Governance for Ecosystem-based Adaptation

Understanding the diversity of actors & quality of arrangements

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Global Project 'Mainstreaming EbA —
Strengthening Ecosystem-based Adaptation in Planning and Decision-making Processes'

This project is part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.

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List of Acronyms

BMU	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany
CA	conserved areas
CBD	Convention on Biological Diversity, UN
CC	climate change
CEM	Commission on Ecosystem Management, IUCN
COP	Conference of the Parties, UN
COP-EbA	Community of EbA Practitioners
DEA	Department of Environmental Affairs (South Africa)
EbA	Ecosystem-based Adaptation
ELC	Environmental Law Center, IUCN
GCF	Green Climate Fund
GCS	Global Conservation Standard
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
ICCA	Indigenous and Community Conserved Area
ICLEI	Local Governments for Sustainability (formerly: International Council for Local Environmental Initiatives)
IKI	International Climate Initiative, supported by the BMU
IPCCC	Intergovernmental Panel on Climate Change
ISDR	International Strategy for Disaster Reduction
IUCN	International Union for Conservation of Nature
LGU	local government unit (Philippines)
M&E	monitoring & evaluation
NAP	National Adaptation Plan
NbS	Nature-based Solutions
NCCC	National Climate Change Commission, Peru
NDC	nationally determined contributions
NGO	non-governmental organisation
NRGF	Natural Resource Governance Framework
NSCC	National Strategy on Climate Change (Peru)
OECD	Organization for Economic Co-operation and Development
OECM	other effective area-based conservation measures
RCCS	Regional Climate Change Strategies (Peru)
SANBI	South African National Biodiversity Institute
SDG	sustainable development goals
SES	social-ecological systems
UN	United Nations
UNCCD	United Nations Convention
UNDP	United Nations Development Programme
UNDHR	United Nations Declaration on Human Rights
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNFCCC	United Nations Framework Convention on Climate Change
WANI	Water and Nature Initiative, IUCN
WCPA	World Commission on Protected Areas, IUCN
WEF	World Economic Forum

I. Summary

Climate change is perceived by leading decision-makers as the greatest economic risk for human development (WEF 2019). Despite repeated calls of the UN Convention to make climate action more inclusive and transparent (Paris Agreement/Talanoa Dialogue 2018), in most countries, adaptation action continues to be considered primarily a government task.

An increasing number of adaptation projects are being designed and implemented across the globe. Their main focus lies on management and action (what needs to be done?). However, many studies in recent years have revealed that major barriers for mainstreaming of adaptation action relate to governance factors (who decides what needs to be done, and: how shall it be done?). Governance analyses how governments and other social organisations interact, how they relate to citizens, and how decisions are taken in a complex world. Governance analyses are no substitute for other studies, such as risk assessments or management effectiveness analyses: in fact, they build upon and complement them.

Ecosystem-based Adaptation (EbA) is a people-centric approach to adapt to climate change using nature. It often involves decision-making over public goods (natural resources and ecosystem services) at landscape level involving a multitude of stakeholders, sometimes with diverging interests.

EBA MAINSTREAMING & GOVERNANCE

Governance is the variable with greatest potential to affect/achieve successful mainstreaming of Ecosystem-based Adaptation (EbA) into policies, plans and implementation/practices. In many cases, it is only by addressing issues of governance that countries will be able to promote and mainstream Nature-based Solutions (NbS) for climate change and other societal/global challenges.

Governance ...

- is a main factor in determining the effectiveness and efficiency of EbA projects. Due to this, it is of great interest to governments, funding agencies, regulatory bodies and society in general;
- is a determinant of appropriateness and equity of decisions. Improving governance can help to maximize the ecological, social, economic and cultural benefits of EbA without incurring unnecessary costs or causing harm;
- can ensure that EbA measures are better embedded in society; and
- arrangements that fit their context nourish linkages to the wider landscape/seascape and help to make sure that Nature-based Solutions are taken into account in broader decision-making.

Governance for EbA

Suggested Definition:

'Governance for EbA refers to norms, institutions and processes that determine how a society exercises power, distributes responsibilities and makes decisions to protect, sustainably manage and restore ecosystems, as part of an overall strategy to adjust to actual and expected climate and its effects.'

Iza A. (ed.) (2019). Gobernanza para la adaptación basada en ecosistemas, UICN, Gland, Suiza

ADAPTIVE GOVERNANCE

Decentralized decision-making structures, supported by sound natural and social science, provide the basis for adaptive EbA governance. They allow a large, complex problem like global climate change to be factored into many smaller problems, each of which are more tractable for policy and scientific purposes. Improving the governance structures of nature-based adaptation projects can help face on-going challenges and global change.

- Adaptive governance for EbA helps understand the social, institutional, economic and ecological foundations of multilevel governance modes that are successful in building climate resilience of the complex interactions in social-ecological systems (SES).
- An EbA governance setting is appropriate only when tailored to the specifics of its context, and effective in delivering lasting adaptation and conservation results, as well as livelihood benefits for people.
- Far from being immutable, the institutions and rules governing EbA and other NbS must be dynamic and adaptive in response to existing challenges and global change, but open to seize opportunities. Processes of adaptive governance must be cautious and well-informed, yet visionary.

DIFFERENTIATED ACTION

Actions to enhance EbA governance differ in each sector, implying the use of appropriate time scales and terminology. They also vary in terms of the level where decisions to act can be made: this can be local, regional, national or global.

- **Local and regional level:** The majority of decisions on concrete EbA actions are being taken at the local level, through informal bodies or formally established/ appointed EbA governance and management bodies. These units cover the area of EbA project implementation as well as adjacent communities, and other key actors based in the area.
  - The focus of attention for EbA governance is on coordination and smooth implementation on the ground, i.e. via coherent local and regional development plans.
- **National level:** The framework conditions of EbA planning are defined at the national level. The interplay of sectors is defined by hindering or promoting policies.
  - Here the EbA governance focus lies on political priority setting and enhanced vertical and horizontal integration of adaptation action with other conservation and development processes (including the elaboration of national climate adaptation plans, NAP, and the nationally determined contributions, NDC).
- **Global level:** Major aspects influencing the EbA governance constellations on a global level are defined by the processes and institutions related to UN-conventions (especially the three so-called Rio Conventions on climate change (UNFCCC), biodiversity (CBD) and desertification (UNCCD)) (CBD, 2019) – but also the International Strategy for Disaster Reduction/ ISDR, or the sustainable development goals/SDG.
  - EbA governance aspects relate to the creation of synergies between the conventions and joint/ coherent action and elaboration of guidance (i.e. for national reporting schemes).

EBA GOVERNANCE TYPES

With regards to planning and implementation of Ecosystem-based Adaptation and other Nature-based Solutions, dominant state-based top-down models, initiated by (often weak) environmental ministries with the acting of government agencies on different levels, need to be reconsidered.

- Civil society and the private sector offer great potential to become a partner to government agencies and ministries in planning and implementation of EbA and NbS.
- With the intention to better understand the governance opportunities and needs of actors for an enhanced EbA mainstreaming, an EbA governance typology is proposed, based on the IUCN governance matrix for protected and conserved areas.
- EbA projects can thus be grouped into four broad governance types, distinguished according to the key actors that hold authority and responsibility for the main management decisions (planning the EbA project, determining its adaptation and management objective, and the modus operandi of the project). The four types are:
  - **type A: governance by government** (at various levels, including ministries and state agencies, regional governments and city councils);
  - **type B: shared governance** (various actors together);
  - **type C: private governance** (individual land owners, NGOs, or corporations - with or without commercial interests); and
  - **type D: community governance** (indigenous peoples or local communities).

GOOD GOVERNANCE PRINCIPLES

There is no ideal governance setting for all Nature-based Solutions, nor an ideal to which EbA governance models can be compared to – however, a set of good governance principles can be considered. These principles provide insights as to how a specific governance setting will advance or hinder climate change adaptation, natural resources conservation and management, as well as sustainable livelihoods and the interests of people, sectors and the country concerned.

- The specific ecological, sectoral and political contexts, and the variety of values, knowledge, skills and practices that contribute to adaptation and conservation, should be reflected in the EbA governance regimes.

- The Natural Resource Governance Framework with its 12 principles[1], in addition to the Equity Framework[2] offer orientation and guidance for the quality of EbA governance arrangements (an adapted version of the principles to EbA contexts is presented here).

OVERCOMING BARRIERS

In EbA governance, it is important to realize that individuals have differentiated levels of economic and political power, so simply advocating an all-encompassing participatory approach will not lead to an equal level playing field (equality vs. equity).

The required political support varies: there may be considerable resistance to overcome major governance barriers in EbA projects – especially when aiming at changes in:

- power relationships (e.g. politically dominating players and marginalized groups, for example when discussing adaptation priorities, or green and grey infrastructure investment options); or
- economic privileges (e.g. distribution of costs and benefits, or dealing with corruption).

The key is to generate the will to act and form a collective commitment to achieve mutual accountability.

BUILDING AND GROOMING TRUST

Building partnerships requires time. In nature-based projects, adaptation effects can have long delays, which may be difficult to tolerate, particularly for vulnerable groups.

- It is important to understand that stakeholders in EbA projects have different needs, perceptions, skills and knowledge.
- Governance constellations need to enhance trust building, capacity development and joint learning.
- They need to be flexible enough to adapt to rapidly changing situations (e.g. climate change-related disaster, or political opportunities for EbA arising), as well as to the growing capacities of stakeholders.
- Confidence and trust are important building blocks of good governance. When they are attended to adequately, most likely rapidly evolving virtuous cycles for planning and implementation will be seen, which can also foster EbA mainstreaming in other sectors and contexts.

[1] The Natural Resource Governance Framework (NRGF) is an initiative created by the International Union for Conservation of Nature (IUCN) for the purpose of providing a robust, inclusive, and credible approach to assessing and strengthening natural resource governance, at multiple levels and in diverse contexts. The overarching goal of NRGF is to 'set standards and guidance for decision-makers at all levels to make better and more just decisions on the use of natural resources and the distribution of nature's benefits, following good governance principles, such that improved governance will enhance the contributions of ecosystems and biodiversity to equity and sustainability.' (Campese et al. 2016).

