised.
- Slow variables and feedbacks underlie different social-ecological system configurations or "regimes" which produce different ecosystem services.

[6] http://www.stockholmresilience.org/research/research-videos/2016-05-22-how-to-apply-resilience-thinking.html

Regulating services and shadow networks may be key slow variables for maintaining resilience of ecosystem services.

- Learning through experimentation and monitoring, as well as co-production and collaboration, is essential to enable adaptation in response to changes in social-ecological systems and ecosystem services. The types of learning that are most appropriate under different conditions is currently unclear and requires further research.
- Participation is important for building trust and relationships, and facilitating the learning and collective action needed to respond to change and disturbance in social-ecological systems. However, a nuanced understanding is needed of who participates, under which conditions participation is appropriate, and how participation takes place.
- Coordination amongst governance units, negotiation of trade-offs between users, and social capital and trust are essential for effective polycentric arrangements.
- The seven principles require a nuanced understanding of how, when and where they apply, as well as how they interact with or depend on other principles.

Lisa's presentation is available at: http://nbsapforum.net/uploads/1627.pdf

Exercise 2: Break-out session: How does your organisation or community work on resilience?

Facilitator: Maria Schultz, SwedBio at SRC

Participants were asked how their organisations or communities work on resilience. Participants were given time to reflect individually, followed by group discussions, ending with a plenary reflection. Ideas contained in the reflections below contain both existing and possible ways of supporting resilience building by participant organisations and communities:

Plenary discussion:

Participants contributed on their work on resilience from a wide spectrum of experiences. These included: supporting governments to develop climate resilient and sector-specific strategies; Incorporating resilience into national plans and strategies like NBSAPs; Climate change response strategies, Climate change policies; Introducing green technologies at the community level; Promoting soil and water conservation; Building a common consensus on the values of biodiversity and create a platform for dialogue; Supporting land rights; Supporting education at the community level; Supporting establishment of hospitals, orphanages, nurseries and nutritional education centres for young mothers; Supporting implementation of integrated land use development plans; Promoting integrated landscape management; Creating steering committees and technological committees facilitating environmental governance; Creating community led groups promoting participatory resource management; Building institutional and technical capacities for

resilience thinking and sound implementation of strategies and action plans; Supporting low carbon farming; Facilitating GEF funding for building resilience of communities; and Conducting research on resilience theory and practice.

Exercise 3: Applying resilience principles to practical case studies

The Equator Initiative and partners launched "Stories of Resilience: Lessons from Sub-Saharan Drylands Communities;" a document drawing from fifteen case studies, selected through the Equator Initiative and ENDA Tiers Monde, which demonstrates local ingenuity, innovation and leadership in sustainable management of drylands. [7] Five outstanding initiatives demonstrating resilience at the local community level were selected to be presented at this Dialogue. The leaders of these communities were invited to share their experiences with practitioners and policy makers at this seminar to enhance understanding of resilience building from practical perspectives. Members of **Integrated Development in Focus (DIF)**, [8] Ghana; **Kasisi Agricultural Training Centre (KATC)**, [9] Zambia; **Utooni Development Organization (UDO)**, [10] Kenya; the **Abrha Weatsbha Community**, [11] Ethiopia; and the **Zenab Association for Women in Development (ZWD)**, [12] Sudan, were invited to share their experiences in resilience building.

Participants were divided into groups around four of the aforementioned case studies. Community members assigned to each group presented their respective experiences to group members. The case studies were viewed through the lens of the seven resilience principles developed by SRC, although participants were encouraged not to limit themselves to these seven, but to create new principles as needed.

Below are brief explanations of each of the five case studies.

Integrated Development in Focus, Ghana

Josephine Agbo presented the work of Integrated Development in Focus (DIF) in Ga West Municipality is west of metropolitan Accra, Ghana's capital. The climate is hot and humid, but relatively dry, receiving on average 700-800 millimetres of rain per year. The main economic activities in Ga West are subsistence and commercial farming, fishing, fuel wood and charcoal production, trading and small-scale quarrying. Despite the area's proximity to metropolitan Accra, the area is rural and receives few government services

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[7] http://nbsapforum.net/#read-thread/1353
[8] www.equatorinitiative.org/images/stories/winners/184/casestudy/case_1444228971.pdf
[9] www.equatorinitiative.org/images/stories/winners/196/casestudy/case_1444229528.pdf
[10] www.equatorinitiative.org/images/stories/winners/183/casestudy/case_1444245128.pdf
[11] www.equatorinitiative.org/images/stories/winners/13/casestudy/case_1370354707.pdf
[12] www.equatorinitiative.org/images/stories/winners/167/casestudy/case_1370356788.pdf

such as water, electricity, schools and health care. Unemployment, illiteracy and poverty are endemic in Ga West Municipality. The soils in Ga West Municipality are sandy and have been targeted by predatory sand miners who supply Accra's booming construction industry with raw materials. Sand mining is poorly regulated and illegal extraction is common, resulting in the removal of topsoil and extreme habitat degradation. Sand mining produces deep gashes in the Earth that subsequently fill with water and mosquitoes, exposing local residents to the threat of malaria. Land degradation is further exacerbated by felling of trees for fuel wood and charcoal production, and bushfires set by hunters in search of bush meat. The women lived in extreme poverty, earning money from collecting fuel wood. Due to the environmental degradation in the area, most of the men had emigrated in search of better opportunities, leaving the women to struggle as single heads of households.

By equipping women with financial and technical resources to restore degraded lands and develop small-scale enterprises, DIF is steadily improving crop yields and local incomes. Women-led groups have planted three million trees and restored 350 hectares of land. Communal labour prepares and maintains individual plots of land on a rotating basis. Farmers are trained in organic farming techniques and supported to access new and more lucrative markets for their produce. Growth is ensured through a model whereby each woman who receives training is responsible for training ten other women as a condition of support. Small-scale businesses have been launched in livestock rearing, composting and organic vegetable cultivation. Partnerships with local municipalities, chiefs and elders support fire management and environmental watchdog communities.

Kasisi Agricultural Training Centre, Zambia

Henrietta Kalinda presented on the Kasisi Agricultural Training Centre (KATC) that works on the ground with farmers living in Chongwe and Rufunsa Districts of Zambia, where agriculture is the primary livelihood. In recent years, these districts have experienced massive deforestation, driven in large part by demand for firewood and charcoal. As a result, firewood is scarce in some areas within the two districts. Poor agricultural practices and long term intensive use of synthetic chemical inputs, such as chemical fertilisers and pesticides, have severely degraded soils and reduced agricultural yields, leading to greater dependency on fertilisers and spurring additional clearing of forests for new fields. Changing rainfall patterns have brought drought and dried up streams, further endangering farmer livelihoods.

Reaching over 10,000 small-scale farmers, KATC provides agricultural training, extension services, research and marketing support to local farmers. Demonstration plots are used for hands-on learning and for agricultural research. The centre maintains a production unit where dairy cows, sheep and other livestock are raised and the milk is sold to a local milk processor. Through extension services and direct training to farmers, the centre has helped increase local maize yields to levels well above the national average,

resulting in greater food security and improved incomes. Crop rotation, reforestation, new irrigation schemes and agricultural diversification have all contributed to increased availability of different food types, improved food security, better nutrition and the conservation and sustainable use of local ecosystems. Biodiversity fairs have been used to help farmers share knowledge on local varieties of seeds, crop diversity, apiculture and agroforestry techniques.[13] The Centre has facilitated a village saving initiative, which has enabled several women to access capital to start small-scale enterprises. Conversion to organic agriculture using KATC methods has increased the cash income of local farmers by more than 800 percent over the course of two agricultural seasons.[14] Outreach and training projects have increased food produced for household consumption by 170 percent, and promoted a diversified diet through the addition of products such as milk, honey, fruits, a variety of vegetables and moringa leaves, leading to an increase in food security, nutrition and community well-being.[15]

Utooni Development Organization, Kenya

Kevin M. Kamuya presented on the Utooni Development Organization (UDO) that works with government-recognised self-help groups in Machakos, Makueni and Kajiado Counties in south central Kenya. The three counties are characterised as arid and semi-arid lands, receiving an average of 600 millimetres of rain per year. In recent years, the area has experienced chronic drought. The terrain is hilly, with an average elevation of 1,400 meters above sea level. Residents of the three counties are dependent upon agriculture and livestock for their livelihoods. Drought, exacerbated by poor land management practices and climate change, has produced a domino effect of problems from food insecurity to chronic poverty and associated environmental and social problems.

UDO has been instrumental in improving the lives of subsistence farmers living in environmentally degraded, drought-prone, arid and semi-arid lands. The organisation takes a holistic approach to development that promotes water and food security and environmental restoration through the construction of sand dams, introduction of drought resistant crops, terracing (1,874,680 terraces), soil conservation strategies and tree planting (1,058,117 trees) transforming arid and semi-arid landscapes into highly productive farmland. UDO uses simple technology based on traditional knowledge to provide critical services that are widely applicable to water conservation throughout an entire region. Sand dams provide ample, clean water to communities for decades, resulting in increased agricultural yields, environmental restoration, improvements in community health and the creation of income opportunities. 1,573 sand dams have been constructed in south central Kenya, each of which can hold as much as 10 million litres of water and support a community of 1,000 through an entire dry season.

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[13] http://www.equatorinitiative.org/images/stories/winners/196/casestudy/case_1444229528.pdf
[14] http://nbsapforum.net/uploads/1557.pdf
[15] http://nbsapforum.net/uploads/1557.pdf

Abrha Weatsbha Community, Ethiopia

Abu Hawi presented experiences from the Tigray region, located in the northernmost territory of Ethiopia and borders Eritrea in the north, Sudan in the west, Afar in the east and Amhara in the southwest. The region is characterised by drylands and is highly vulnerable to recurrent drought. Land degradation is one of the most serious challenges confronting the rural population; it is exacerbated by climate change, and brings with it cross-cutting socio-economic and environmental issues. The village of Abrha Weatsbha, located in Tigray, is situated in a sandstone area that was particularly vulnerable to soil erosion and desertification. Land degradation had severely impacted the productivity of the village and surrounding agricultural lands. Poor, short-sighted land and water management approaches magnified the vulnerability of the resident communities to climate impacts. In large sections, land had become barren, with bare rock predominating on the slopes surrounding the village. The impacts on local livelihoods and food security were devastating. By the early 2000s, conditions had become so dire that the community faced resettlement.

In 2004, the Abrha Weatsbha Natural Resource Management Initiative was formed to address the challenges of food insecurity, land degradation, and access to fresh water. It has since emerged as a leading example of community-based adaptation to climate change. The initiative began with a community assessment of existing constraints to local health and wellbeing, with special consideration for challenges arising due to climate change and environmental decline. Despite the presence of a local aquifer, one of the top priorities identified was fresh water access. Through this grassroots enterprise, the community has initiated a range of actions to address land degradation and lack of water access, both of which have plagued local residents and threatened local livelihoods and wellbeing.

Today, the Abrha Weatsbha community has reclaimed its land through the reforestation and sustainable management of over 224,000 hectares of forest. Tree planting activities have resulted in improved soil quality, higher crop yields, increased biomass production and groundwater functioning, establishment of temporary closed areas on communal land, where grazing is prohibited to allow for the natural regeneration of indigenous vegetation, and flood prevention. The organisation has constructed small dams, created water catchment ponds, and built trenches and bunds to restore groundwater functioning. More than 180 wells have been built to provide access to potable water.

Environmental recovery and rejuvenation have led to improvements in local livelihoods through crop irrigation, fruit tree propagation and expansion into supplementary activities like apiculture. Local incomes have increased and food security and nutrition have improved through the integration of high-value fruit trees into farms.

Zenab Association for Women in Development, Sudan

Sami Elhag presented the work of the Zenab Association for Women in Development (ZWD), a grass roots women rights organisation founded in 2000, and named after a pioneer woman educator – Mrs Zenab Mohamad Nour, who dedicated herself to girls' education in eastern Sudan since 1941 – to empower women through education.

Through a vision where all women enjoy equality and social justice, have equal chances in education and jobs, are aware of their social, economic and political rights, and are real partners in peace and development, it operates through multi-dimensional programmes of lobbying and advocacy, providing logistical and legal aid; conducting awareness raising programmes and training, and organising local women into a farmer's union.

Started in 2005, the union has grown from 300 women in six communities to 3,000 women in 53 communities across Sudan. Smaller cooperatives make up the larger union, each of which provides a platform for female farmers to improve agricultural productivity and to exchange environmental good practice. The initiative supports the cultivation of drought-resilient crops and the provision of locally-relevant agricultural tools and technologies. Training is provided on organic agriculture, crop rotation and the use of biological fertilisers. Women now grow crops such as sunflowers and groundnuts alongside more traditional staples such as sorghum.

Storytelling exercise as basis for a reflection on the resilience principles (Photo: H. Ahmed)

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The organisation has raised awareness about deforestation, distributed cooking gas to reduce the felling of trees for firewood, and engaged union members in reforestation and tree planting activities. In addition to strengthening the land tenure status of women, the initiative offers extensive health education programmes which raise awareness about maternal health, family planning, HIV/AIDS prevention, and female genital mutilation. Union revenues are invested in rural primary schools, sanitation services and fresh water access projects.

Applying the Resilience Principles:

Each group reflected on how the experiences presented related to each of the resilience principles. Below are examples from each case study showing how the principles are applicable to them.

1. Maintaining Diversity and Redundancy

KATC and DIF promote production systems with high biodiversity through organic agriculture as an adaptive strategy to withstand future environmental stresses caused by climate change. Organic methods, such as no-till farming, mulching, crop rotation, improved fallows and the use of compost and cover crops, build soil micro-biodiversity and improve water retention, making soils less susceptible to drought and erosion. Inter-cropping, use of drought-resistant species and alley cropping with trees increases agricultural biodiversity, attracts beneficial insects, improves diets and provides a buffer against over-reliance on a single crop.

UDO and the Abrha Weatsbha Community include tree planting as a central feature of their initiatives. Trees sequester carbon, improve soil fertility and attract birds and insects. Trees provide valuable services, produce marketable goods (moringa leaves in Zambia, and fruits in Kenya), organic pesticides (neem leaves in Zambia) and firewood.

KATC and ZWD promote genetic diversity through the conservation of local seed varieties through seed fairs. Sustaining local seed systems ensures that farmers have access to seed that is adapted to local soils and climatic conditions. Unlike hybrid seed, the seeds of local varieties of plants can be saved after harvest and used for the following year's planting.

Malnutrition is a serious problem in sub-Saharan Africa drylands, particularly for children. Diversifying local diets is one way to combat malnutrition. In Kenya, **UDO** has taught farmers to augment staple crops such as maize and beans with drought-resistant crops (e.g., sorghum, millet, green grams, lablab and cowpeas) and nutritious fruits from planted trees. Access to water provided by sand dams constructed by UDO has increased fodder production, leading to healthier livestock that produce more milk and meat. The diversification of local diets has had an immediate positive impact; UDO reports that rates of childhood malnutrition have dropped from seven percent

to zero percent in one region where it works. In Zambia, **KATC** promotes diversification of diets through trainings in dairying, apiculture, organic agriculture and agroforestry. KATC promotes nutritional diversity for people living with HIV/AIDS because balanced diets fortify the immune system and the body's ability to fight the disease.

Diversification of livelihoods spreads risks and gives villagers fall-back options for work in the event of crop failure or droughts. In **Abrha Weatsbha Community** increased income from expanding land under irrigation resulting in an increased sale of vegetables and spices from USD 32,500 to USD 93,750 between 2007 and 2010. Farmers have also been supported to grow high-value fruit trees for apple, avocado, citron, mango, and coffee, several of which were not part of the agricultural landscape prior to when the initiative began. The group has also promoted apiculture as an income diversification strategy for local farmers. Training in modern beehive management and the use of apiculture equipment led to a local increase in honey production from 13 to 31 tonnes, as well as an increase in hive productivity from 10 to 35 kilograms. Incomes have also increased from the sale of surplus produce.

Sixty-five percent of Zambia's subsistence farmers are women who are also the primary care-givers for children, the sick and the elderly and managing the household. As a consequence, **KATC** implemented on-farm trainings in the community and increased female participation rates above 50 percent. The Centre also facilitated the establishment of five village savings groups to enable group saving and lending among members. Each group is composed of approximately 25 women who make a monthly contribution to the savings fund. The pooled money is used to provide loans to its members and to serve as a social fund for community members in need. The village savings schemes have allowed several women to start businesses such as groceries and selling second-hand cloth. The ability to own a business and secure a stream of income has improved women's self- worth and raised their status in the community.

2. Managing Connectivity

KATC – Seed fairs in Zambia sustain local seed systems and also give community members opportunities to exchange ideas and knowledge about local varieties of crops. It was also noted that there is a lack of connectivity in some aspects – the organic farms were described as dotted islands in the middle of a sea with conventional agricultural practices.

UDO - Social networking in Kenya led to the construction of a lot more number of dams than expected. Communities learnt from each other the technology of dam construction, thus increasing the number of dams to over 1,500. Even the government showed interest in learning about the technology for implementation on a wider scale.

UDO has also observed ecological connectivity through regeneration and the cascading effects of the sand dams both upstream and downstream, and helped increase market connectivity and market access among breeders/farmers growing seeds that could be used for organic farming. Market access among different service providers and farmers was also visible for the sale of milk, fruits and honey.

3. Managing slow variables and feedbacks

ZWD - Understanding how precipitation variability is a factor. Also, understanding the potential impact of new technologies on the ecosystems was discussed as a form of feedback – such as being able to show that a new technology has a cost association or it will lead to adoption because it is likely to show some sort of positive result.

Institutional feedbacks, traditions and values: rules that govern household decision making and land tenure. Women are now coming as sole decision makes in the house. There is some resistance as this means a shift in values which changes slowly.

Abrha Weatsbha Community - There was a very vicious cycle of poverty and land degradation for 20 plus years but that was kicked off. They have broken it through implementing a combination of innovative techniques including land rehabilitation, water management, tree planting, etc.

KATC - An example of how slow variables and feedbacks have been managed by KATC is their work on soil productivity. They have observed that soil productivity degrades over time with conventional agriculture practices and that even with more inputs there is a negative spiral with less productivity and this changes the trajectory. They are looking at a new system of agriculture that is low input and climate smart.

Subsidies to the agriculture sector can lock subsistence farmers into an unhealthy cycle of dependency on chemical fertilisers, pesticides and hybrid seed that slowly degrade soil fertility over time and cost farmers increasing amounts of income to sustain each year. KATC in Zambia has addressed this poverty trap by providing farmers with training in organic agriculture, agroforestry and the use of open-pollinated varieties of crops. Organic agriculture uses locally-available inputs, such as compost and manure, to build soil fertility, thereby reducing farmer expenses for fertiliser. Open-pollinated varieties of crops produce seed that can be replanted the following year, obviating the need to buy hybrid seed. These cost-saving measures, combined with increased yields produced by organic farming methods, have helped subsistence farmers accumulate wealth and raise themselves out of poverty.

4. Fostering complex adaptive systems thinking

KATC has been looking at soil health and its many dimensions. A range of components of the systematic approach to change resilience in this community

was also discussed, including training, market support, advocacy, livestock, micro-finance. All of these created synergies where the components were greater than the individual. And this arose out of the need to address the key issues – this is an example of getting out of the log frame thinking into a systems thinking.

ZWD has been improving the availability of appropriate technology to facilitate increased agricultural productivity, through the development of hand-driven systems based on an understanding of their effects on the ecosystem and their appropriateness during times of heavy rains and flooding.

ZWD has also been considering the implications of access to markets, increased production, learning, training, land tenure, and changing social structures, including the fact that women are taking over traditional men's roles in community governance.

5. Encourage learning

Peer-to-peer learning is an effective and low-cost method to build and sustain critical capacities within communities. **KATC** promotes study circles as a means of spreading agricultural knowledge and skills within villages. A study circle leader, trained by KATC, acts as a facilitator for seven to twelve of his or her neighbours as they collaboratively work through a manual addressing a specific topic. The manuals are highly visual, simple to understand and contain practical exercises that the farmers can undertake. In Ghana, every woman who receives training in organic agriculture methods from **DIF** is responsible for training ten of her neighbours. This condition ensures the transfer of sustainable farming practices in the Greater Accra region and sustains the initiative's impact into the future. Exchange visits are another vehicle that fosters peer-to-peer learning, networking and the building of communities of practice.

Demonstration sites are particularly powerful tool for education because learners can instantly visualise and comprehend concepts in practice. In Zambia, **KATC** are encouraging demonstration sites, trials, trainings, cooperatives, field schools, and model farmers. Each of the farmers reached out to 30-35 families.

Further, in Zambia, community radio is used as a tool to educate farmers about types and availability of locally-adapted seed varieties, seasonal forecasts, pest management, market prices for staple crops, the use of fertilisers and innovative agricultural techniques. The distribution of practical manuals, such as a series of study manuals on topics such as agroforestry, sustainable agriculture, manure handling and storage and organic cotton production produced by KATC in Zambia, are further examples of how learning can be fostered and disseminated.

6. Broadening participation

Groups characterised by broad and active participation are likely to communicate more effectively, have greater trust, and learn faster than groups with low levels of participation**.**

Women bear the primary responsibility for gathering water and firewood for households in sub-Saharan Africa. Improvements in access to water and more efficient uses of firewood relieve women from household drudgery, enabling them to more fully participate in community life. In Kenya, **UDO** assists communities in the construction of sand dams. Sand dams provide communities with safe, potable water and dramatically reduce the amount of time women spend gathering water (from more than six hours a day to less than an hour per day).

UDO - it was a bottom up initiative. Government was involved, NGOs learning from communities and there was a lot of mutual respect. Sharing their accounting books to encourage transparency.

ZWD - involving actors – understanding the governance system, how do government agencies, women associations, community level associations will all work together to see some positive change

KATC - involved a wide variety of stakeholders right from the beginning of design of the initiative

7. Promoting polycentric governance system

KATC - Polycentric governance, multi-governance, effective governance: We found that advocacy was achieved by information that was generated by the community itself. This was evidence based that it was better for farmers and better for soil. Some of the methods of governance – certification and cooperation helped to increase accountability in governance

Exercise reflections:

- **Common problem understanding:** Participants stressed upon the need for a community to see a problem through a common lens and resolve issues in an integrated manner to ensure positive action.
- **Positive committed leadership/Good leadership and change agents:** One of the main ingredients behind Abrha Weatsbha Community's success in environmental recovery and rejuvenation has been its capacity to mobilise action and people in each step of project design, development and implementation. Participants reflected that this aspect could be viewed as an additional resilience principle.
- **Power issues/Power dimensions in society:** All five case studies discuss the male-centric power dynamics of societies where decision-making power earlier lay with male chiefs and village elders. However, with

concerted efforts of the organisations involved with these communities, there is a paradigm shift in the power equation. Due to the financial independence that several trainings and alternative livelihood options have brought to women, they have a greater voice and higher social standing in their communities.

- **Issue of cooperatives/cooperation:** There is a need to recognise the importance of cooperative/cooperation. KATC's case study demonstrates market's willingness to buy organic produce although there is no market increase in production, there is an increase in market share and market access – the produce flies off the shelves faster.

- It was felt by the participants that **several issues discussed during the group discussions fell under more than one resilience principle**. E.g. ecological regeneration could relate to diversity and redundancy, connectivity and also the complex adaptive system aspect. This reflects that the principles are interconnected and that there is a need to understand how different principles interact and depend on each other. It was also remarked that this was a short exercise where communities discussed the impacts of their actions only superficially. There is a need to further understand the complex issues and systems involved and before applying any principle it is important to have a clear idea about resilience of what, to what and for whom. At this level, it can be difficult to know which principle to apply where.

- Participants remarked that the resilience principles were very theoretical and that hearing and discussing the stories first and then trying to derive an understanding of how those principles come to play helped to understand the actual thinking behind the principles. At the same time, participants remarked that there is a big gap to bridge between the local cases and the overarching principles, and that indicators could probably help as a bridge.

- Appreciating the Equator Initiative prizes awarded to communities aiming for resilience and sustainable development, it was suggested that there is a need to follow up and re-assess performance of communities who have won the award.

- Participants found the principles intuitively relate to indicators, but can at times challenging to qualify. Again, using the resilience principles to assess resilience of a common case example was seen as a useful way to better understand the resilience principles in a practitioner context that was relevant for the participants.

Session 3: Resilience Assessments in Practice

The expected outcome of this session was to exchange experiences with and approaches for resilience assessments at multiple scales for multiple purposes, with an outcome of a better understanding of the range of resilience assessments, and a clearer consensus on some key steps.