[2] Equity and social justice are generally thought to have three key dimensions: **Recognition** (acknowledging and respecting rights and the diversity of identities, knowledge systems, values and institutions of different actors), **Procedure** (the participation of actors in decision making, transparency, accountability, and processes for dispute resolution), **Distribution** (the allocation of benefits and costs across the set of actors, and, how the costs/burdens experienced by some actors are mitigated) (Franks et al. 2018).

II. Introduction

Climate change has emerged as the most demanding environmental, social and economic challenge facing humanity and our planet. Both climate-related risks and those associated with biodiversity loss and ecosystem collapse are among the top global economic risks (WEF 2019). Appropriate response to climate change will have profound implications on the future of our societies. The task is immense, and the future prosperity of countries, communities and local/national economies alike will be determined by how we respond to these significant challenges. Both mitigation and adaptation strategies and measures pose risks and opportunities for our societies. These need to be understood from case-specific, contextual and situational perspectives and require transformational change[3] of our mindsets, and especially of our economies.

Extreme events such as floods, heat waves, droughts and cyclones but also slow-onset events such as increasing temperatures, glacier retreat and sea level rise, require the international community to consider new ways of policy-making and collaboration (CBD 2019). In local, but also national contexts, the central idea of sustainable development can only succeed if it considers environmental, economic and social objectives and concerns together, and in coherent, integrated ways.

Ecosystem-based approaches can provide cost-efficient and effective alternatives or supplements to engineered or grey infrastructure measures, which aim at reducing climate change-related risks and enhancing resilience of societies. Governance is a key factor for understanding and overcoming obstacles or barriers to mainstreaming NbS into policies, plans and practice.

The consideration of Mainstreaming of EbA under the governance aspect very quickly reveals the complexity of this topic due to its multisectoral character, but also reveals the opportunities and possible contributions that other actors than government may make (e.g. civil society or the private sector).

A recent global analysis of entry points for EbA mainstreaming (GIZ 2019, GIZ 2018 a-d) revealed that most barriers for EbA mainstreaming were observed in inappropriate governance arrangements, thus leading to inefficient resource use, less effectiveness in adaptation results, and lacking long-term sustainability of implemented measures. Another consequence of inappropriate governance structures is the lack or decrease of motivations of actors to take up, promote, implement or mainstream ecosystem-based approaches.

For the further mainstreaming of EbA into local, municipal and national agendas and decision-making processes, as well as sector strategies, reaching out beyond the green sector is gaining in importance in seeking new potential allies such as private actors, finance and planning ministries. Governance aspects need to be taken into consideration in all EbA measures especially since multi-level and multi-sectoral approaches are required. Holistic ecosystem management, based on a thorough understanding of social-ecological systems and the complex interactions of contexts and actors, is crucial for climate change adaptation.

PURPOSE OF THE STUDY AND METHODOLOGY

This study aims to provide decision makers and practitioners with key background information on concepts and quality aspects of governance, as well as practical examples, to better understand and make use of existing governance structures in the context of implementing and mainstreaming Ecosystem-based Adaptation and related Nature-based Solutions[4] approaches.

It is based on an extensive literature review, a summary report on Emerging lessons for mainstreaming EbA, five country analyses for mainstreaming EbA in Mexico, Peru, South Africa, Viet Nam and the Philippines, as well as cases analysed on the online platform PANORAMA – solutions for a healthy planet[5] and in recent publications. Expert interviews revealed current needs and multiple potentials related to the governance constellations.

During the EbA Community of Practice Workshops, celebrated in Bangkok/Thailand (2017), Cape Town/ South Africa (2018), and in Bonn/Germany (June 2019), the discussions with EbA practitioners from all over the globe

[3] Transformational change occurs in response to, or in anticipation of, major changes affecting society or an organisation's environment or technology. These changes often are associated with significant revision of e.g. company's business strategy, which in turn may require modifying internal structures and processes as well as its corporate culture to support the new direction. Individuals, organisations, or collectives who embody the process of transformational change leadership carry a particular set of characteristics: they are visionary, have empathy, are perseverant, have solid community bonds, embrace risks, collaborate with others, and mobilize for action. (Transformational Change Leadership 2019).

[4] 'Nature-based Solutions' (NbS) is an umbrella concept for various ecosystem-related approaches. It covers actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. NbS aim to achieve society's development goals and safeguard human well-being in ways that reflect cultural and societal values and enhance the resilience of ecosystems, their capacity for renewal and the provision of services (Cohen-Shacham et al. 2016).

[5] PANORAMA – Solutions for a Healthy Planet. https://panorama.solutions/en

offered additional insights and new pressing questions (see also ANNEX I).

ACKNOWLEDGEMENTS

This study is based on various knowledge products of the International EbA Community of Practice and the Global Project 'Mainstreaming EbA – strengthening Ecosystem-based Adaptation in planning and decision-making processes'.

In August 2017, GIZ commissioned a study on entry points for EbA mainstreaming in Asia, Latin America and South Africa to AMBERO consult (responsible: Kathleen Schepp). The cooperation with the authors of the country studies in the Philippines (Emma Ruth Ramos), Viet Nam (Ha Hoang), South Africa (Dr. Tony Knowles/Christy Bragg), Peru (Dr. Lili Ilieva), and Mexico (Alejandra Calzada) and the conversations with the experts in their countries, provided important insights.

During the EbA Knowledge Days and the meetings of the EbA Community of Practice, as well as conferences of the UN Conventions on Climate Change (Bonn/Germany, 2018) and Biological Diversity (Sharm-El Sheik, 2018), and training workshops in Peru, Mexico, the Philippines, Viet Nam and South Africa in 2018, the discussions with EbA practitioners from around the world helped sharpen the focus on governance-related challenges.

In early 2019, an extensive exchange with the GIZ team under the lead of Dr. Arno Sckeyde, especially Mathias Bertram, supported by Marie-Isabell Lenz and Luise-Katharina Richter, provided valuable comments and guidance during the entire elaboration process of the document. Conversations with Dr. Alejandro Iza and Lorena Martínez Hernández from IUCN Environmental Law Center in Bonn added aspects related to 'good governance' of EbA and relevant principles. The author thanks all of them.

III. Governance in EbA – a conceptual overview

Ecosystem-based Adaptation is 'the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change. It aims to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in the face of the adverse effects of climate change' (CBD 2009 & 2010). EbA is a people-centric approach to adapt to climate change using nature. It often involves decision-making over public goods (natural resources and ecosystem services) at landscape level involving a multitude of stakeholders, sometimes with diverging interests.

WHAT IS GOVERNANCE?

Governance is not synonymous with government. The confusion of terms can have unfortunate consequences: a public policy issue where the heart of the matter is a problem of governance becomes defined implicitly as a problem of government (for example: the responsibility of fixing climate risks for societies rests only with a government).

There are many definitions and perceptions on what governance is. According to the Environmental Law Center of IUCN:

'**Governance** is the means through which society defines its goals, priorities and moves to-wards decision-making at a global, national, or local level. It includes the:

a. legal and policy frameworks;
b. institutions; and
c. processes and mechanisms,

through which citizens and other interested actors express their interests, exercise their rights, fulfill their obligations and resolve their differences.'

Adapted from Burhenne-Guilmin & Scanlong 2004

Governance thus includes the following components:

Policies	• Establish visions, strategies, plans and guidelines • Guide legal and institutional reforms for EbA
Laws	• Establish institutions for the adaptation process • Distribute competencies, mandates and roles • Define processes and implementation mechanisms • Detail rights and obligation
Institutions	• Planning, implementing, evaluating, overseeing, controlling, sanctioning and enforcement
Processes	• Public participation and communication • Monitoring and evaluating • Conflict resolution (adjudicative and non-adjudicative)

Iza A. (ed.) (2019). Gobernanza para la adaptación basada en ecosistemas, UICN, Gland, Suiza

CLIMATE CHANGE GOVERNANCE AND ECOSYSTEM-BASED ADAPTATION

Climate change governance is not an entirely new concept – societies have always adapted to droughts or years with heavy rainfalls. However, as climate change impacts are increasingly understood as fundamental long-term changes, the adaptation of sectors and societies, based on individual or collective decision-making, is gaining political importance.

Adaptation to climate change refers to adjustments in ecological, social, or economic systems in response to perceived or expected climatic stimuli and their effects or impacts. It refers to societal changes in policies, processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change. On the implementation level, this includes e.g. decisions within a community to change crops to more drought resistant varieties or reforesting steep slopes. With regards to frameworks at the policy level, long-term climate governance (of the kind embodied by the Paris Agreement) needs to aim at transformational change, ensuring that the long-term direction is clear (on the national and global level), that decisions taken now are informed by a pathway towards that long-term direction (casting back from the future to the present) and that there is a system in place to check on progress and adjust efforts over time (ECOLOGIC 2017).

Governance aspects need to be taken into consideration in EbA measures, especially since multi-level and multi-sectoral approaches are required, aspiring to holistic ecosystem management for short- and long-term climate change adaptation objectives (Jiggins & Roling 2002). Successful adaptation not only depends on governments but on the active and sustained engagement of actors including national, regional, multi-lateral and international organisations, the public and private sectors, civil society and other relevant stakeholders, as well as the effective management of knowledge (UNFCCC 2019). This affects power constellations and underlying governance structures.

Based on GIZ analysis of entry points for mainstreaming EbA, a literature review and expert interviews, the following definition for EbA governance is suggested:

Governance for EbA ...

... refers to the **norms, institutions and processes** that determine how a society exercises power, distributes responsibilities and makes decisions **to protect, sustainably manage and restore ecosystems**, as part of an overall strategy to adjust to actual and expected climate and its effects.

EbA governance must be **flexible, multidimensional,** respect **equity and transparency** issues, and be based on an integral **understanding of ecosystem potentials and needs.**

Iza A. (ed.) (2019). Gobernanza para la adaptación basada en ecosistemas, UICN, Gland, Suiza

Normative integration of EbA

The Environmental Law Center of IUCN in a recent project (2019)[6] analyzed legal frameworks for EbA. References for Nature-based Solutions, and specifically Ecosystem-based Adaptation can be found in many documents as part of international processes:

Global level

- Paris Agreement (Preamble, Art. 7).
- United Nations Framework Convention on Climate Change (Art. 2, Cancun Agreements).
- Convention on Biological Diversity (Decision VIII/30, Aichi Target 15, Decision 14/5).
- United Nations Convention to Combat Desertification (Decision 4/13, Decision 21/13).
- Convention on Wetlands on International Importance (Resolutions VIII.3, X.24, XII.2, XII.13).
- Convention on the Conservation of Migratory Species of Wild Animals (Decisions 12/72 to 12/74).
- Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Task Force on Water and Climate Change and pilot projects).
- Other Instruments (UNESCO, SDGs, Sendai Framework, Bonn Challenge...).

Regional level

(via legal dispositions in Regional Organisations)

- African Union, East African Community, Andean Nations Community
- ASEAN, European Union

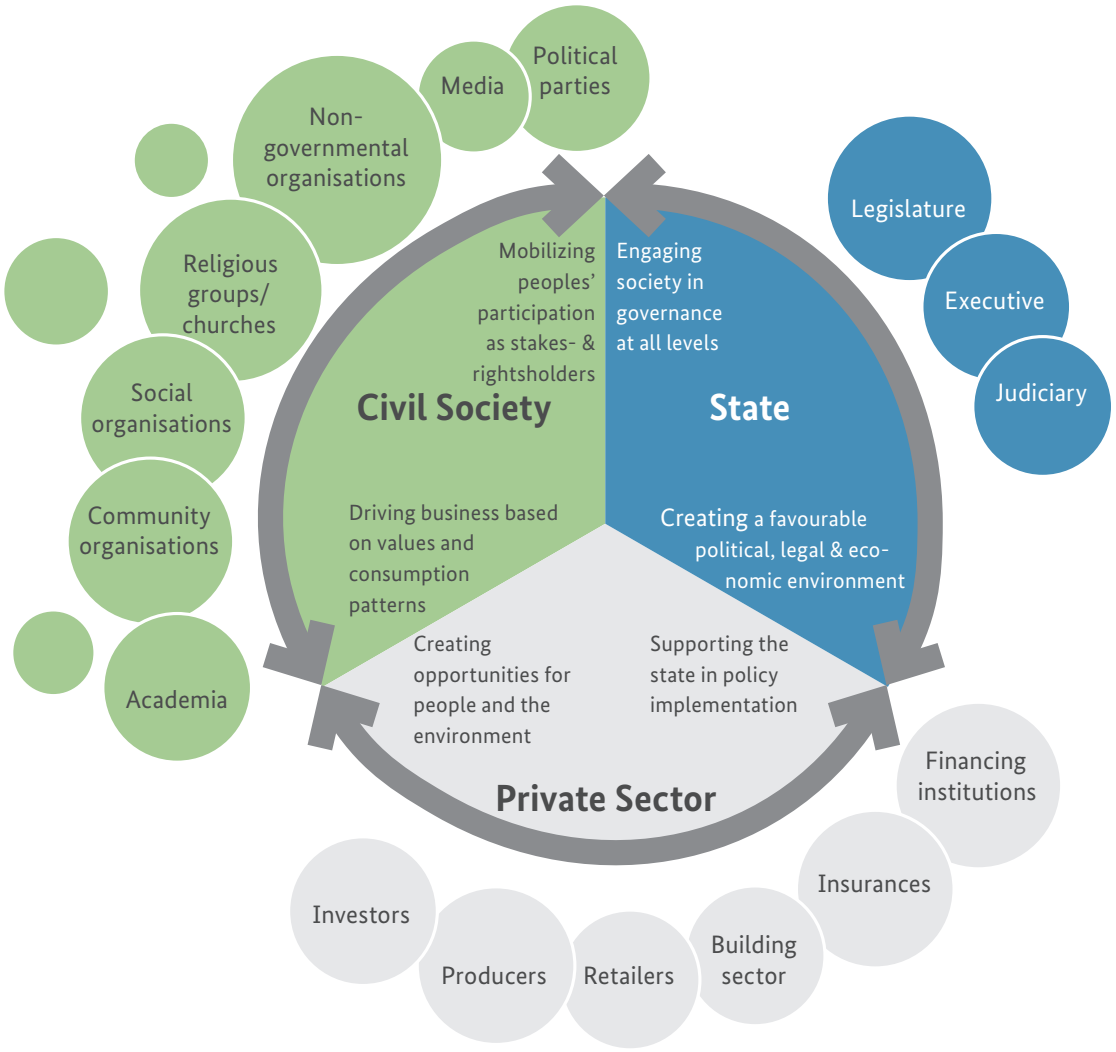
The findings of IUCN-ELC suggest that while EbA has been broadly recognised, there is a marked lack of adequate guidance on governance and implementation tools. The responsible regional organisations are in different stages of designing, developing and implementing their adaptation plans. As of now, thematic approaches to EbA prevail (Iza 2019).

GOVERNANCE FOR EBA – THE OPERATION OF THREE KEY ACTOR GROUPS

EbA governance clearly needs to go beyond the government and can only work if civil society and private sector are involved, with clear roles and mandates for action, and aiming at achieving the previously defined goals (see figure 1).

[6] IUCN Project AVE (Adaptation, Vulnerability and Ecosystems), El Salvador, Honduras, Costa Rica, Mexico, Panama, Guatemala. www.iucn.org/regions/mexico-central-america-and-caribbean/project-ave

Figure 1 **EbA governance: Operation of 3 key actors –** the state, civil society and the private sector with distinctive roles and mandates for action.



Source: GIZ, in CBD 2019

1 State

A key role of the state is to create a favourable political, legal and economic environment for adaptation and risk reduction, thus establishing a governance framework. It is crucial to engage society as a whole and its various groups in EbA governance and include good governance principles in relevant policies and actions.

'We need local and regional leadership to urgently raise ambition. We confirm our commitment to make sustainable urban development a driving force in the climate agenda. (...) We call on the Parties of the UNFCCC to collaborate with us to build an inclusive and ambitious climate architecture, implemented by a coalition of all levels and stakeholders. We bring our action and accountability to the negotiation tables.' (Ashok Sridharan, Mayor of Bonn)

Ashok Sridharan is the mayor of the city of Bonn/Germany, where the Secretariat of UNFCCC is located. He also serves as Vice-President of ICLEI, 'the voice of cities', where local and regional governments engage for sustainability and

Photo: © Flickr / Marcus Harzem

highlight the importance of international collaboration to raise climate action and ambition. (C-SPAN 2018)

2 Civil Society

Civil society is mobilizing peoples' participation in policy making and governance. People are stake- and often rights holders; they need to advocate their rights and needs to the state but also to the private sector. They can do this through different media channels, or interest groups such as NGOs, community organisations or indigenous associations. As part of civil society, academia provides scientific knowledge as the basis for policy and informed decision-making.

'We want you to follow the IPCC reports and the Paris Agreement. It is still not too late to act. It will take a far-reaching vision, it will take courage, it will take fierce determination to act now. (...). If solutions within this system are so difficult to find then maybe we should change the system itself.' (Greta Thunberg, Swedish climate activist)

Greta Thunberg, the 16-year-old Swedish climate activist started a school climate strike in August 2018. It has become a social global movement: On the 15th of March 2019, more than 1,650 strikes were carried out in 105 countries.

In order to fight climate change, we need to 'change our mindsets and our political and economic systems – reducing competitivity, questioning many of our values,

Photo: Michel CHRISTEN © European Union 2019 - Source : EP

and enhancing equity, transparency, fairness and the rights of every living being on this planet' (Thunberg's speech to the European Commission, April 2019). Despite her young age, the climate activist was invited to address the UN Climate Change Summit in Poland (COP 23), the World Economic Forum in Davos, and to discuss her ideas with the Pope in Rome. Together with other youth leaders, she calls out for intergenerational justice, vision and strategic direction of our political and economic leaders, and refers to other good governance values for climate action. (Rankin 2019)

3 Private sector/business

The private sector is a key actor for the governance of EbA measures. Financing institutions, insurance companies, investors, producers, retailers, and sector specific actors bring cost-benefit and efficiency thinking to the table. They can provide the inspired setting and/or financial means for innovations to emerge, or use pressure or incentives for new policies to be developed, implemented or enhanced. Multiple opportunities for people to get actively involved in the sustainable management of ecosystems, either in direct ways (land or resource use), or indirectly (consumption) relate to the business sector.

'As business leaders, we have an important role to play in ensuring transparency around climate-related risks and opportunities, and I encourage a united effort to improve climate governance and disclosure across sectors and regions.' (Robert E. Moritz, Global Chairman, PWC, (WEF 2019 b))

The links between climate change and business are becoming increasingly evident and inextricable. Business decisions and actions can slow down or accelerate climate change, and climate change drives both risks and opportunities for business. Increasingly, companies are expected to ensure that climate-related challenges are appropriately addressed. However, limited practical guidance is available to help board directors understand their role in addressing these risks and opportunities. According to the World Economic Forum (2019), good governance should intrinsically include effective climate governance: 'Climate change for most business leaders up to now is still simply another issue that drives financial risk and opportunity. However, climate change is a new and complex issue that entails grappling with scientific, macroeconomic and policy uncertainties across broad time scales and beyond business leaders' terms. We need guidance for better climate governance.'