Facilitator: Million Belay, MELCA Ethiopia

Resilience Assessment in the Pamir Mountains

Jamila Haider, SwedBio at SRC, presented the results of using the Resilience Assessment Workbook in northern Afghanistan to assess the resilience of pasture management practices. Resilience Assessment was selected as an assessment methodology in order to incorporate the volatile history of pasture management in the region in a dynamic way and to assess both the ecological and social status of the pastures and management structures. The Resilience Assessment enabled the Pasture Management Committee to identify slow and fast variables of change and raise awareness of critical thresholds to avoid surpassing, with the conclusion that the pastoral system of northern Afghanistan may currently be trapped in a situation of reinforcing resource degradation and poverty. The assessment helped elicit pathways for transformation in governance (Haider *et al.* 2012).
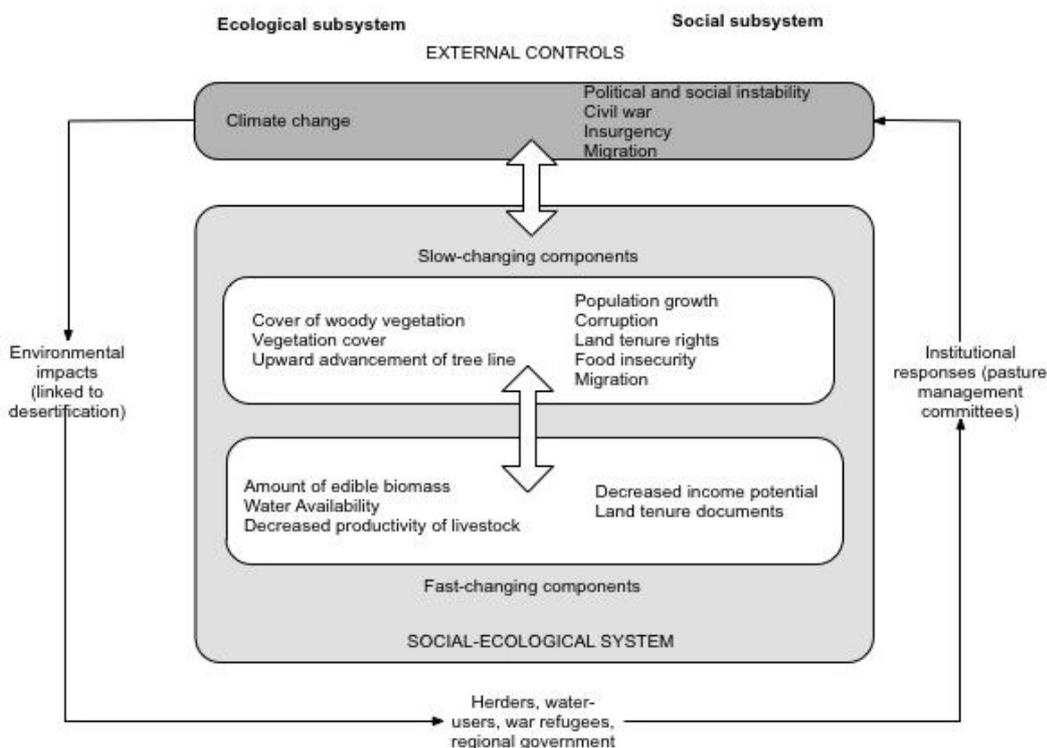

Figure 3: Conceptual model of Ishkashim pasture management as an integrated social-ecological system (Haider *et al.* 2012).

Download the Resilience Assessment workbook here: http://www.resalliance.org/assessment-resources

Indicators of resilience and socio-ecological landscape

Whereas the Resilience Alliance Workbook has the starting point of "the issues" (resilience of what to what), Bioversity International and UNU-IAS has developed a set of indicators for assessing resilience of socio-ecological production land- and seascapes (SEPLS).

Zeleke Tesfaye, National Coordinator, GEF Small Grants Programme, Ethiopia, presented the indicators of resilience for socio-ecological production landscapes and seascapes, which were first developed by Bioversity International and UNU-IAS. The set of indicators has been tested in the field by Bioversity International in Bolivia, Burkina Faso, Cuba, Ethiopia, Fiji, Kenya, Mongolia, Nepal and Uganda, and also in selected areas in twenty countries participating in the Community Development and Knowledge Management for the Satoyama Initiative (COMDEKS) programme of UNDP. The whole purpose of developing the toolkit was to give practical guidance to communities for building their capacity to respond to social, economic, and environmental pressures and shocks, and increasing the social and ecological resilience of their landscapes and seascapes.

Zeleke further explained that there are twenty qualitative and quantifiable indicators designed to capture different aspects of key systems – ecological, agricultural, cultural and socio-economic. Measurement is based on the observations, tallies, perceptions and experiences of the local communities themselves. The indicators are assessed through participatory and workshops, involving discussions and a scoring process. The assessment procedure generally consists of three main stages: 1) preparation, 2) assessment workshop and 3) follow-up. Giving two examples from different countries, Zeleke explained that the assessment entails assigning a score and trend to each indicator in response to the questions designed to capture different aspects of key systems. A score is assigned to all indicators using a five-point scale of very high, high, medium, low and very low options.

For further guidance, Zeleke walked participants through Ethiopia's example of the indicators in action, taken from previous field-testing by Bioversity International and UNDP-COMDEKS. The presentation ended by giving a brief overview of COMDEKS' strategic framework for enhancing community resilience and sustainability at landscape level through adaptive management. The framework comprises an assessment of landscape resilience involving community consultations and use of indicators of resilience in SEPLS; planning landscape strategy development; building capacity of communities through self-driven innovative practical methods; facilitating knowledge and learning

through case study development; and up-scaling by developing national and sub-national polices and strategies (Figure 4).
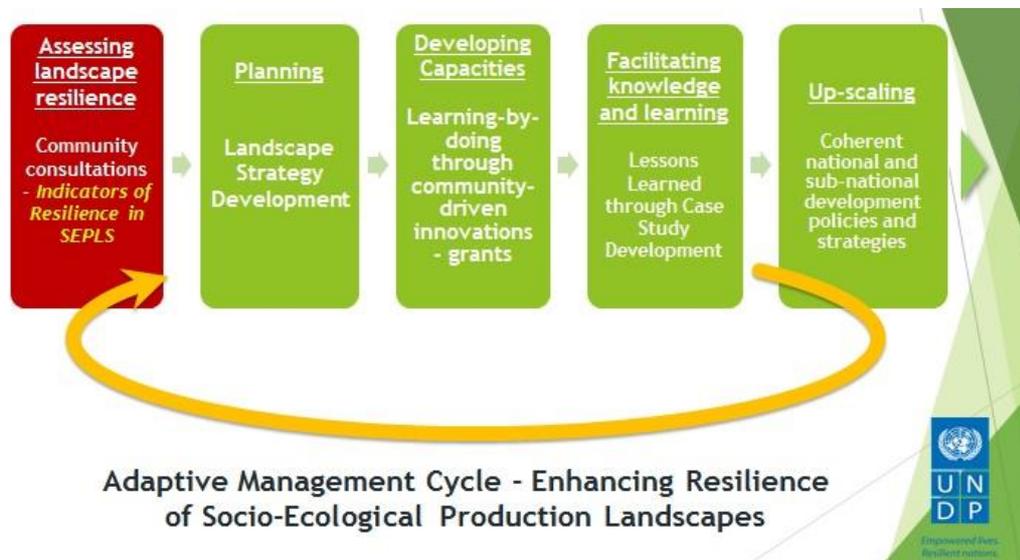

Figure 4: COMDEKS Strategic Framework for enhancing community resilience and sustainability at landscape level through adaptive management

A key take-away message from the presentation was that one of the main challenges in conducting assessments was to explain the meaning of resilience, and the resilience indicators in the community consultations. The language used in the indicators toolkit may be too complex for many people to comprehend easily, thus it is important to tailor the language of all content to meet the specific capacities of participants. Interactive mapping exercises and use of photos of the landscape or seascape can prove particularly successful in providing a spatial dimension to conservation priorities and encouraging relevant and practical solutions to resilience.

Download the Toolkit for the Indicators of Resilience in Socio-Ecological Production Landscapes and Seascapes (SEPLS) here: http://nbsapforum.net/uploads/1330.pdf

Communities Self Assessing Resilience

Jamila Haider, SwedBio at SRC, presented on Communities Self Assessing Resilience (CSAR). She explained that although various tools exist for resilience assessment, few assessments have been done in social-ecological production landscapes in a development context, and fewer still by communities. This process could help communities understand and reflect on their system and its resilience attributes, replicate what works and make improvements where needed, communicate with external actors and plan for the future. The CSAR, developed by the Agricultural Biodiversity Community, has five suggested steps: Why, Community representation, Telling the story, Identifying attributes, and Action (Figure 5). CSAR is not a new tool,

but a suggested process which draws directly on existing resilience assessment tools and methodologies, including the Resilience Assessment Workbook and the SEPLS toolkit mentioned above. The main distinguishing feature of CSAR is that it starts with an open narrative and then moves to indicators and evaluation led by the community, as opposed to other assessment approaches which begin with externally defined indicators. A number of field trials are taking place around the world.

For more information or to get involved, please visit: http://www.communityresilienceselfassessment.org/

Figure 5: The five steps of Communities Self Assessing Resilience (CSAR) developed by the Agricultural Biodiversity Community

Adhinarayanan Ramasamy, Development of Humane Action (DHAN) Foundation India, presented the results of CSAR from eight villages in the Madurai District of Tamil Nadu, India. Aadhi informed the participants that community members took charge of the entire assessment process. The assessments were carried out twice, once in the month of June and the second during October.

Aadhi explained that the process began with developing a common understanding of resilience among community members of all eight villages. The participants agreed on the definition formulated by one of the farmers: "*resilience is like a weed in our farming, the weed can survive in any climate*

change like excess or deficit rainfall, resistant to pest and diseases and it complete it life to produce seed for next generation with its own adaptation to expected and unexpected change. Like this, in farming with different combinations of activities and using knowledge gained over the years to harvest successful crops, we can meet even extreme events faced by the region with adaptive capacity." Food security, multiple livelihood options, use of traditional agricultural practices, climate change adaptation, and use of own seeds for plantation were some of the key indicators of resilience identified. Communities mapped the diverse crop patterns and agricultural practices in the area in a farm diversity map. Communities also mapped the seasonal changes to inform plantation and cultivation practices. Aadhi noted that earlier the rains used to pour in June-July each year. However, due to climate change, the rains now pour in October. Aadhi also reflected upon critical attributes of communities that are resilient - highlighting use of traditional practices and traditional seeds; use of tank silt and goat/sheep penning for increasing soil moisture and fertility; and marketing and adding value to products for increasing farm income. Aadhi emphasised that to carry out community-driven resilience assessments, it is necessary to promote resilience literacy among community members, provide resilience ranking to communities, keep a resilience scorecard, and periodically assess resilience of communities.

Key challenges of conducting resilience self-assessment by communities are to develop a common understanding on the concept and meaning of resilience; and building capacity and maintaining the interest of communities, thereby enabling them to conduct their own resilience assessments.

Guiding principles for knowledge collaborations

Participants recognised the need to discuss ethics related to undertaking assessments, such as procedures for carrying out assessments involving different actors and knowledge systems in a respectful manner.

Maria Schultz, SwedBio at SRC, gave a brief presentation on SwedBio's guiding principles for knowledge collaborations. She explained that the aim of SwedBio's role, as a "knowledge interface", is to facilitate connections across knowledge systems and cultures, such as local, indigenous, policy makers and scientific knowledge thereby contributing to improved understanding, knowledge generation, management and good governance of social-ecological systems. Maria explained that this is based on the primary principles of respect, trust, reciprocity and equal sharing. Knowledge collaborations should consider how they might wish to manage expectations and timeframes, mutual learning and sharing, and safeguard sensitive or restricted information. She also talked about meaningful and culturally appropriate participation of representatives and the need for transparent processes. She also stated that women and men have different roles in many aspects of life, and there is a need for integrating a gender 'lens' or 'dimension'. And she talked about the indigenous peoples and local communities' rights, including the

right to Free, Prior and Informed Consent (FPIC). The SwedBio guidelines for knowledge collaboration are in line with international agreements and guidelines, such as: the international human rights framework, including the UN Declaration of the Rights of Indigenous Peoples; the CBD Tkarihwaié:ri Code of Ethical Conduct; the Akwé:Kon Guidelines for Impact Assessment, as well as relevant guidance from the Nagoya Protocol on Access and Benefit-sharing. She also said that IPBES is developing rules and procedures for synergies across knowledge systems, and how to use indigenous and local knowledge in assessments.