Photo: © Freunde von Freunden – Robert Rieger

CONCEPTUAL BACKGROUND: TYPICAL GOVERNANCE ELEMENTS IN EBA CONTEXTS

Adaptive governance in Social-Ecological Systems

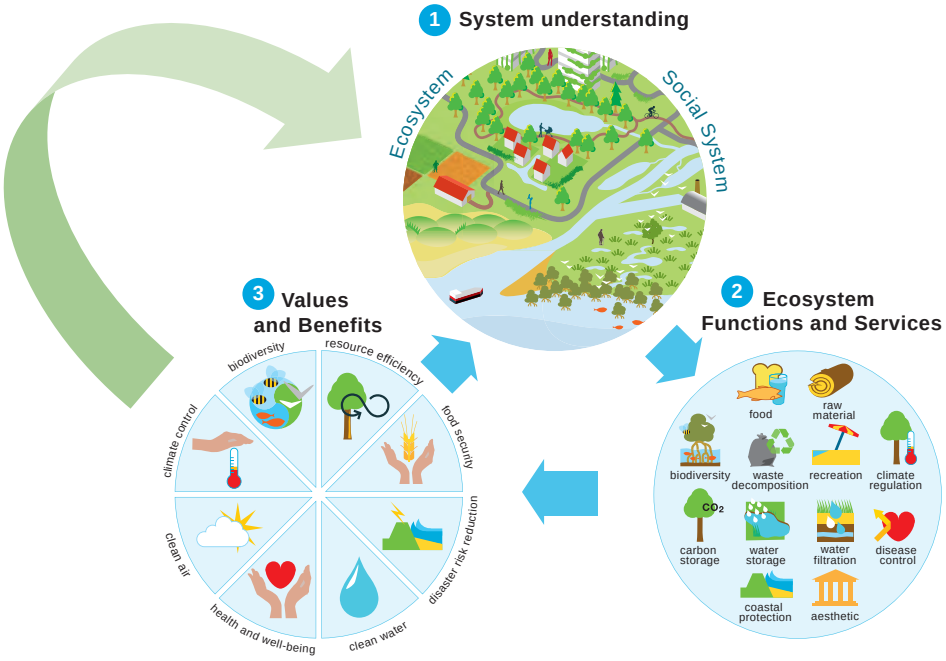
In the context of EbA governance, connections and interdependencies among humans, livelihoods, ecosystems and their services need to be taken into consideration in which they are interlinked in social-ecological systems (SES), i.e. complex, integrated systems in which humans are part of nature (Berkes & Folke 1998; Ostrom 2009 – see also Figure 2).

As an emergent form of environmental governance, adaptive governance is increasingly called upon by practitioners to coordinate resource management regimes faced with the complexity and uncertainty associated with rapid environmental change, including climate change. It is defined as the *'range of interactions between actors, networks, organisations, and institutions emerging in pursuit of a desired state for social-ecological systems'* (Chaffin et al. 2014). The concept of adaptive governance is not exclusively applied to the governance of social-ecological systems (SES as the scalable system of interest for all EbA measures). However, it is gaining importance and frequently resonates in the context of natural resource management (e.g. IUCN Commission on Ecosystem Management, CEM), and climate change adaptation projects, which aim at enhancing the resilience of social-ecological systems.

Figure 2 **Social-ecological systems (SES) and EbA governance.** Defining appropriate EbA governance structures requires understanding the SES, the functions and services of the ecosystem, and the values and benefits of the actors.

Governance-related questions:

- i.e. whose **interests, values & benefits** determine the selected CC adaptation action?
- What are **governance-relevant framework** conditions?
- How is the ***modus operandi*** of the EbA unit defined?
- Who should **participate** in planning, implementation, monitoring?
- Who reports what to whom? With which consequences? (i.e. local **accountability**, national, international?)



Amend 2019, adapted from: Witteveen + Bos 2019

Multi-sectoral governance

Experts estimate that 70 percent of the work processes in different sectors are governance related (Ansell & Gash 2007). Hence, poor governance can severely limit opportunities for social and sustainable economic development. Promoting environmental and climate governance in an integrated manner can have a wide impact. It is a building block in fostering governance quality (enhancing democratic processes, the rule of law, human rights and gender equality > see chapter on governance quality). It is also critical for aid effectiveness, since adequate governance conditions are essential prerequisites for the ownership of EbA-related processes and the use of domestic capacities.

Multi-level governance

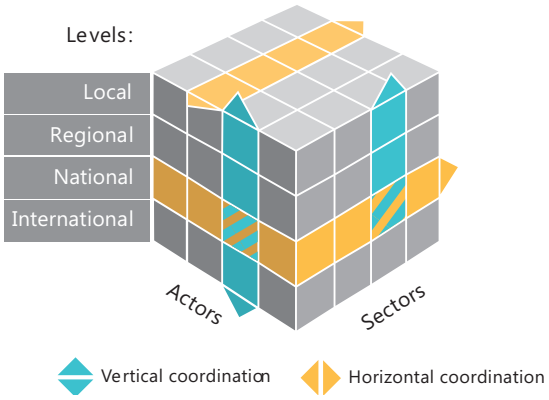
Multi-level governance is defined as the vertical (multiple levels) and horizontal (multiple actors) dispersion of authority. It refers to both political structures and decision-making processes (Bache & Flinders 2004). While governance in general refers to the growing interdependence between government and non-governmental actors at various territorial levels (see Figure 3), the concept of multi-level governance adds to the dimension of scale (potentially also implying: hierarchical powers).

Regarding the diversification of levels, in EbA both supra-national (e.g. international conventions, regional collaboration) and sub-national levels (communities and local actors, municipalities, regional governments) are gaining importance. These processes are also influenced by decentralisation policies (vertical dimension) and increasing transnational cooperation between states (horizontal), which reflects two dimensions of the recent transformation tendencies in many states.

The dispersion of central state authority has various implications for policy processes and democracy. Bache& Flinders (2004) distinguish three developments that are a result of multi-level governance and can be of relevance for EbA governance:

1. the increasing complexity and difficulty of decision-making processes;
2. the transformation of the role of the state; and,
3. in this changing context, the challenge of democratic accountability.

Figure 3 **Multi-level climate governance** encompasses vertical and horizontal types of coordination. EbA mainstreaming needs to take place mainly at the local, operational level (horizontal coordination), but also at institutional and inter-institutional levels in order to achieve sustainable change and to unite top-down and bottom-up efforts (vertical coordination) that together create a holistic and well-distributed governance system for climate change adaptation.



Actors: Governments, Private Sector, Civil society
Sectors: Environment, Transport, Construction, Agriculture, etc.

Adapted from: Petrie et al. 2019

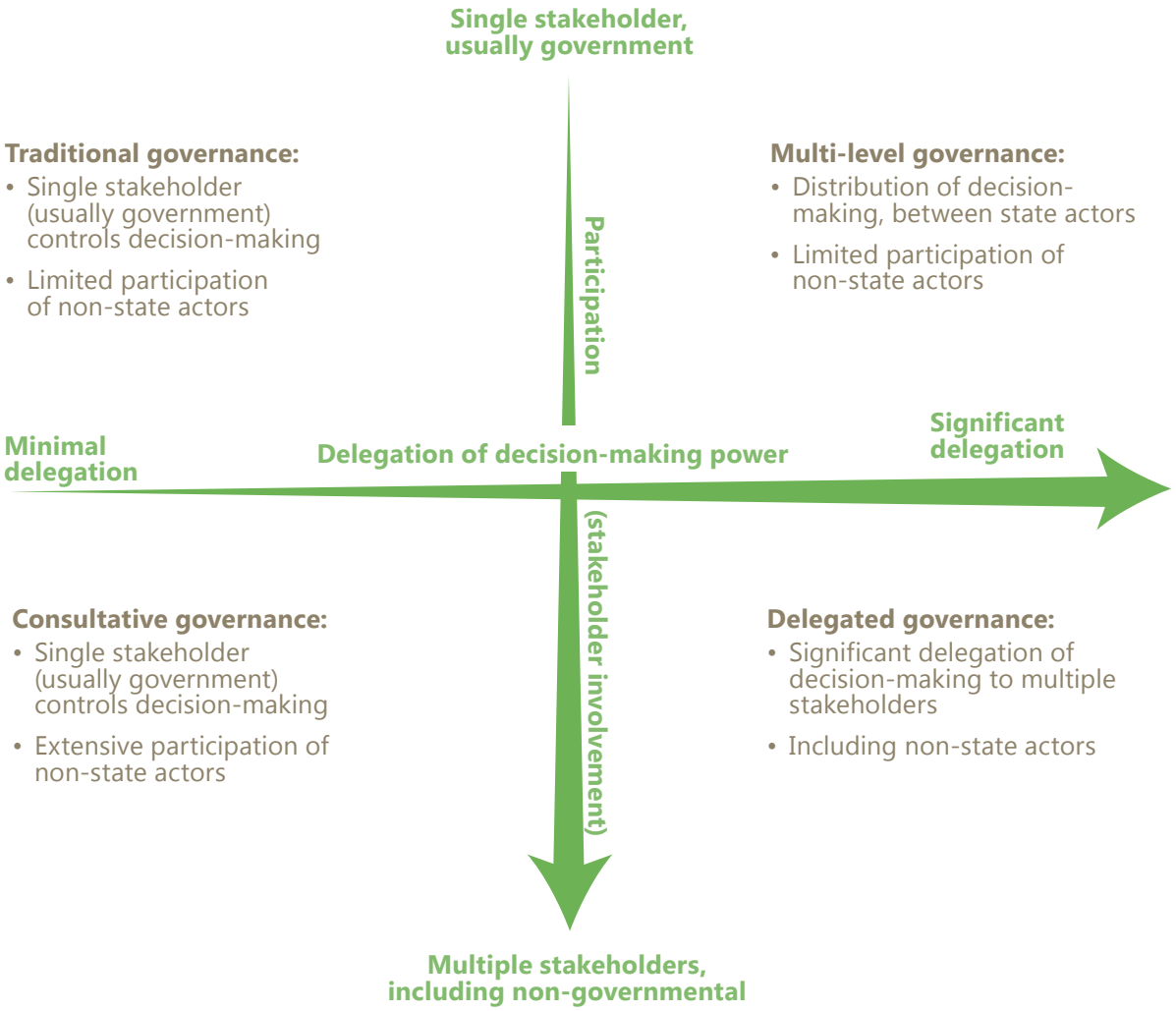
Example 1 **Canada:** participation and delegation in water governance

In their policies, the Canadian government clearly distinguishes water management (what needs to be done?) and water governance (who decides what needs to be done, and how are decisions taken?) (see Annex I for differences between governance and management). Public sector organisations in the past three decades have been under significant pressure to reform their methods of service delivery (improve efficiency, innovation and performance). This has involved the devolution of government authority, oversight, and responsibility. Collaborative water governance in Canada nowadays can take on many forms and functions. Two key characteristics are essential for differentiation:

1. the degree of non-governmental participation -from single stakeholder (usually the government), to multiple stakeholders (including civil society groups, NGOs); and
2. the degree of delegation of decision-making power – from minimal delegation (with control over the decision-making and very limited participation) to significant delegation (including state and non-state actors).