She presented the Multiple Evidence Base (MEB) approach, developed by colleagues from different institutions, whereby indigenous, local and scientific knowledge systems are viewed to generate different manifestations of knowledge, which can generate new insights and innovations through complementarities (Tengö *et al.* 2013). The MEB approach allows each knowledge system to speak for itself and to respect mechanisms within each system to evaluate knowledge. Different kinds of exchange between knowledge systems could be exemplified with: i) Integration, where components of one knowledge system is incorporated into another through a validation process; ii) Parallel approaches, i.e. placing knowledge systems next to each other, using separate validation mechanisms and assessing insights; and iii) Co-production of knowledge i.e. engaging in mutual processes of knowledge generation.
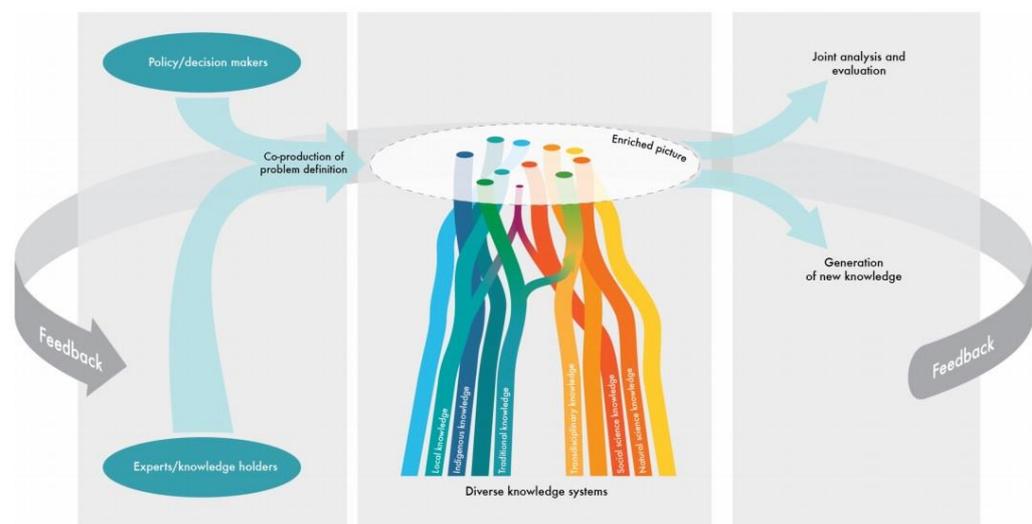

Figure 6: The three phases of a Multiple Evidence Base approach, that emphasises the need for co-production of problem definitions as well as joint analysis and evaluation of the enriched picture created in the assessment process (Tengö *et al.* 2013)

The Resilience, Adaptation Pathways and Transformation Assessment Guidelines

Yiheyis Maru, Commonwealth Scientific Industrial and Research Organisation (CSIRO), presented on the Resilience, Adaptation Pathways and Transformation Assessment (RAPTA) Framework. The RAPTA framework

was developed to guide the design, implementation and assessment of interventions (project programme, policies) for sustainability of social-ecological systems. The RAPTA process comprises: i) Scoping; ii) Theory of Change; iii) Multi-stakeholder engagement; iv) Systems Description; v) Systems Assessment; vi) Intervention Options and Implementation Pathways; and vii) Monitoring Assessment, Learning and Knowledge Management.

Explaining each of the phases, Yiheyis elaborated that the first step of the process is scoping the goals and scale of intervention followed by an initial theory of change to explores what need to be maintained or needs to change to achieve the desired goals (e.g. biodiversity targets). This is followed by in-depth description and assessment of the system of interest. Unlike many add-on assessments, RAPTA tries to build-in resilience assessment as part of scoping and design of interventions. This is essential as it reduces reporting on many indicators that may not be relevant to the intervention and the system of interest if predetermined indicators of resilience are used for assessment.

Yiheyis emphasised that all elements of the RAPTA Framework would be conducted within a multi-stakeholder context and learning for adaptive design and management of interventions Depending on the goals what is required may be maintaining and enhancing the identity of the system (resilience), making modifications to the system (adaptation), or radically changing to new systems (transformation). However, he pointed out that there may be situations where some parts of detailed analysis and data collection might be conducted by an individual, or a group of experts/scientists/consultants. With respect to monitoring, assessment and knowledge management, once again, the design process must underpin ways to monitor, learn and also setting up of a knowledge management system.

Yiheyis ended the presentation by emphasising that positive change does not come only by thinking (logic – which is often what underpins design and implementation of conservation and development projects, but comes from engaging with feelings (emotions and motivations), trust and relations that are built amongst community members and other stakeholders. There is a need to recognise the role of feelings and build robust partnerships which are fundamental for the success of interventions.

Exercise 4: Discussion on resilience assessments based on presentations from Session 3

Plenary discussion:

- A diversity of approaches to resilience assessments, useful on different scales and for different contexts and purposes were discussed during Session 3. Approaches discussed in the Dialogue were the ongoing work on the RAPTA guidelines, as commissioned by the GEF STAP

(O'Connell *et al.* 2015); the Resilience Alliance Workbook (Resilience Alliance 2010); the SEPLS toolkit (UNDP 2014); and CSAR. Participants identified a need to synthesise complementary approaches to make them more accessible to practitioners, scientists, communities and policymakers, and pointed to examples of such endeavours (e.g. Quinlan *et al.* 2015).

- It was pointed out that many resilience assessment approaches and development interventions often have had a strong focus on risk reduction and adaptation, but that there is an increasing focus on transformation and finding radically new ways of development, which is highlighted for example in the RAPTA framework.
- One of the participants reflected that there is a need to define and facilitate an interface between the knowledge and resources of various communities. Community-to- community learning through experience sharing visits and technologies must be encouraged for raising awareness and working towards a common goal of resilience building.
- Depending on scope and design process for conducting resilience assessments, it is important to not only assess across years but also within a year during different months to map seasonal difference.
- Through resilience assessment exercises, communities that earlier never discussed their socio-economic or biodiversity problems were given a new platform to discuss these issues. Giving an example of the Telecho community and MELCA's intervention, community members came together and sketched the present, past and the future of their land. Through this practical exercise, community members understood the meaning of resilience, laid out goals that they must achieve as a community to manage resilience and restore their environment.
- The diverse perspectives of men and women needs to be addressed. For example, in the Telecho community, resilience for women meant having different varieties of seeds that are good for cooking and feeding their children, however, men preferred seeds that fetched them more money and have a higher market demand.
- In the light of the presentation of the MEB approach, participants reflected on the seven resilience principles presented in Session 2 and that they represent one kind of worldview and that different knowledge systems need to be taken into account for further defining and developing resilience. Participants agreed that resilience literature is still growing, and a lot more research needs to be conducted in Africa and other countries, which could broaden the perspectives on resilience. Also, there is a need to develop principles that emanate community perspectives.

Field Trip: Telecho Kebele, Wolmera wereda, in the Foata Mountain complex

A field trip was organised by MELCA-Ethiopia. This trip provided an opportunity for informal discussions among the participants and community members to learn more about the powerful participatory 3D mapping exercise facilitated by MELCA in the region. It helped participants to understand the role of this mapping process in mobilising knowledge related to bio-cultural landscape, in learning and change, and its value in building resilience. This trip also provided an opportunity to participants to visit the first community seed bank in Telecho, built with an aim of supporting farmer communities in Telecho area to preserve their local seed varieties, considered vital for climate change adaptation and community's traditional knowledge.

Reflections from the field visit:

- The participants unanimously decided to hold informal discussions with community members instead of conducting a paper-based exercise. The participants agreed that there is a difference between contract and contact. Contract being a paper-based approach of taking notes or following a pre-meditated agenda, and contact being the ability to adapt resilience thinking and resilience assessment based on participants' interactions with the community.
- Happiness, passion, commitment, leadership and innovation – the human dimension of resilience (psycho-dimension of resilience) must be unpacked. Participants reflected that while talking about resilience, the common focus is on communities, flips, regime shift, connectivity, assessments, but there is also a human element of hope, inspiration and passion. Participants were very inspired to see the hope and courage of community members, even when facing serious problems in their daily lives.
- Power of learning: Participants observed that Telecho community was receptive to learning and that their learning was still on-going, which is an excellent aspect of resilience. For example, community members of Telecho visited the Tigray community for experience sharing and implemented those best practices into their own community.
- Participants noted that the presence of many community elders helps with inter-generational learning and contribute to the community's resilience.
- 3D mapping can be a difficult methodology. However, the Telecho community almost did the entire process themselves. Participants from India and Abrha Weatsbha Community from Ethiopia showed interest in adapting this methodology into their work and also conducting similar processes for their areas.
- Women participation in the mapping process was a welcome shift in paradigm, in a societal culture where men and elders are the decision-makers.

Field visit to Telecho (Photos: J. Ervin, S. Elfstrand)

Exercise 5: Using indicators when assessing resilience

Facilitator: Jamison Ervin, UNDP

Based on the audio-visual documentary shared by MELCA showcasing the 3D mapping process, community interactions and field visit to Telecho on Day 2 of the Multi-Actor Dialogue on Resilience, participants were asked to share their perspectives on developing indicators linked to the resilience principles and how would they measure those indicators? The purpose was to reflect upon resilience measurements, while at the same time recognising the need to first assess the issues to address in this specific context, i.e. as mentioned before, to address the questions "resilience of what, and to what".

The seven resilience principles were used as starting point, and Jamison shared an example of crop diversity as an indicator for the resilience principle 'maintaining diversity and redundancy' and asked participants ways of measuring such an indicator. Participants responded that crop diversity may be measured through food recipes, farmer market products, aerial survey, household survey, seed band data.

Participants were given an assessment sheet to note down possible indicators, as well as current status and trend of the indicators, based on the observations made during the visit to the Telecho Community. Each resilience principle was accompanied by an example to guide the participants throughout the exercise.

Group discussions were followed by a plenary. Reflections from the plenary were compiled and shared below to showcase the diversity of thinking on developing indicators.

Plenary discussions:

1. *Maintain diversity and redundancy*
- Tree diversity represented by tree types, measured by conducting surveys and inventories;
- Seed diversity represented by the seed variety available in the Community Seed Bank, measured by inventories;
- Livestock diversity measured by inventories;
- Wildlife diversity;
- Other vegetation diversity measured by field visits;
- Water sources diversity measured by different water sources like irrigation, springs, water tanks;
- Social diversity represented by age and gender;
- Livelihood diversity represented by the variety of sources of income;
- Cultural diversity measured by surveys;
- Knowledge diversity measured by various indigenous or scientific sources;
- Landscape diversity measured by field visits and transect walks;
- Food diversity measured by house-hold surveys, food recipes;

- Institutional diversity measured by credit facilities, associations, seed banks.

2. *Manage connectivity*
   - Market connectivity measured by survey of market and domestic use preferences;
   - Connectivity between farms and parts of forests comprising livestock, crops, trees, dwelling, enclosures;
   - Social connectivity;
   - Learning from other communities.

3. *Manage slow variables and feedbacks*
   - Participation of women enhances human resource capacity, which in turn improves community action in resilience building;
   - Community planting eucalyptus trees in their surrounding is a slow variable leading to low levels of water tables in the long run;
   - Artificial fertilisers, soil erosion are another two slow variables.

4. *Foster an understanding of social-ecological systems as complex adaptive systems*
   - Participatory eco-cultural mapping measured by developing a 3D map, planning and implementing activities based on the map;
   - Community meetings to develop common understanding of resilience building, human activity and landscape;
   - Land rehabilitation measured by forest plantation.

5. *Encourage learning and experimentation*
   - Formal learning opportunities measured by number of farmers registered in farmer field schools;
   - Active community engagement in meetings measured by number of community meetings and their reports, if any;
   - Girls/women going to school is being monitored by surveys;
   - Inter-generational learning measured by bio-cultural community protocols;
   - Foster learning within and outside of the communities, measured by number of experience sharing visits among different communities or number of trainings, field trials held within the community.

6. *Broaden participation:*
   - Women participate in decision-making, community meetings and engagements measured by observation, number of women members in key community institutions and committees can also be monitored.

7. *Promote polycentric governance systems*
   - Interaction between local village committees and government;
   - Women participation in higher positions/decision-making measured by number of women associations;

- Local community associations comprising elders, men, women and youth.

Other suggested principles and indicators
  - Leadership;
  - Passion;
  - Health of community measured by survey of number of patients in the community, and types of prevalent diseases.

Exercise 6: Reflections on what to consider when assessing resilience

Facilitator: Jamison Ervin, UNDP

This exercise was a plenary reflecting on what to consider to conduct resilience assessments. The following set of questions and observations came out from the discussions that must be addressed in the field of resilience thinking. The exercise was primarily conducted to answer the following two questions:

  i. What are the components of various resilience assessments that participants heard?
  ii. When, why and how do we assess resilience?

Plenary discussion:

- When discussing what should be included in resilience assessment, participants identified it was important for the assessment to: have a clear and explicit theory of change, understanding the drivers of change, consider resilience of what, to what, for whom, and also by whom. It should include benchmarks, which can be co-produced to be legitimate and appropriate for all actors, identify threshold and status in relation to the threshold and include timescales. The desired goal of the system should be agreed on, which may include a differentiation between persistence, adaptation and transformation. There is a great need to focus on trajectories and dynamic processes in resilience assessment.
- The group also considered when, why and how to assess resilience with one of the main discussion outcomes being that how one assesses resilience depends on the scale of the analysis and the purpose, the sector and context. Are we assessing state, process or trends? How do we maintain openness and avoid the danger of over-framing while still providing comparable metrics and baselines? In any assessment process, we must consider the unknown unknowns and remain humble in our approach and understanding.
- In order to assess resilience, there is a need to link the socio-economic, political system at the community level to the inter-community, regional, national and global level, e.g. climate change where the world needs to commit globally to reduce greenhouse gas emissions

- There is a need to think deeply about good and bad resilience. What are the thresholds and how are we insistent on those thresholds? There is a need to understand the greater complexity of the system.
- Measuring identity i.e. if a community after a shock loses its identity. Whether losing its identity is good or bad community resilience? For example, an oil company setting business in Amazon and changing a community's identity. In such a scenario, community losing its identity is not a positive thing.
- There is common understanding of resilience among biodiversity practitioners, however, there is a need to interact with members of other sectors to understand their perspective and work towards a common goal.

Using the resilience principles as a post-hoc assessment methodology offered a way to rapidly assess the components of the system which a) demonstrated resilient properties, and b) which were being managed well for resilience, and other areas which could be improved. This was a useful exercise for the purpose of the Dialogue, to come to a common understanding, but how to incorporate the principles into a longer-term assessment strategy remains a further research area.

Engaged group discussions (Photo: J. Ervin)

Session 4: Resilience Mainstreaming

The objective of this session was to explore and formulate recommendations on how to integrate and mainstream resilience thinking into key policies and practices, including into national biodiversity plans, national development plans, and community resource management practices, with an outcome of closer consensus on some key steps required to integrate resilience thinking.

Introduction to resilience mainstreaming

Jamison Ervin, UNDP, began her presentation by asking the critical question of what it meant to integrate biodiversity and resilience into development and sectoral plans. The Strategic Plan for Biodiversity emphasises that, by the year 2020, biodiversity values will be integrated into national and local development, poverty reduction strategies, sectoral planning processes and policies. Article 6b of the CBD also supports biodiversity mainstreaming – defined as "integrating biodiversity into sectoral plans and policies using a variety of methods and approaches" – as a critical step towards achieving sustainable development.

Digging deeper, the three components in this biodiversity mainstreaming definition mean identifying specific components of biodiversity that we care about whether genetic resources, species or ecosystems. It also means identifying specific goals of biodiversity conservation and sustainable use, e.g. minimising or mitigating threats to biodiversity, restoring or improving ecological integrity, improving the protection status of unprotected areas, maintaining ecosystem services, or strengthening resilience and adaptation. Placing this as the first part of the equation, she continued that the second part of the equation is integrating these goals into both natural resource sectors such as agriculture, forestry, fisheries, water and conservation; and into economic and social sectors, including transportation, poverty alleviation, tourism, energy, infrastructure, climate adaptation, manufacturing, and mining and minerals. The third part of the equation is using a variety of approaches such as creating policies and plans like revising NBSAPs, revising national protected area strategies, creating protected areas within a country or buffer zones with community-conserved areas, identifying specific management plans within an area or park, incorporating spatial and land use planning, public-private partnerships, tourism concession partnerships, or market based certification for forestry that gives an incentive to prove that management of forests helps maintain upstream forests for water flows and corporate accounting. Sharing examples from different sectors, Jamison further explained the concept of mainstreaming biodiversity:

1) Mainstreaming biodiversity into private game reserves management in South Africa

Ezemvelo KZN Wildlife in South Africa, in an effort for improving wildlife connectivity for wide ranging species, entered into a public-private partnership with private game ranches. A high-tension electric fence surrounding a wildlife park poses a major challenge to landscape connectivity, while a private game ranch provides a connectivity corridor. Ezemvelo KZN Wildlife mainstreamed biodiversity through public-private partnership by first developing a game ranchers' association and creating a legal framework to support private ownership of land and wildlife. Ezemvelo KZN Wildlife also provided technical support and financial incentives to private game reserve owners. This in turn helped to remove the physical barriers between reserves. Game reserve owners used the income from tourism to help fund protected areas.

2) Mainstreaming biodiversity into sport fishing and recreation policies

Sport fishing and recreational fisheries stocking streams with invasive alien species can cause disease, displacement and genetic erosion of native fish species. The vehicle for mainstreaming in this case is legal and policy reform by monitoring fish for disease, conducting annual assessments on fish health, requiring licenses for hatcheries, and restricting timing and placement of fish stock to minimise the threat to native fish stock.

3) Mainstreaming biodiversity into oil and gas drilling

Wyoming is the largest site for drilling in the United States, operated by the petroleum company BP. The Nature Conservancy shared information with BP on areas of high biodiversity value, from which BP developed a voluntary biodiversity offset programme to help mitigate impacts on biodiversity. This meant that, for every acre BP disturbed, it would improve/protect/ invest in a similar area that had equal or higher biodiversity value. BP incorporated connectivity and biodiversity issues into environmental assessments and standard operating procedures. BP contributed US$25 million in mitigation funding protecting 80,000 new acres of habitat.

Download Jamison's presentation: http://nbsapforum.net/uploads/1845.pdf

Integrating resilience thinking into Zimbabwe's NBSAP

Chipangura Chirara, Biodiversity Coordinator, Ministry of Environment Water and Climate, Zimbabwe, presented experiences of infusing resilience principles into the revised Zimbabwe's NBSAP.

Sharing a few examples of mainstreaming biodiversity and resilience thinking, Chip informed the participants that as part of mainstreaming biodiversity into polices and practice, the Government of Zimbabwe is planning to prepare a

joint report on United Nations Convention to Combat Desertification (UNCCD) actions, climate change response strategies and NBSAP actions for submission to the CBD and UNCCD secretariats. Also, these organisations will be encouraged to work together in terms of collecting quality data.

The updated NBSAP will also support communities in building their resilience with the communities themselves driving the process. Also, it was observed that communities are trading and exchanging seeds and other genetic resources amongst each other, strengthening their food security as opposed to seeds from the market. The government is also promoting and developing connectivity between national parks for free movement of animals, thus building resilience. However, this action has a slow negative feedback too, where corridors developed for lions and elephants passing through human populated area can result in human-wildlife conflict. In terms of communication related to biodiversity and resilience, important questions to be answered are – what is the mode of communication? Who do we communicate with and what message do we communicate? Different approaches should be taken to communicate with communities, policy makers and media to promote resilience thinking and biodiversity conservation. Chip added that several workshops and field visits have been conducted to help community members understand resilience thinking and biodiversity in simple terms and explicitly.

He concluded the presentation by suggesting the need for a communication strategy for mainstreaming NBSAP and resilience thinking into national development plans and other important sectoral plans.

Integrating resilience thinking into Mexico's protected areas and protected area systems

Martin Cadena Salgado, Mexican National Commission of Natural Protected Areas (CONANP) and UNDP, presented experiences from the *Strengthening Management and Resilience of Protected Areas* project which started in 2014 and has USD$10 million in GEF finance. It is being implemented at the national, regional and landscape levels. Protected Areas that are part of this project were identified by prioritising them with a multi-criteria methodology in terms of their vulnerability to climate change, as well as other variables, such as available co-financing and staff. Resilience is being addressed through three different axes: ecosystem, socio-economic, and institutional.

Managing connectivity: The project is supporting CONANP in declaring speedy federal protected area decrees for biosphere reserves connecting several other protected areas in the region and acting as a green corridor. The reserve acts as a strategic green corridor supporting 1.6 million hectares. This is a good example of connectivity at the national and regional level.

Manage slow variables and feedbacks: Meteorological stations in Mexico are placed near power plants, oil and gas installations and infrastructural facilities,

but not inside protected areas. The project facilitated institutional arrangements to set meteorological stations inside protected areas. The project is working to develop databases to support protected area managers with daily, monthly and annual report on different meteorological dates. The project is currently establishing baselines, thresholds and early monitoring systems.

Encouraging learning: The project has introduced the first formal programme for rangers, building their capacity in terms of biodiversity and managing conflicts, and now incorporating resilience and climate change concepts. The project is also working with CONANP to develop a climate change and resilience framework.

Participation: The project has conducted a few workshops with communities to initiate climate change and resilience thinking.

Promoting polycentric governance systems: Each protected area in Mexico should have an Advisory Council. However, some protected area managers consider these councils as barriers and added bureaucracy. The project is working with protected area managers to establish these Advisory Councils with an objective of creating their own agenda to promote climate change and resilience in protected areas.
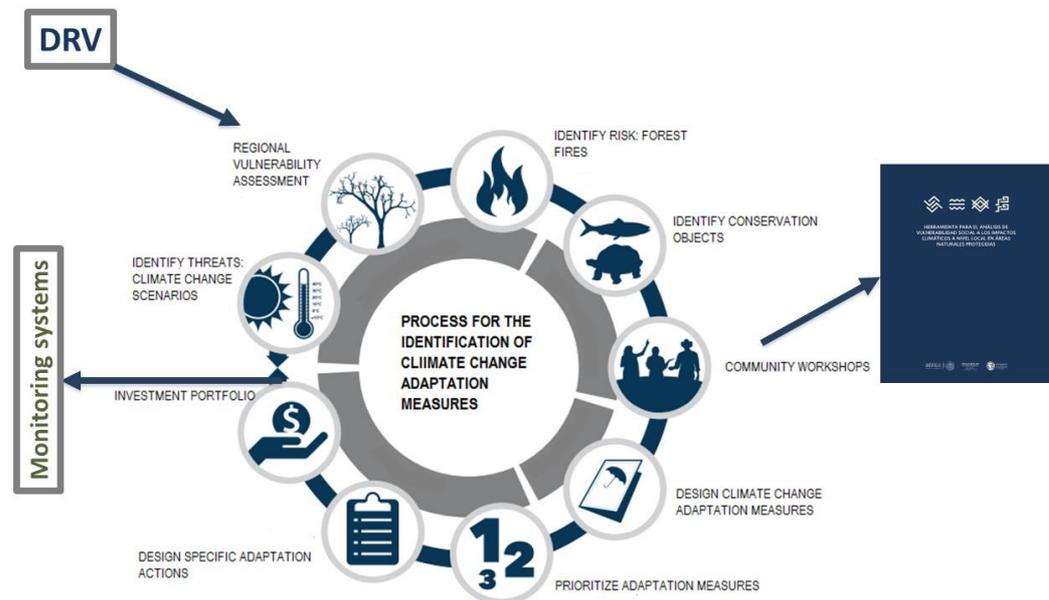

Figure 6: The process for identifying climate change adaptation measures

Presentation reflections:

- Protected areas are opportunities to increase the resilience of the system.
- Plan and manage for a dynamic environment in a landscape scale and in coordination with other sectors/stakeholders.

- Institutional, socio-economic and ecosystem axes must be considered in multi-scale levels.
- Facing climate change means new ways of thinking, coordination, trust, innovation, diversity and long-term thinking.

This practical example of how the resilience principles are being used at a national conservation project scale, could offer valuable insights and lessons learnt for scientists and practitioners alike who are working on using resilience principles to assess resilience.