Figure 4 provides a schematic overview of these shifts in governance, showing a variety of possible combinations of increased participation and devolved authority in decision-making. This does not necessarily imply new organisational (business) models, but does mean that such entities are regulated and evaluated differently. This could include measures such as voluntary regulation or business-based performance evaluation. The conceptual model can be useful also for EbA projects.

Figure 4 **Collaborative water governance in Canada** can take on many forms and functions, differentiated primarily by two key characteristics: the degree of non-governmental participation, and the degree of delegation of decision-making power



Source: Bakker & Cohen 2011

Example 2 **Peru:** A well-articulated climate architecture and NDCs

At the national level, Peru initiated climate change planning already in 1993 with the creation of the National Climate Change Commission (NCCC), a consultative body including 25 entities (12 government agencies, 2 private organisations, 7 academic institutions and 4 civil society organisations). It is organised in multi-sectoral working groups. The Ministry of Environment is the leading authority for the integration of climate change in development planning and the overseeing entity for the NCCC, while the Ministry of Economy and Finance serves as the Nationally Designated Authority for the Green Climate Fund. Regional governments play an important role in implementing actions. The Regional Climate Change Strategies, as management instruments, are well articulated with the National Strategy on Climate Change, through their objectives, indicators and goals. Currently, 18 of the 25 Peruvian regions have developed such regional strategies.

In Peru, the NDCs were presented in 2015 as the key guiding strategy and internationally binding climate change commitment. The adaptation component prioritizes five sectors: (1) water resources; (2) agriculture; (3) fisheries; (4) forests; and (5) health. Disaster risk reduction and gender are included as cross-cutting topics, and the important role of private finance for adaptation is highlighted. Ecosystem-based principles are considered throughout the proposed adaptation actions, thus providing an enabling environment for greater uptake of EbA in the prioritized sectors. A Multi-Sectoral Working Group under the NDCs is composed of representatives from 13 ministries and the National Centre for Strategic Planning. The NAP (National Adaptation Plan) is designed to become the instrument for compliance of the indicators and goals established in the NDCs on adaptation. In the Law on Climate Change (2018), adaptation is very prominent, and EbA is considered as the fourth of seven adjustment priorities (GIZ 2018 c).

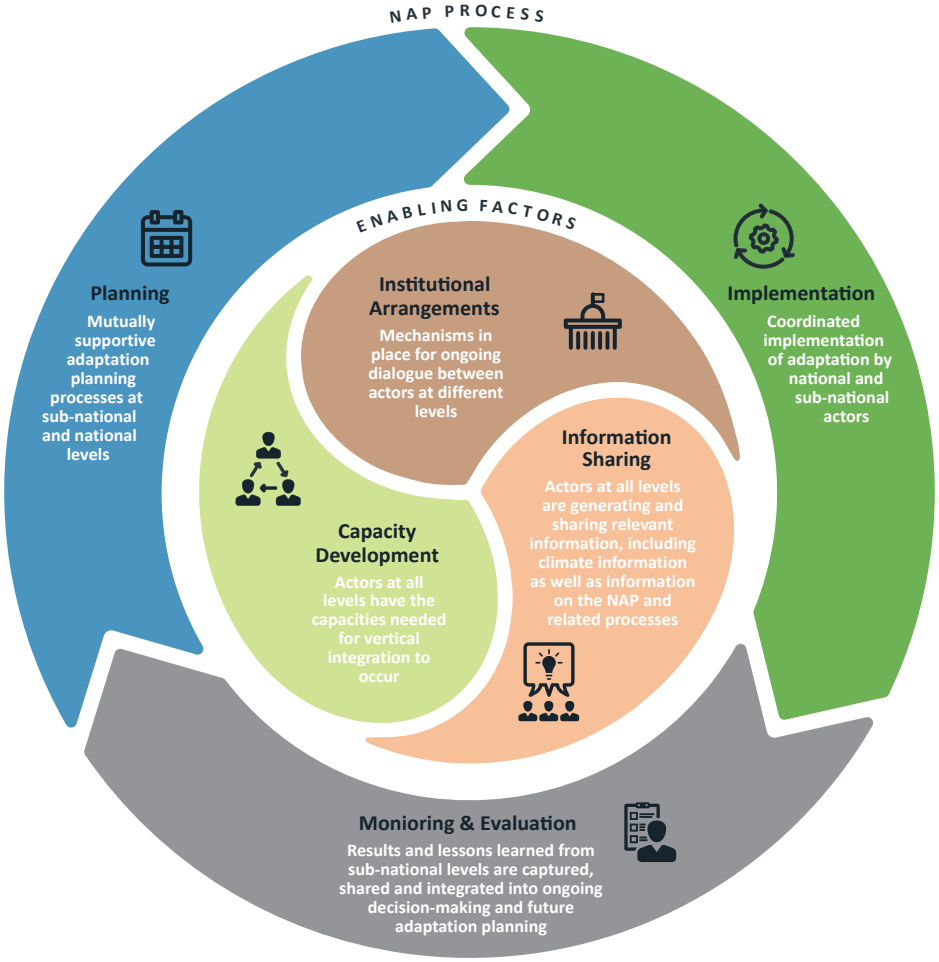
Example 3 **Global:** Vertical Integration in the context of National Adaptation Planning (NAP)

Ecosystem-based Adaptation is part of an overall adaptation strategy and as such, plays an important role in the National Adaptation Plans (NAPs) of signatory parties of UNFCCC. In the governance context of the NAP process, vertical integration is the process of creating intentional and strategic linkages between national and sub-national adaptation planning, implementation and monitoring & evaluation (M&E). Vertical integration is not a single step in the NAP process—rather it must be made as an ongoing effort to ensure that e.g. local realities of EbA projects are reflected in the national plan, and that the NAP enables adaptation at sub-national levels, including the local level. Vertical integration is relevant throughout the iterative process of NAP planning, implementation and M&E. It is enabled by institutional arrangements, information sharing and capacity development.

Example 4 **South Africa:** Complex multi-level and multi-actor EbA governance (vertical & horizontal)

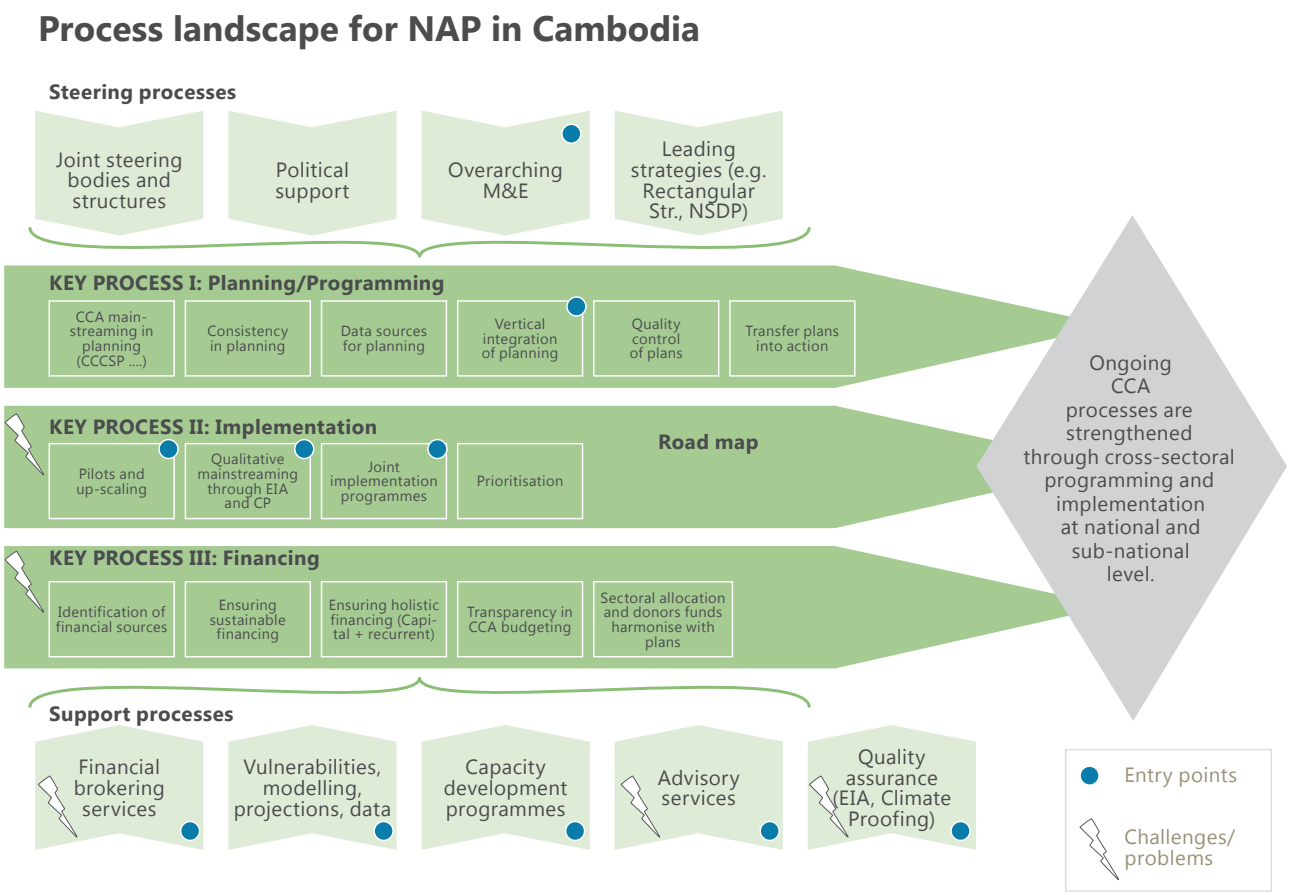
South Africa is viewed as progressive in its response to climate change. There is strong policy support for the principles of EbA. The planning and implementation of EbA projects in South Africa falls under the mandate of several ministries: the Department of Environmental Affairs (DEA) coordinates with the Departments of Water and Sanitation (DWS), Agriculture, Forestry and Fisheries (DAFF), Rural Development and Land Reform (DRDLR), Mineral Resources (DMR) as well as Science and Technology (DST), which is responsible for certain EbA related actions. In addition to the national departments (which in South Africa act as ministries), provincial departments and municipalities are mandated to implement certain actions. The South African National Biodiversity Institute (SANBI) plays a leading role for EbA and coordinates with conservation agencies, LandCare and the Expanded Public Works Program (EPWP) through intergovernmental relations and mechanisms that include nine provincial departments and further partner organisations. Multi-level governance with effective and efficient coordination between departments and programs (e.g. the Expanded Public Works Program), and across the three-tiers of Government (national, provincial and local) is crucial to ensuring a comprehensive approach to EbA that is sustained over the long-term (GIZ 2018 a).