Experience in mainstreaming cross-cutting issues into Bhutan's national plans and policies

Phuntsho Wangyel, Policy Unit, Research and Evaluation Division, Gross National Happiness Commission, Bhutan, explained that ecosystem resilience and biodiversity health are critical to Bhutan's sustainable development where: about 70% of the rural population depend on agriculture and related services for livelihood; more than 90% of those under poverty are rural-based; more than half of Bhutan's gross domestic product (GDP) can be attributed to sectors directly or indirectly dependent on the health of the environment; and that Bhutan considers itself to be vulnerable to climate change and disasters.
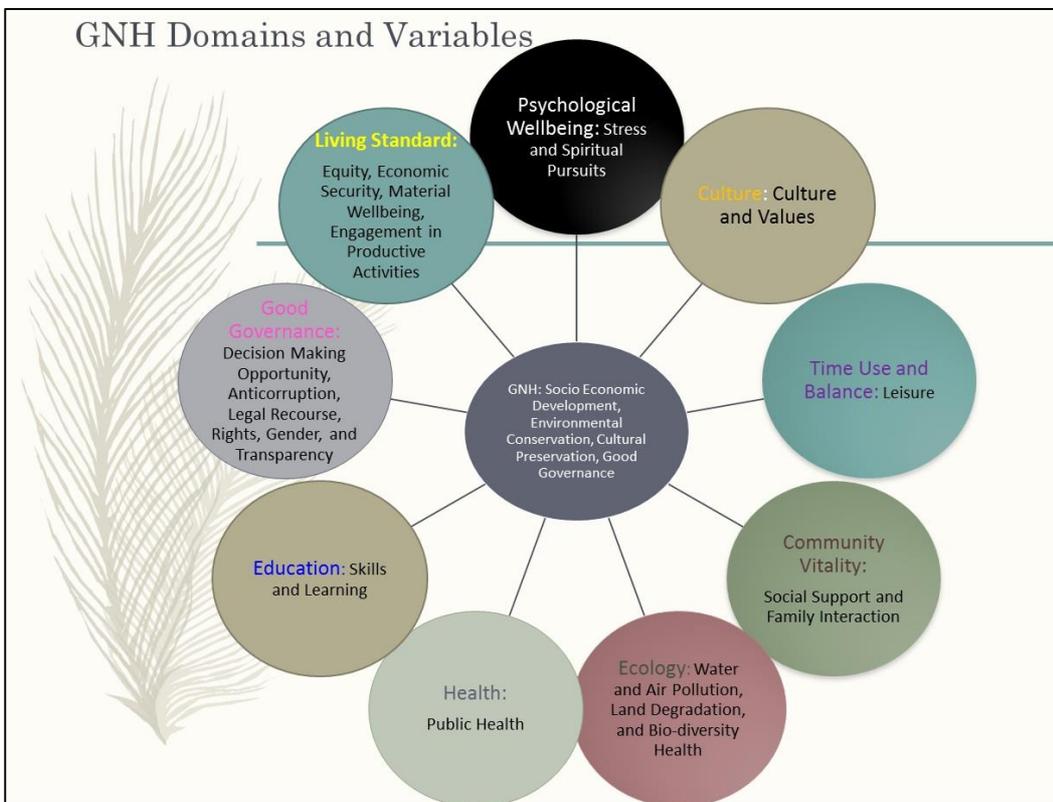

Figure 7: Gross National Happiness domains and variables for the screen tool

A policy screening tool is used to align proposed national policies to the philosophy of gross national happiness (GNH) in order to meet national objectives on environmental sustainability and resilience, the constitutional requirement to maintain a minimum of 60% of the land under forest cover in perpetuity, and contribute towards the achievement of GNH including its environmental pillars.

Figure 7 shows the nine domains, under which sit 22 variables. All proposed policies are assessed for their perceived impact on each variable through the GNH screening tool. The results of the screening exercise are presented to the GNH Commission, which is chaired by the Prime Minister, at the same time as the draft policy is presented for endorsement.

Exercise 7: Identifying opportunities for mainstreaming resilience thinking into sectoral and biodiversity plans, policies and practices

The expected outcome of this exercise was to think of ways that enable mainstreaming resilience into sectoral plans. Participants were provided with synopsis of five plans from different sectors, namely, i) Protected Areas System Master Plan: Jamaica; ii) agricultural sectoral plan; iii) community or village development plan; iv) Zimbabwe's NBSAP; and v) Eleventh Five Year Plan: Bhutan. Participants were divided into five groups to discuss how resilience principles are factored into these examples. Participants were asked to share their own experiences, should the aforementioned examples not be sufficient. Group discussions were followed by a plenary. Participants carried out this exercise with a view to set the stage for sectoral planning. The group provided overall direction, principles and priority areas that will help achieve this goal.

Below are reflections from the plenary from one of the group discussion that worked on the Protected Areas System Master Plan in Jamaica.

Protected Areas System Master Plan: Jamaica

Participants focused on applying a resilience approach to a Protected Areas System using the seven principles of resilience. They reflected that a Protected Areas system has three main components: ecosystems, users of ecosystems and the institutions that manage protected areas. To address ecosystem resilience, begin by conducting a situation analysis of the different types of ecosystems existing within a country, their value, and main threats to this ecosystem. Next, analyse the protected areas based on the resilience principles, e.g. 'Diversity' to ensure that protected areas are representative of key biodiversity and ecosystems within the country; 'Slow Variables' that have a slow impact on ecosystems like climate change; 'connectivity' to ensure there is connectivity between different protected areas within the same country.

Actions to enhance ecosystem resilience should not heavily impact community's livelihoods, if so, community members are most likely to over-

use or exploit protected areas. To ensure that there is a common understanding of building resilience of protected areas, communities must be involved in the process *ab initio* – applying the resilience 'participation' principle to integrate all users in defining management of protected areas. Users must also be involved in negotiating conflicts, rights, trade-offs with different users; and into capacity building of users to understand the link between the usage as well as protection of ecosystems – applying the resilience principles of 'broaden participation' and 'encourage learning'.

Building financial and human capacities of institutions managing protected areas is critical for maintaining their resilience. Capacity building should be integrated at the global policy level in biodiversity, sustainable development and national development frameworks. Resilience principles applied here are polycentric governance, broader participation and integration of different stakeholders and institutions in the management of protected areas.

Session synthesis:

- Integrating resilience thinking into policy and practice could be done in various ways at different scales, and for different purposes.
- Analysing resilience of social ecological systems is important for social, political and economic development
- Integrating resilience thinking is important in all sectors. Resilience offers a systemic approach to development, integrating diverse sectors and aspects of development such as environment including biodiversity, climate adaptation and mitigation, gender, livelihood and food security, and disaster risk reduction.
- It is important to work with synergies and integrate resilience approaches in and between implementation and monitoring of SDGs and planning and reporting of commitments under international agreements such as CBD and UNFCCC.
- The SDGs, with its integrated approach, offers an opportunity for working with resilience thinking; and vice versa resilience thinking improves the possibility to reach and implement the SDGs.
- Mainstreaming resilience offers a pro-active approach and should be done in consultations with actors in the entire policy, programme or project cycle such as in policy, programme formulation process, awareness activities, identification of links between sectors, plans, performing activities, follow up including monitoring, evaluation and learning.
- Mainstreaming resilience can offer an opportunity for identification of trade-offs and conflict between policies; and also for policy coherence.
- Resilience indicators and metrics, from local to national indicators and/or national accounting should take into account that measurements can be of both qualitative (stories) and quantitative measures (numbers).

Introducing Knowledge Sharing Platforms

The NBSAP Forum

Jamison Ervin, UNDP, introduced the NBSAP Forum [16], a global online resource that provides nations with the information they need to revise and implement an effective National Biodiversity Strategies and Action Plan (NBSAP). Jamison added that the CBD Secretariat, UNDP and the United Nations Environment Programme (UNEP) host the Forum in partnership. Through the NBSAP Forum, they are striving to create an international community of practice across a wide range of stakeholders and topics.
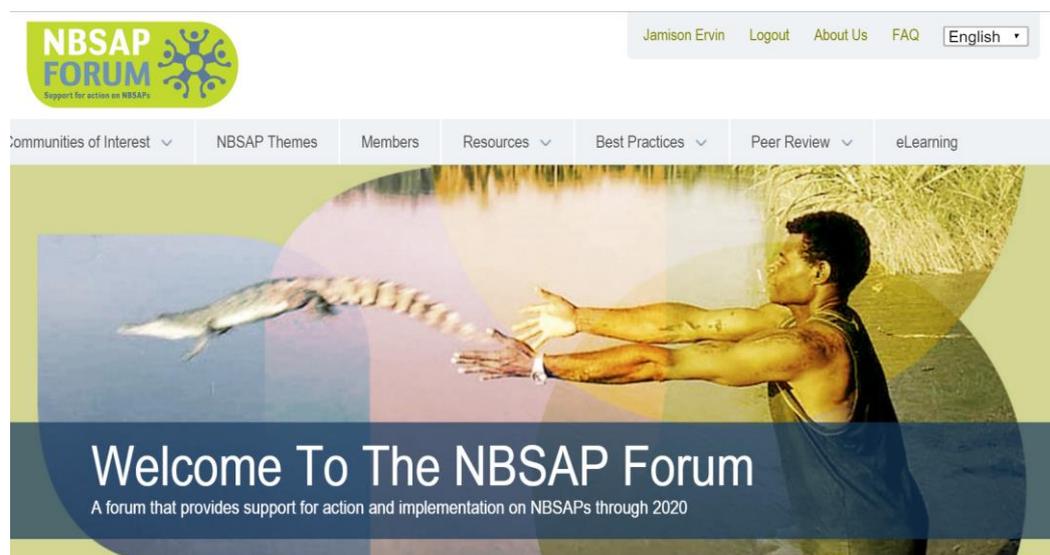
She continued that through this web portal, each NBSAP Forum member has free and unlimited access to best practices, guidance and resources on each Aichi Biodiversity Target. Members can also connect to 1,150 other individuals and organisations to easily share information, knowledge, resources and request support. She explained that the peer review facility allows national teams to share their revised NBSAP and receive technical review, prior to adopting it as a national instrument. The NBSAP Forum also offers an extensive library of 23 self-paced e-learning opportunities on topics ranging from protected areas management to climate resilience. She added that experts plan to teach live online courses on target and indicator development, resource mobilisation, and ecosystem services, among many other topics.

Jamison ended the presentation by informing the participants that they all had been registered on the Forum as a critical step to maintain Dialogue with each

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[16] http://nbsapforum.net/

other and exchange information on resilience and other NBSAP-related subject matter.

Resilience Connections Network

Sara Elfstrand, SwedBio at SRC, introduced the Resilience Connections Network [17] developed by the Resilience Alliance and the Accelerating Transitions (ARTS) projects as a virtual space for interaction between global and local thought leaders, transition entrepreneurs, resilience science experts, and practitioners. Through this online networking platform that is both free and open to all, individuals working or interested in resilience and sustainability transitions can share insights and experiences, find and connect with potential collaborators, contribute to a shared library of resources, engage in Dialogue, and learn best practices in building resilience and making sustainability happen.

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[17] http://www.resilienceconnections.org
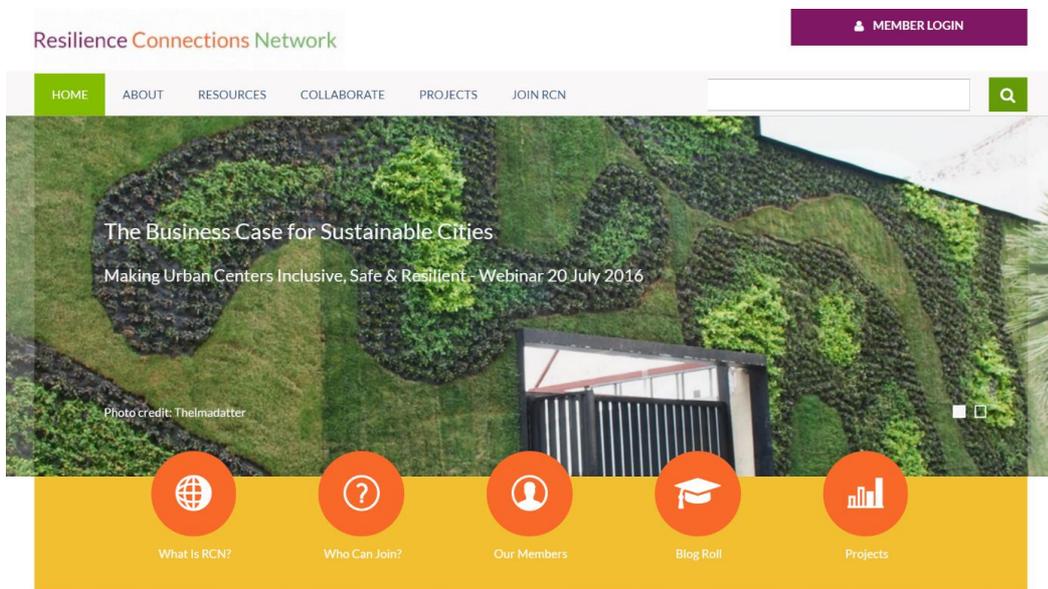
Session 5. Evaluation, Ways Forward and Conclusion

The expected outcome of the final session was for participants to share their individual next steps, and overall next steps as an institution or community member. Participants were also asked to evaluate the Multi-Actor Dialogue on Resilience i.e. what was positive with this Dialogue and what could have been done better? Reflections from each of the above-mentioned exercises are highlighted below and in Annex 4.

Facilitators: Jamison Ervin, UNDP, and Maria Schultz, SwedBio at SRC

Ways forward

Participants discussed both individual and overall next steps related to resilience thinking, assessments and mainstreaming in 2016, based on the Multi-Actor Dialogue on Resilience.

Concerning individual next steps, the participants raised that they intended to:

- Conduct meetings with stakeholder partners to discuss how to mainstream resilience into communities; collecting more evidence on resilience thinking; Continue learning from partners and developing countries on all scales
- Discuss the importance of resilience, especially with other professional colleagues, academics, policy makers, community leaders, field managers
- Identify possible synergies between on-going programmes at national level and the resilience approach
- Develop a network of PhD students to explore this new field of research – Integrating resilience and sustainability science
- Assess ways to integrate resilience into regional, national and global systems
- Mainstream resilience thinking into NBSAP implementation; incorporating resilience thinking into new proposals, plans and actions
- Learn from the Bhutan experience of mainstreaming biodiversity and resilience into national policies
- Develop and launch e-courses on ecological agriculture and resilience, resilience assessments
- Launch a website of communities for self-assessing resilience, look for co-production initiatives and trials
- Test some of the methodologies and indicators of resilience presented in this Dialogue
- Raise awareness about resilience thinking and the seven principles of resilience developed by the SRC
- As a community of practice, share experiences and knowledge on the application of resilience thinking concepts at the national level
- Develop a summary report/reader that details the background and outcomes of this Dialogue for a broad audience
- Conduct resilience assessment in southern Brazil among small scale farmers

- Mainstream resilience thinking into DHAN Foundation's development work through this Dialogue's inputs
- Conduct field research on resilience of farmer led seed systems
- Mainstream resilience into the Zimbabwe agricultural framework and Zimbabwe agricultural investment plan
- Set a strategy for the transformation part of resilience

Suggested overall next steps to advance resilience thinking, assessments and mainstreaming to a next level that participants collectively could contribute to with our other communities of interest included:

- Resilience is a live concept that requires constant research and feedback. UNDP may consider funding such research and initiatives
- Create an active forum for sharing information and ideas on resilience thinking; share knowledge, experiences and suggestions on resilience with other networks
- Influence global development policies of thinking: Develop a practical plan of action to measure progress by December 2016 on integrating and mainstreaming resilience thinking at the regional, state and national level
- Share feedback after mainstreaming resilience into community activities and networks
- As a community, share knowledge on methods to apply resilience at country levels
- Lobby governments to integrate resilience thinking into national plans and making responsible organisations aware about resilience thinking
- Simplify the seven principles of resilience and develop generic guidelines with communities on mainstreaming resilience for actual programming and implementation; develop tools to reconcile differences and take advantage of synergies between various resilience assessment approaches followed by field testing
- Assess resilience mainstreaming work in the communities and strengthen resilience mainstreaming
- Cross-fertilisation of good resilient practices and sharing such good practices on a common platform
- Train stakeholders on resilience thinking
- Visit case studies that mainstream resilience and publish such studies
- Develop community online courses for e-learning; develop resilience network in small groups of farmers
- Promote Dialogues on resilience thinking, assessment and mainstreaming in different parts of the world especially through forums like the South Asian Association for Regional Cooperation (SAARC), the Association of Southeast Asian Nations (ASEAN), etc., in partnership with different sectors particularly commerce
- Politically, show positive examples of resilience thinking and mainstreaming, encourage popular press and TV segments and be resilient against criticism and slow uptake.

Conclusion

The Multi-Actor Dialogue on Resilience explored a range of approaches to resilience thinking, assessments and mainstreaming, and contributed to a common ground among participants on key concepts and approaches. Participants thanked the organisers for creating and supporting an open and safe space for expression of opinions, exchange of ideas among different actors and also disagreements and expressed that the Dialogue provided an excellent opportunity for deep exploration on resilience thinking, assessments and mainstreaming. The resilience principles were seen as a useful boundary concept for the participants coming from different professional backgrounds to relate to, and also across scales from for example a community to a national level. Resilience is understood in many different ways by different actors and the Dialogue reflected the plurality of these approaches, both in terms of the underlying conceptual frameworks for resilience and approaches to assess resilience. The question of how to engage with the Telecho community in a respectful manner during the Dialogue field visit generated discussions about ethical considerations in general when undertaking assessments. The conversation around the ethics of resilience assessments raised important issues around resilience of what, to what, for whom, and assessments for what purpose.

The Dialogue recognised that:

- The Multi-Actor Dialogue on Resilience offered an opportunity for policy makers, scientists and practitioners to analyse various approaches to addressing, assessing, measuring and mainstreaming resilience by focusing on how resilience is understood and managed in a variety of contexts. These opportunities should continue with representation from developing countries organisations and institutions from different scales from the village to national and international levels. The way questions are framed relates to experience and knowledge, and to work on resilience includes recognising that value systems influence ways of thinking about, assessing and mainstreaming resilience.

- There is an urgency to increase efforts to analyse, assess, and mainstream resilience due to the impacts from global change (including climate change, biodiversity loss, changes in land use, pollution etc.), and the urgent need to implement national sustainable development goals, including food system sustainability, water security, sustainable jobs and livelihoods, disaster risk reduction and other national goals, within planetary boundaries.

- Resilience thinking offers an opportunity and can provide a framework for understanding, addressing and measuring change within social-ecological systems (the inherent interconnections and co-evolution between people and nature).

- There was some divergence in the group on understanding resilience as a goal, property, process, attribute and/or approach. It was put forward that resilience is an important attribute to achieve certain goals (as means to a sustainable end) rather than an end in and of itself. At the same time, it was recognised that resilience as a system property (which can be good or bad) can be useful to assess or measure resilience of what, to what, for and by whom.

Overarching general reflections included:
- Co-production of knowledge and learning is essential.
- Deliberative communication of resilience in a way that people understand it adapted to different actors, situations and contexts is important, with approaches for this including story-telling and indicators.
- There are ethical aspects of engaging around resilience with actors. Aspects such as expectations; timeframes; how to handle information; free, prior and informed consent; local ownership; reciprocity; mutual learning and mutual sharing; trust; meaningful and culturally appropriate participation; transparent process; gender dimensions. An approach to deal with some of these aspects is the MEB approach.

Participants agreed on the following recommendations related to each of the three areas of the Dialogue:

Resilience Thinking
We encourage processes to create principles of resilience relevant to particular contexts, in addition to the seven principles and to focus assessment and mainstreaming on trajectories rather than equilibrium stable states.

Resilience Assessments
We recommend synthesising complementary approaches to make them more accessible to practitioners, scientists, communities and policymakers.

Resilience Mainstreaming:
We recommend that institutions, governments, communities, sectors, implementing agencies and others consider how to integrate resilience thinking into their sectoral and development plans, programmes, and policy frameworks.

The co-chairs Jamison Ervin, Maria Schultz and Million Belay expressed gratitude especially to the host country Ethiopia, to conveners, donors, translators, organisers and the facilitators. They also concluded that the audiences for the outcomes of this Dialogue will be: CBD COP13; IUCN WCC; resilience connections: NBSAP Forum; IUCN Commission on Ecosystem Management Resilience Thematic Groups; Governments and Parties to CBD; GEF implementing agencies; and the development community.

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Annex 1: Agenda

Day 1, 12 November 2015

REGISTRATION (8:30 – 9:00)	
SESSION 1: OPENING AND INTRODUCTION	
SESSION AIM: Ensure participants understand the Dialogue approach and become acquainted with each other	
9:00 – 9:45	Welcoming remarks • UNDP • SwedBio at Stockholm Resilience Centre • MELCA-Ethiopia Introduction, objectives, format and expectations of Dialogue
9:45 – 10:30	Group perspectives on resilience thinking followed by plenary discussion
10:30 – 11:00	Tea and coffee break
SESSION 2: RESILIENCE THINKING	
SESSION AIM: Exchange experiences on resilience thinking in research, policy and practice, with an outcome of a shared understanding of the concept of social-ecological resilience	
11:00 – 11:45	Brief presentations on resilience perspectives from research, practice and policy • Stockholm Resilience Centre (Elin Enfors) – 15 min • UNDP perspectives (Assan Ng'ombe) – 15 min • Community resilience approaches (Million Belay) – 15 min
11:45 – 12:30	Facilitated group discussion on resilience thinking
12:30 – 1:30	Lunch
1:30 – 2:00	Resilience principles Applying resilience – principles for building resilience (Lisa Deutsch SRC)
2:00 – 5:00	Stories and discussion on experiences in building resilience and facilitated group discussion on resilience principles based on the four cases, and reporting back in plenary. • Tigray case (5-6 min) • Kasisi Agricultural Training Centre (5-6 min) • Utooni Development Organization (5-6 min) • Zenab Association for Women in Development (5-6 min)
2:40 – 3:00	Tea and coffee included in above

Day 2, 13 November 2015

REVIEW AND DAY'S AGENDA	
9:00 – 9:30	Synthesis of Day 1 and overview of Day 2
SESSION 3: RESILIENCE ASSESSMENTS IN PRACTICE	
SESSION AIM: To exchange experiences and approaches with resilience assessments at multiple scales for multiple purposes, with an outcome of a better understanding of the range of resilience assessments, and a clearer consensus on some key steps	
9:00 – 10:30	Short presentations covering different approaches to resilience assessments: • Resilience Alliance Workbook for Practitioners (Jamila Haider, SRC) • The CoBRA Approach (Dillip Kumar, UNDP Ethiopia) • UNU-IAS Indicators of resilience (Zeleke Tesfaye, UNDP-GEF) • The Resilience, Adaptation Pathways and Transformation Assessment (RAPTA) (Yiheyis Maru, CSIRO) • Communities Self-Assessing Resilience (Jamila Haider, SRC and Adhinarayanan Ramasamy, DHAN Foundation)
10:30 – 11:00	Tea and coffee break
11:00 – 12:00	Group discussion on resilience assessments and preparation for field trip
12:00 – 1:30	Bag Lunch and travel to site
1:30 – 6:00	Field visit to Telecho Kebele, an agro-ecosystem community; group exercise and discussion

Day 3, 14 November 2015

REVIEW AND DAY'S AGENDA	
9:00 – 9:30	Synthesis of Day 2 and overview of Day 3
SESSION 4: RESILIENCE MAINSTREAMING *SESSION AIM: To explore and formulate recommendations on how to integrate and mainstream resilience thinking into key policies and practices, including into national biodiversity plans, national development plans, and community resource management practices, with an outcome of closer consensus on some key steps required to integrate resilience thinking*	
9:30 – 10:30	Short presentations on • Introductory presentation on integrating resilience mainstreaming – Jamison Ervin • Integrating resilience thinking into Zimbabwe's NBSAPs -- Chipangura Chirare • Integrating resilience thinking into Mexico's protected areas and protected area systems -- Martin Cadena Salgado • Experience in mainstreaming cross-cutting issues into Bhutan's national plans and policies -- Phuntsho Wangyel
10:30 – 11:00	Tea and coffee break
11:00 – 12:30	Group interactive exercise on integrating resilience thinking into sectoral and biodiversity plans, policies and practices
12:00 – 1:30	Lunch
1:30 – 3:00	Discussions and exercise on mainstreaming • Report back from the informal meeting on the 11th – proposed steps for integrating resilience thinking into national plans, policies and sectoral practices • Plenary discussion about mainstreaming resilience thinking Group exercise to identify opportunities for mainstreaming resilience thinking into sectoral and biodiversity plans, policies and practices
3:00 – 3:30	Tea and coffee break
3:30 – 5:00	Way forward and conclusions Closing

Annex 2: Participant List

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Annex 3: Informal Dialogue on Integrating Biodiversity, Ecosystems and Resilience Indicators into National Sustainable Development Goals, Plans and Policy Frameworks

Facilitators: Jamison Ervin, UNDP and Tristan Tyrrell, consultant to UNDP

The informal dialogue began with a round of introductions. There were 51 participants from fourteen countries, comprising members from government, civil society organisations, local communities and multi-lateral agencies.