Figure 5 **Vertical integration: the process of creating intentional and strategic linkages between national and sub-national adaptation planning, implementation, and monitoring and evaluation (M&E).** Integrating climate change adaptation across different levels of government is one of the main objectives of the NAP process. Vertical integration is not a single step in the NAP process—it is an ongoing effort to ensure that local realities are reflected in the process, and that the NAP enables adaptation at sub-national levels through institutional arrangements, information sharing and capacity development for actors at all levels.



Adapted from Dazé et al. 2016

Figure 6 **Multi-level governance and cross-sectoral integration in the NAP of Cambodia**
UNDP, UNEP and GIZ support Cambodia's Ministry of Environment (MoE) to identify entry points for the Government to institutionalize Cambodia's National Adaptation Plan (NAP) process. The framework of NAP process for Cambodia has several building blocks already in place that can be enhanced to meet the objectives. These include the Cambodia Climate Change Strategic Plan (CCCSP 2014-2023), the climate change financing framework, and several climate mainstreaming initiatives at the sub-national levels.



Adapted from Thoeun 2016

IV. Diversity of actors: governance types in EbA projects

With an ever-increasing number of EbA measures and involved cooperation-constellations of stakeholders, it can be helpful to structure the different governance types. IUCN has developed a governance matrix for protected and conserved areas, which has been recognised by CBD as an important framework for national reports (Borrini et al. 2014). Most environment ministries and state agencies for nature conservation are familiar with this matrix, which is used within and beyond protected areas. Since 2018, it also officially includes OECMs (other effective area-based conservation measures, in short: conserved areas), of which many are potential interesting sites for EbA. With the intention to contribute to the wide acceptance of this matrix, we recommend to use it for the classification of EbA measures.

Applying this systematisation, EbA projects can be grouped into four broad governance types. These are distinguished according to the key actors that hold authority and responsibility for the main management decisions affecting the nature-based adaptation measures (such as planning the EbA project and determining its adaptation and management objective). The four types are:

- **type A: governance by government** (at various levels);
- **type B: shared governance** (various actors together);
- **type C: private governance** (individuals, organisations, or corporations); and
- **type D: community governance** (indigenous peoples or local communities).

Figure 7 Types of EbA-governance constellations

Governance Type	**A. Governance by Government**			**B. Shared Governance/** or: **external agent** (donor)		**C. Private Governance**			**D. Indigenous** Peoples & Community **Governance**	
EbA mainstreaming measure	Federal or national ministry or agency	Regional government/ Sub-national ministry or agency in charge	Local Governments	Collaborative or joint management (various forms of pluralist influence)	External agents (donors, implementing agency)	Individual land-owner	Non-profit organisation (e.g. NGO, university)	For-profit organisation (e.g. tourism operator)	Indigenous peoples	Local communities

Adapted from IUCN, 2019 & Dudley, 2008

TYPE A: EBA GOVERNANCE BY GOVERNMENT

Characteristics

- Ministry, agency, parastatal institution, regional government, municipality.
- EbA implementation often on land owned by the government.
- Increasingly involved: government structures at sub-national and municipal levels.
- Possible delegation to NGOs or private operators, but decision-power resting with government.

➔ Decision-making authority, responsibility and accountability held and exercised by the government/state agencies at various levels

Type A (governance by government), involves national and sub-national levels, including municipal governments and regional agencies. It can likewise involve international cooperation among states.

Note ▸ Since many EbA initiatives are being developed and implemented by government agencies, when they speak of co-management or shared governance, they usually refer to a sharing of authority and responsibility exclusively among agencies or administrative levels of a national and sub-national government (for example a municipality interacting with a regional authority or the environment ministry). In that case, we more appropriately speak of Type A, and within this type of multi-level governance.

Table 1 Governance levels and mainstreaming EbA into national development planning

Planning level	Examples for entry points
National government and cross-sector ministries	• National development plan • Poverty reduction strategy paper • SDG-based national development strategy • National budget allocation process or review (e.g. medium-term expenditure framework, public expenditure review)
Sector ministries	• Sector strategies, plans and policies (e.g. agricultural sector plan, water, forestry, health, infra-structure building, etc.) • Preparation of sector budgets • Public expenditure reviews
Subnational authorities	• Decentralisation policies • District plans (provinces, municipal development plans, etc.) • Preparation of subnational budgets

Example 5 Type A – Philippines: The role of Local Government Units for EbA

Siargao Island is vulnerable to climate change-related hazards, brought about by proliferation of unsustainable and destructive practices. The local government unit (LGU) recognised the importance of involving the communities in the implementation of adaptation strategies to ensure sustainability, and for the communities to own the responsibility in the care of their natural resources. The mayor organised fish wardens from among the local fisherfolk, trained and deputized them to enforce the fisheries laws and ordinances. Empowering these groups through trainings provided the base for other government agencies and an NGO to implement community-based coastal resource management and disaster risk reduction programs. They were able to effectively carry out their tasks and responsibilities with minimal supervision from the LGU, and ensure the success in the implementation of adaptation strategies. Enabling factors included that the mayor spearheaded the creation of people's organisations in all the villages in the municipality of Del Carmen, the willingness of the community members to volunteer and be active members, and the presence of the NGO as partner, with decades of experience in implementing community-based coastal resource management programs (Dugan 2018).

TYPE B: SHARED EBA GOVERNANCE

Characteristics

- Plurality of actors in EbA planning and implementation.
- Success depends on mutual recognition, collective interests.
- Need for negotiation/compromise/consensus.
- Reaching an EbA management agreement involves at times complex processes and institutions.

➔ Decision-making authority, responsibility and accountability is shared between different actors – this involves governmental agencies, NGOs, communities, commercial companies, and other stakeholders

In Type B (shared governance), government agencies engage with other partners, such as NGOs and the private sector (for example, in Mexico the joint effort of the regional government, hotel owners and an environmental NGO to protect a coral reef in order to reduce wave impacts on tourism infrastructure). Shared governance is also found in some EbA measures involving private landowners and local communities together with state agencies, or even other governments, such as in transboundary watershed management (see GIZ 2018 a, b, c, d for several examples). Type B schemes in EbA often include multi-sectoral governance.

A note of caution ▸ Collaborative or shared EbA governance is a tool to be selected in particular situations, not a panacea for all governance challenges. It requires time and dedicated resources, as well as clear frameworks, rules and guidance. To be successful, the mandate, scope, and role of collaborative groups must be clearly stated in written documents. Without clear objectives for the EbA measure and accountability rules, without stakeholder support and the spirit of collaboration, also in potentially conflict-ridden situations, collaborative EbA governance schemes can even make things worse, not better. In Canada, the state policies provide helpful and implementation-oriented guidance, which can be useful also for EbA projects. Insights of their projects include the following:

- **Collaborative governance is appropriate when:**
  - input from multiple stakeholders into decision-making on 'big picture' or strategic issues is required;
  - long-term commitment from multiple stakeholders is required;
  - policy frameworks or landscape-scale plans are being developed.

- **Collaborative governance works when:**
  - rights, responsibilities, mandates, and rules are clear;
  - relationships are emphasized over hierarchies;
  - common objectives and benefits can be defined;
  - stable funding is available to support the collaborative process; and
  - participants share a commitment.

- **Collaborative governance may not work or be appropriate when:**
  - some participants are not willing to come to the table;
  - the process is used by certain groups to delay action or hinder policy processes;
  - no processes exist for conflict resolution;
  - power imbalances exist;
  - clarity is lacking about authority for decision making;
  - federal and provincial policy is not aligned with municipal or watershed organisations' objectives;
  - a crisis situation requires immediate action.

Source: National Round Table on the Environment and the Economy 2019

Example 6 **Type B – Guatemala/Mexico:** transboundary water governance

Shared governance describes two or more stakeholders – this includes transboundary arrangements with two state agencies: In the region of the Tacaná volcano, the climate is tropical humid and there is a high occurrence of hurricanes. The watersheds around the volcano are of great strategic importance for both Guatemala and Mexico as they supply water to the cities located downstream, irrigation water for agriculture and fishing waters. Despite this great potential, the area is vulnerable both ecologically and politically. Deforestation and degradation of the upper watersheds and of river banks have led to erosion, flooding and reduced capacity of the watersheds to absorb water. The Water and Nature Initiative (WANI) advocates for a successful bottom-up transboundary watershed management with an adaptation focus (Welling 2017).

Example 7 **Type B – Indonesia:** Partnerships for coastal safety

In 2015, the Indonesian and Dutch governments launched a five-year public-private partnership initiative for enhancing coastal safety in the North Coast of Java. The innovative approaches use natural protection by ecosystems like mangroves and salt marsh habitats together with technical and grey infrastructure measures as cost-effective hybrid solutions that work with and alongside nature. The program is administered and carried out by the EcoShape foundation via a consortium that consists of private parties (dredging contractors, equipment suppliers and engineering consultants), public parties (government agencies and municipalities), and scientists (applied research institutes, universities and academic research institutes) (Dutch Water Sector 2015).

TYPE C: PRIVATE EBA GOVERNANCE

Characteristics

- Individual landowners (single persons, families, trusts).
- Or corporations (companies, shareholders).
- Or non-governmental organisations (private or semi-private, religious, researching, teaching and training).
- This includes private sector for-profit, or non-profit organisations.

Mechanisms and incentives

- Mainly voluntary measures.
- Motivations for EbA include: asset protection/risk reduction, financial incentive mechanisms such as tax reduction, other direct and indirect economic benefits, CSR measures, public recognition, but also research interest, ethical or faith-based motivations for nature-based options.
- Can involve conscious set-aside of ecosystems and areas, or active management of an area/specific re-source (e.g. water) for CC adaptation via nature-based approaches.