The objective of the informal dialogue was to foster a common understanding of key global priorities for action on biodiversity through Aichi Biodiversity Targets and the Convention on Biological Diversity (CBD); and mainstreaming biodiversity into key national priorities through the Sustainable Development Goals (SDGs) and National Biodiversity Strategies and Action Plans (NBSAPs). Participants in the informal dialogue also discussed the concept of mainstreaming biodiversity, ecosystems and resilience into national planning, development goals and economic growth.

Session I: Linkages between Aichi Biodiversity Targets and Sustainable Development Goals

The expected outcome of this session was to ensure that participants understand the linkages between Aichi Biodiversity Targets and SDGs for the purposes of mainstreaming biodiversity into key national priorities, development processes and poverty reduction strategies and accounts. The aim was to prepare each participant with a similar understanding of Aichi Biodiversity Targets, SDGs and the context in which resilience was going to be discussed in the Multi-Actor Dialogue on Resilience.

Exercise 1: Learning about key organisations and acronyms

Participants were asked to voluntarily speak a sentence based on their understanding of three acronyms – CBD, NBSAPs, and SDGs. This was an icebreaker exercise conducted to help build a collective understanding on these important subjects among a wide ranging audience comprising community members, practitioners and policy-makers, for whom these concepts were new.

Exercise 2: Exploring the linkages between Aichi Biodiversity Targets and Sustainable Development Goals

The purpose of this exercise was to help participants understand that the Aichi Biodiversity Targets and the SDGs are complementary with each other, and to enhance their understanding on the issues addressed in both sets of goals and targets.

Participants were divided into two teams and were provided sets of the 20 Aichi Biodiversity Targets and 28 selected SDG targets and indicators, on different coloured papers. Each team was required to match the relevant Aichi Biodiversity Targets and the SDG targets and indicators. The teams were then asked to post their matches on the wallboard.

The participants shared their reflections based on the following questions:
- How did you find this session?
- What were your impressions?
- What did you learn?
- What was difficult and what was easy?

Exercise reflections

- Participants found the exercise very useful for understanding the similarities and connections between Aichi Biodiversity Targets and SDGs. Many practitioners were introduced to one or both sets of goals for the first time, and through the exercise, could see linkages between their own work and both sets of goals.
- Participants acknowledged that national planners and policy makers often compartmentalise their work under SDGs 14 or 15. Participants recognised the need to change this perspective and advocate that biodiversity cuts across several sustainable development goals both globally and nationally. For example, creating protected areas can contribute to food security, water security, health, jobs, disaster risk reduction and climate action, among others.
- Several Aichi Biodiversity Target indicators use the term 'trends' for the purpose of measuring these indicators. It is important to have a clear understanding of what these trends mean and what they measure, to understand whether these are upwards or downwards trends, and to ensure that a trend does not cross a critical threshold, leading to irrevocable loss or extinctions. There is a need for a national level vision for coordinating Aichi Biodiversity Targets with national implementation of SDGs. Participants identified relevant questions that trends should answer, including 'where we stand now;' 'where do we want to reach;' 'how do we integrate targets into planning and monitoring frameworks;' and 'what is the appropriate timeframe and baseline for monitoring trends.'

Exercise 3: Identifying synergies between NBSAPs and SDGs

The purpose of this exercise was to examine linkages between NBSAPs and SDGs with a view toward integrating global environmental objectives into national sustainable development and poverty reduction strategies.

Participants were divided into two groups, choosing one person from the other 'team'. As a pair, they were asked to identify the five most important linkages from the list for each of their countries, and describe the reasons for those linkages. A group plenary discussion followed.

Reflection from the plenary discussions

- Aichi Biodiversity Targets directly support, and are strongly related to, the SDGs, and not only SDGs 14 and 15 but across a large number of goals and targets;
- Poverty, food security and livelihoods generation were recognised as some of the major concerns for many countries, and where there are strong linkages;
- Agriculture cuts across many sectors, however, it should not undermine the ecological basis of life;
- There is an urgent need to align policies and plans related to economic development sectors such as mining, tourism and energy with natural resource and biodiversity-related sectors such as forestry, protected areas, fisheries and agriculture;
- Participants from all participating countries highlighted that their countries included the following themes in their NBSAP: biodiversity awareness, ecosystem resilience, sustainable forest management, sustainable natural resource management, mainstreaming national and regional plans, ecotourism, sustainable production and consumption, resource mobilisation, partnerships, food security, traditional knowledge and equitable benefits sharing
- Habitat loss, invasive alien species, pollution, illegal and unsustainable harvesting, wildlife poaching, climate change, soil degradation, outdated farming techniques, land grabbing were some major issues identified by participants that threaten biodiversity in their country

Country perspectives

Bhutan
- The Constitution of Bhutan requires that 60% of its land should be under forest cover at all times. Currently Bhutan has 70% forest cover. Two thirds of Bhutan's population depend on agriculture. While Only 7% of its total land is suitable for agriculture. Twenty percent of Bhutan's gross domestic product (GDP) depends on hydro-power, powered by intact forests.

Seychelles
- Seychelles' economy is dependent on two main sectors: fisheries and ecotourism

Session II: Mainstreaming biodiversity, ecosystems and resilience into national planning

Expected Outcome of this session was to exchange experiences on potential entry points for mainstreaming biodiversity and sustainable development goals into national development and sectoral plans, policies and practices.

Exercise 4: What is 'biodiversity mainstreaming'? Sharing examples of a 'mainstreaming' metaphor

Facilitator: Jamison Ervin, UNDP

The session began with an icebreaker question asking participants to explain the term 'biodiversity mainstreaming' in a single sentence. This exercise was followed by a round asking participants to give a metaphor for the term mainstreaming through day-to-day examples like cars entering a highway, tributaries entering a river, and metabolism of food in our bodies resulting in production of energy throughout the human system.

Country perspectives:

Zimbabwe
• Urban development around the capital city of Harare encroaches upon wetlands, thus affecting water security. Biodiversity mainstreaming in this context will be managing, restoring and protecting wetlands around Harare in order to develop water security through an integrated water security plan.

Exercise 5: Discussing 'vehicles of mainstreaming'

Facilitator: Jamison Ervin, UNDP

Participants were asked to think about the opportunities and vehicles of biodiversity mainstreaming in their respective country context. Jamison Ervin shared a partial list of tools and instruments that may be used for mainstreaming, including policies, plans, market instruments, government subsidies and incentives, fees, fines and taxes that may be used for biodiversity restoration.

Participants were asked to break into groups of 5-7 based on linkages (groups pre-selected by facilitators), report back to their respective groups, followed by a plenary discussion.

Exercise reflections:

- Creating inter-ministerial, inter-sectoral permanent commissions that link across scales to address climate change.
- Creating thematic linkages between the federal, state and municipal government.
- Integrating biodiversity into national security e.g. poaching in Africa affects tourism, foreign currency revenue and funds terrorism.
- Understanding current and longer-term values of biodiversity.
- Improving technical and financial capacity (especially human resources) for better implementation of national and sectoral programmes
- Improving budget and resource allocation in national and regional planning processes for managing biodiversity across the spectrum of stakeholders who benefit
- Bridging linkages with private sector to ensure financial and human resource support and increased investment in biodiversity conservation. Creating an incentive mechanism for the private sector enabling their sustainable operations.
- Introducing market certification in the tourism sector for promoting sustainable development of the industry and presenting consumers with a choice to buy a more sustainable product. It will also help tourism enterprises attract a higher number of visitors, while protecting the natural environment that the industry depends on.
- Using tourism as a key sector for mainstreaming biodiversity, and ensuring consistency among national plan for tourism, national development plans and protected area plans.
- Undertaking an assessment of pollution levels and its impact. Levying fines as per the actual cost of damage under the polluter pays principle ensuring strict action by the private sector.
- If companies are required to report on how businesses are conducted, the results will be profound. The National Stock Exchange determines how companies are traded. Companies listed on the national stock exchange should be expected to report on their carbon footprint in Annual Reports, and be labelled for their good behaviour.
- Providing clear guidance and conducting independent reviews of companies' reporting, especially EIAs.
- Addressing habitat loss at the ministerial level for effective action and recognizing the importance, seriousness and urgency of conserving biodiversity and reducing the rate of loss.
- Identifying alternatives to detrimental environmental practices in economic development plans as activities of all economic sectors impact biodiversity in some way and at some level, e.g. incorporating alternative fuel sources such as solar energy, electric cookers in economic development plans as part of a country's poverty reduction strategy.
- Improving awareness, governance, implementation and accountability for mainstreaming biodiversity.
- Facilitating targeted advocacy campaigns. Marketing attracts the most brilliant minds, but this kind of marketing is lacking for the environment.

- Enabling bottom-up approach by consulting communities on issues related to biodiversity conservation and mainstreaming.
- Enabling inter-disciplinary work between the biodiversity sector and other sectors that have significant biodiversity impacts (e.g., agriculture, forestry, fisheries, tourism, extractive industries).
- Every country needs to define mainstreaming in their own context. In the context of Bhutan, it is mainstreaming into national development plans and policies. Countries can look at the whole planning system, policy formulation system and identify areas where biodiversity can be mainstreamed. E.g. In the plan formulation stage, just getting the biodiversity agenda on the table will be a step towards mainstreaming;
- Impact assessments, Strategic Environmental Assessments (SEA), ground level implementation, Payment for Ecosystem Services, financial strategies and tools like economic valuation, economic incentives may be good entry points for mainstreaming biodiversity.

Country perspectives:

Mexico
- Mexico has developed an inter-ministerial commission with 18 different ministers coming together to discuss ways to tackle climate change. Mexico also has a special climate change programme at the federal and national level with one of its mandate aiming for cooperation among various sectors to combat climate change

Seychelles
- Sixty percent of Seychelles' GDP generates from biodiversity while only 2% of the national budget is spent on biodiversity conservation

Conclusions:

The informal dialogue provided an overview of mainstreaming biodiversity into national development plans, sectoral and cross-sectoral policies and programmes for a two-fold result: biodiversity conservation and human well-being. The Dialogue helped participants understand the synergies and complementarities between the Aichi Biodiversity Targets, NBSAPs and SDGs, underscoring the importance of sustainable use and management of natural resources, linking it to poverty eradication and the development agenda. It helped participants understand that sustainable growth is a cross-cutting issue that will require many different partners, across different entities, governments, sectors, and stakeholders to work together.

The informal dialogue also provided a great segue into the Multi-Actor Dialogue on Resilience by exploring key concepts and principles, multiple approaches for assessing resilience, and to identify specific steps in integrating social-ecological resilience principles and resilience thinking into development and biodiversity planning frameworks.

Annex 4. Evaluation of the Multi-Actor Dialogue on Resilience

What was positive about the Dialogue?

- Participants thanked the organisers for creating and supporting an open and safe space for expression of opinions, exchange of ideas among different actors and also disagreements.
- The Dialogue provided an excellent opportunity for deep exploration on resilience thinking and mainstreaming.
- The Dialogue featured a good mix of people from different sectors (community, practitioners, scholars, policy makers, etc.) fostering diversity of knowledge & experience.
- The Dialogue agenda had the correct balance of presentations, group work and plenary sessions. Group discussions and group exercises were well coordinated with each table having a mix of community members, government, academia, civil society etc.
- Participants appreciated the group activities and facilitation, which helped individuals from different backgrounds to have a common understanding on issues.
- Participants appreciated the field visit to interact with the Telecho community and extended their gratitude to the community for receiving them warmly.
- The Dialogue invited research scholars which provided them with a practical perspective of development.
- The informal dialogue (Annex 3) was dedicated to developing a common understanding of resilience, sustainable development goals and Aichi Biodiversity Targets.

What could have been done better?

- Some participants viewed the Dialogue to be more of an intellectual conversation.
- Some participants remarked that the resilience principles were too complex.
- The Dialogue lacked urban examples of resilience or a session dedicated to urban resilience.
- More time should have been allocated for the field visit to the Telecho community.
- Resilience assessment approaches session should have been given more time.
- Participants opined that the group sessions could have been shorter with more short 5-minute breaks.
- Organisers should be mindful that a workshop does not fall over a weekend.