➔ All EbA-related decisions, as well as the responsibility and accountability for actions lie with the private sector/individual landowners

EbA governance of **Type C** refers to initiatives planned and implemented directly by the private sector. Motivations of companies can be manifold, e.g. to protect their investments in grey infrastructure via mangrove plantation to combat wave impact; to secure water supply for their agro-businesses via natural buffers; to provide shade for commercial fruit plantations; or to reduce climate-related risks of loss and damage for insurance companies. However, Type C also includes non-commercial interest groups that can be e.g. faith-based (churches), conservation-oriented (NGOs), or have research interests (universities).

Example 8 **Type C – Peru:** insurance policies for farmers

'Index-based Insurances' are a relatively new product of the insurance sector. They are increasingly applied in developing countries, e.g. in the agricultural sector, and have several advantages over traditional insurance, since they provide pay-outs to insured farmers prior to an event. Based on an ex-ante agreed, objective parameter of the triggering event, e.g. a certain precipitation rate in case of a flooding, automated pay-outs regardless of the actual losses are made to the policy holders in the affected areas, thus allowing them to emergency-harvest or apply protective measures before major losses occur. Index-based insurance policies can be flexibly applied at the micro level (to individual farmers and households), meso level (to agricultural suppliers, farmer associations, or NGOs), or the macro level (to government or relief agencies). Ideally, they are combined with preventive risk reduction measures (EbA and other elements of an adaptation strategy), insuring the remaining climate risks. Accountability of farmers e.g. on application of EbA measures is monitored by the insurance companies. Monitoring of farmers' adaptation successes can be directly combined with insurance rates, rewarding the lower risks through reduced monthly fees (GIZ 2018e).

Example 9 **Type C – Costa Rica:** private sector payment for ecosystem services

In Costa Rica, the conservation of dry forests and restoration of mangroves was boosted through a private sector financed system of payments for ecosystem services. In the innovative financial mechanism of the Global Conservation Standard (GCS), companies buy conservation credits and the revenue generated is managed by a Costa Rican NGO to invest in sustainable development activities. One example is the investment of a German certified organic shrimp producer in Costa Rica buying conservation credits to restore mangroves. The organic shrimp are then sold in Germany by certified organic retailers (for each 250g sold, 0.15€ are channelled to the GCS Fund and used for conservation activities). Costa Rica's National Protected Area Authority supports the implementation of the restoration and conservation project and the contractually agreed 10-year objectives. The whole process is monitored annually by Global Conservation Standards (Schloenvoigt 2015).

TYPE D: EBA GOVERNANCE BY INDIGENOUS PEOPLE AND LOCAL COMMUNITIES

Characteristics

- Indigenous peoples on their lands & territories.
- Local communities in their areas.

Mechanisms and incentives

- Oldest form of nature-based climate adaptation,
- Livelihoods, conservation and adaptation are closely linked.
- Widespread but poorly acknowledged or rewarded, e.g. in the context of NAP/NDC or national budgets.
- EbA management is embedded in biocultural units or cultural landscapes/seascapes, sometimes across national or administrative boundaries.
- Many factors of the tight knit social-ecological systems including value & knowledge systems are still unknown/not yet fully researched.

➔ The indigenous people or local community is the major player in decision-making and has de facto and/or de jure capacity to develop and enforce regulations

Type D describes EbA governance constellations, in which local communities are the driving force. The indigenous and other local stakeholders are the main beneficiaries of the measures that makes them more climate-resilient. They decide upon the Nature-based Solutions and implement them. Motivations to engage with EbA are often related to concrete climatic impacts or even disasters: the communities want to prevent e.g. further hang or beach erosion, secure their water resources, or reduce flooding impacts. Using nature-based approaches for local communities is often the most familiar and cost-efficient solution. In many cases, community members perceive the state as being absent, not attending their pressing needs.

Example 10 **Guatemala:** Indigenous River Council as platform for dialogue

The indigenous population in Tacaná lives with high rates of poverty and climate vulnerability. The Esquichá River micro-basin (38 km2) shows tendencies of deforestation, soil erosion, variations in rainfall, strong winds, droughts and frosts, which increase the risks of landslides. In order to address these challenges, the local communities required the restoration and protection of forests. To strengthen communal and municipal capacities for natural resource management, including the recharge of water as an adaptation strategy, the governance of the micro-basin was strengthened under a multi-dimensional, participatory, flexible and ecosystemic approach. The Esquichá River Council acts as a platform for dialogue, advocacy, capacity building, appropriation of lessons learned and tools; therefore, it is a key means for up-scaling EbA on different levels (Pérez de Madrid 2019).

Example 11 **Type D – Senegal:** Traditional rules & rights

Kawawana (meaning: 'our local heritage to be preserved by us all') is an estuarine territory where the ancient governance and management rule – renovated and agreed upon also by the municipal and regional governments – are again respected. Without any external support, the local fishermen govern, manage and provide surveillance operations for their own Kawawana. An officially recognised ICCA (indigenous and community conserved area) was created by the locals through the association of fishermen. The actions have led to a dramatic recovery in quantity and quality of biodiversity (fish, dolphins, crocodiles, birds), and capacity of the rural communities to adapt to climate change. Important factors for the success of the project include:

- assertion of community collective rights and capacity to govern (decide and implement decisions); and
- management (provide surveillance, monitor) of their own heritage territory, reestablishment of ancient rules (e.g. no entry in the zones where the spirits live) (Sambou 2016).

Example 12 **Type D – Turkmenistan:** Community management of resources

Konegummez village is located in the southwestern part of the Kopetdag mountains, bordering with Iran, at an altitude of 1,350 meters above sea level. The village hosts 200 families, who live in a semi-arid climate and make their living by livestock keeping and agriculture. Based on the villagers' social strengths and supported by international development projects, the village now is an example for collectively planning and managing natural resources and agriculture, with improved climate resilience, enhanced ecosystem services and better conserved biodiversity whilst generating income in a sustainable way (Peter 2019).

THE GOVERNANCE MATRIX FOR EBA PROJECTS

Participation of various stakeholders and the existence of solid governance arrangements is key to the uptake and implementation of EbA, especially with regard to its sustainability in the long term. The case studies presented in the country analyses (GIZ 2018 a-d) show that EbA actions can take multiple forms and can be initiated, led and sustained by many different stakeholders. EbA governance can be conducted by government, private stakeholders and local communities, but often requires a combination of those. In this context, it is of particular importance to clearly define the roles and responsibilities each stakeholder or group will take on.

In doing that, it is important to analyze the motivations and interests of different actors since they play an important role for the potential broad-scaling or uptake of EbA across groups of actors or in different sectors. Governance arrangements for selected case studies are described in the GIZ country reports for Peru, Mexico, South Africa and the Philippines, highlighting which stakeholders initiated a specific EbA project [1], who followed [2], and who sustained the EbA project in the long-term [3].

In Peru (see Table 2), each case study presented in the report shows a different example of governance model and leadership sequence at different levels. While some case studies highlight more than one governance model simultaneously, the case studies in the report were selected to show at least one example for each level: local, regional, national, shared and private governance.

Table 2 Governance matrix for EbA case studies in Peru

Governance type	Governance by Government			Shared Governance/ external agents or impulse		Private Governance			Indigenous peoples & local community governance	
EbA Measure	Federal/ national ministry or agency	Regional gvts. or agency in charge	Local gov.	Collaborative or joint management	External agents (e.g. donors)	Individual land owner	Non-profit organisation	For profit organisation/ company	Indigenous peoples	Local communities
EbA case study 1: EbA Amazonia	2				1, 3				1	
EbA case study 2: Recovery of hydrological ecosystem services from forests and natural grasslands.	2	1	3	1				2		3
EbA case study 3: Flagship EbA Mountain Program	2	2	2		1, 3		2, 3			3
EbA case study 4: Reforestation and recovery of degraded system in sub-basin	2	1	1					1, 3		
Legend	1 Stakeholder who initiated the EbA process				2 Stakeholder who followed			3 Stakeholder who sustained the process		

Source: GIZ 2018 c

As the diversity of examples in the country reports highlights: there is no one governance structure that should be followed – initiatives can take different formats and be successful. EbA mainstreaming can be driven and supported at different governance levels and by different stakeholders. Depending on the context, different sets of actors can hold key roles in EbA governance, and mainstreaming can take place through bottom-up or top-down approaches. However, in order to achieve long-lasting change, both at the policy level and on the ground, collaboration across levels of governance and sectors is crucial, and coherence of policies clearly enhances the impacts on the ground.

V. Quality of governance arrangements

Governing norms steering traditional government functions are well established and understood; however, this is not the case for new multi-level and collaborative approaches that often characterize EbA governance. This is largely new territory that makes novel demands on governance institutions and policies (Lockwood 2010).

In this context, establishing and maintaining good governance across the diversity of ownership and responsibility arrangements is critical for the future effectiveness and acceptance of EbA measures.

GOOD GOVERNANCE

The objective of good governance is generally accepted as: 'holding the balance between economic and social goals and between individual and communal goals. The governance framework is there to encourage the efficient use of resources and equally to require accountability for the stewardship of those resources. The aim is to align as nearly as possible the interests of individuals, the organisation and society' (OECD 2004).

Good governance has 8 major characteristics – they are:

- participatory;
- consensus oriented;
- accountable;
- transparent;
- responsive;
- effective & efficient;
- equitable & inclusive; and
- follows the rule of law.

Source: OECD 2004

This assures that corruption is minimized, the views of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making processes. It should also be responsive to the present and future needs of society.

The effectiveness and equity of governance processes critically determine both the extent to which ecosystems contribute to human wellbeing, e.g. to climate change adaptation, and the long-term prospects for successful Ecosystem-based Adaptation and nature conservation. Securing rights, sharing power and responsibilities through strengthened natural resource governance, including legal entitlements, ultimately benefits society and helps preserve ecosystem functions and services.

EQUITY IN INTERNATIONAL POLICY FRAMEWORKS

Equity issues are crucial for EbA planning and implementation. To better understand the sources of inequality, UNDP (2018) recommends assessing five key factors:

1. **Discrimination:** exclusion or mistreatment due to gender, ethnicity, age, class, disability, sexual orientation, religion, nationality, indigenous, or migratory status.
2. **Geography:** due to place of residence, isolation, vulnerability, missing or inferior public services, transportation, internet access or other infrastructure gaps.
3. **Governance:** disadvantages due to ineffective, unjust, unaccountable or unresponsive global, national and/or sub-national institutions; inequitable, inadequate or unjust laws, policies, processes or budgets.
4. **Socio-economic status:** deprivation/disadvantages in terms of income, life expectancy, education, health care, sanitation, energy, social protection and financial services.
5. **Shocks and fragility:** exposure/vulnerability to the impacts of climate change, natural hazards, violence, conflicts, displacements, and other.

UNDP makes a call to integrate the SDGs' pledge to 'leave no one behind' in all development strategies, plans and budgets through equity-focused and rights-based approaches, promoting these in laws, policies, public information campaigns and frameworks.[7]

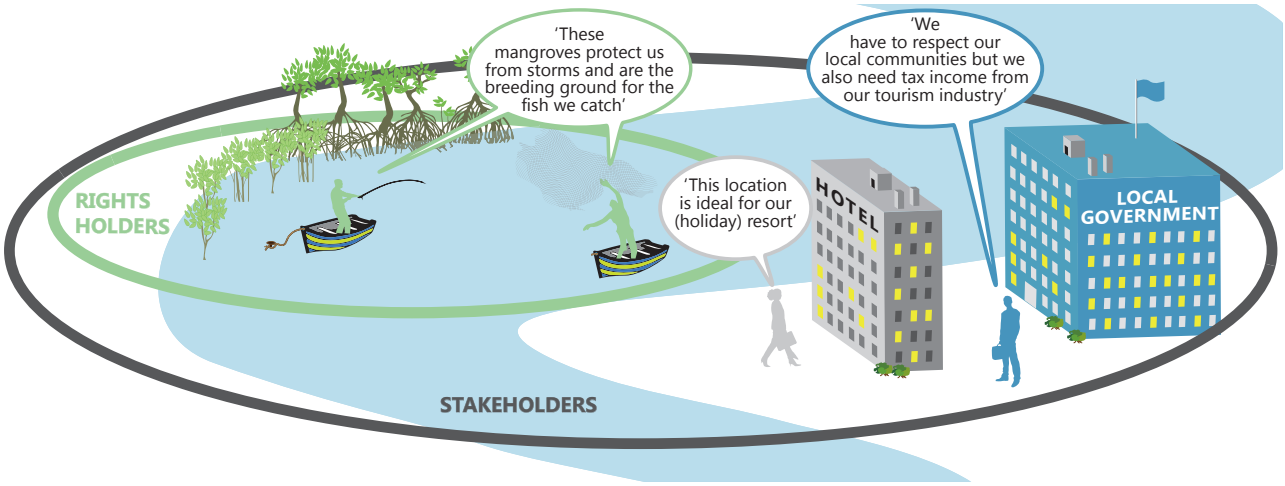
Agenda 2030 highlights the importance of stakeholder involvement, as do UNFCCC[8] and Agenda 21[9] – however, the latter two provide no clear definition of the term, which means in practice that vulnerable groups are given equal space to private sector and other parts of civil society. In EbA, especially in large scale projects, a clear distinction should be made between rights holders and stakeholders (see Figure 7).

[7] UNDP, 2018 – 'What does it mean to leave no one behind?' https://www.undp.org/content/dam/undp/library/Sustainable%20Development/2030%20Agenda/Discussion_Paper_LNOB_EN_lres.pdf

[8] UNFCCC, 2019 'How are stakeholders engaged on adaptation under the UN climate process?' https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/how-are-stakeholders-engaged-on-adaptation-under-the-un-climate-process

[9] UN Sustainable Development, 1992. Action plan of the UN for Sustainable Development, product of the Earth Summit in Rio, 1992. https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf

Figure 8 **The distinction of rights holders and stakeholders in EbA planning and implementation is an important aspect of equity.**



Adapted from World Forum of Fisher Peoples 2016

- **Rights holders** are actors that possess internationally recognised human rights, e.g. under agreements like the United Nations Declaration on Human Rights or (UDHR) on the Rights of Indigenous Peoples (UNDRIP), or the voluntary guidelines on land tenure. They represent the assumed beneficiaries of sustainable development policies (for example, women are the assumed beneficiary of SDG 5 and a clear rights holder group; other holders of recognised human rights are: youth and children, workers, farmers, and Indigenous Peoples).
- **Stakeholders** (e.g. NGOs, business and industry, local authorities, science) have a stake in sustainable development policy, procedural rights and acquired rights, and they are an important intermediary target group, but they do not represent individuals whose human rights are personally affected and that are the explicit beneficiaries of Agenda 2030.

For EbA governance, it is important to realize that groups have differential levels of economic and political power, so simply advocating a 'participatory approach' will not lead to an equal level playing field.

Figure 9 **Equality versus equity.**

Equality = Sameness

Giving everyone the same thing

- It only works if everyone starts from the same place

Equity = Fairness

Access to the same opportunities

- We must first ensure equity before we can enjoy equality

Source: Saskatoon Health Region, Health Status Reporting Series 3

Info-Box: Aspects to consider in EbA governance

- **Various types of powers** that the key actors apply when they take and implement decisions (i.e. regulatory, financial, related to knowledge, or related to coercion).
- **Equality vs. equity** (depends on age, race, skill, position...).
- **Time-scale of decision-making** (present, future > inter-generational justice).
- **Area of decision-making and operations** (i.e. local, at ecosystem level, national, transboundary, international > implications for set-up of EbA governance scheme).

- **Rights holders** = actors socially endowed with legal or customary rights with respect to land, water and natural resources.
- **Stakeholders** = possess direct or indirect interests and concerns, but do not necessarily enjoy a legally or socially recognised entitlement.

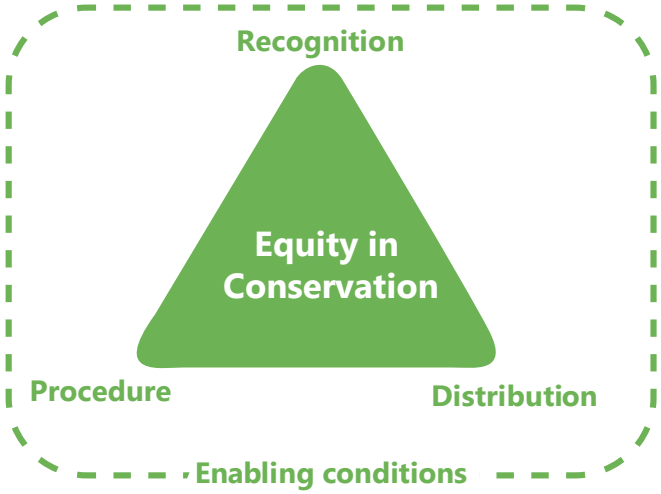
➔ note of caution ▸ 'multistakeholderism' can lead to 'consented EbA decisions' where fundamentally opposing interests are glossed over.

DIMENSIONS OF EQUITY FOR EBA PLANNING AND IMPLEMENTATION ACROSS SECTORS

Equity increasingly plays a role in all three Rio Conventions. In accordance with recent conceptual developments, it is considered to have three interlinked dimensions that should apply in any field of conservation, ecosystem-based service delivery, or development projects.

The three key dimensions of equity include the aspects: distribution (of benefits and costs), procedure (such as participation, accountability, dispute resolution) and recognition (of relevant actors and their rights, knowledge and values).

Figure 10 Three key dimensions of equity: recognition, distribution, and procedure



Equity in nature conservation is a matter of governance. The model with its three dimensions of: 1. Distribution; 2. Procedure; and 3. Recognition was recently developed for protected and conserved areas – but equally applies for projects of Ecosystem-based Adaptation. It was recognised by the Convention on Biological Diversity in 2018 at COP14, and challenges the rather outdated and top-down, yet still common, notion that equity is largely a matter of giving people tangible benefits.

Source: Phil Franks/IIED 2018

Within each dimension, the conceptual framework identifies a set of priority equity issues for conservation and enabling conditions in which all three dimensions are embedded.[10]

1. **Distribution.** Distributive equity is about how costs and benefits are distributed between different actors – such as communities, local and national governments, private sector or global stakeholders. Who receives the diverse range of benefits of the adaptation and conservation/restoration efforts, and how do these compare with the potential benefits of alternative activities/forgone income options and opportunity costs? Distributive equity also encompasses trade-offs between people in different places and generations.
   - A critical aspect of distributive equity in EbA is the acknowledgement that there are often trade-offs between different kinds of benefits for different actors (e.g. reforestation gains vs. less agricultural production; wetland restoration appreciated by bird-watchers and tourism operators vs. new housing plots in semi-urban areas) and different benefit-sharing strategies (e.g. financial compensation, exchange of land plots, new sources of livelihood and economic opportunities through EbA).

2. **Procedure.** Procedural equity in EbA is built on the inclusive and effective participation of all relevant actors. This is not always easy to achieve, particularly if there are large disparities in capacity or power between actors.
   - In some cases, civil society organisations or other intermediaries may have an important role in supporting certain stakeholders in putting forward their views. The use of visual tools, like participatory mapping exercises, for example, can also help people to convey how they use and value a particular area or ecosystem service.
   - An important aspect of procedural equity is that the responsibilities for action should be clearly agreed upon with a specified time-frame. Actors should be held accountable for their agreed actions – and for inaction. Where actors break their commitments, there needs to be easy access to effective dispute-resolution mechanisms. These can be locally agreed upon mechanisms. Furthermore, additional recourse to formal justice must be available as a last resort.

3. **Recognition.** Recognition means acknowledging and accepting the legitimacy of rights, values, interests and priorities of different actors and respecting their human dignity. This is particularly important for marginalized groups: they should not be seen as 'passive victims' of climate change or of state authority

[10] Franks, Nov. 2018 – 'CBD COP14: a breakthrough on understanding and assessing equity in conservation'.The conceptual framework for 'Equity in Conservation' is currently being further developed by IIED, IUCN and other actors. A special challenge is the development of robust indicators for the monitoring of social and quality aspects embedded in equity and governance constellations. https://www.iied.org/cbd-cop14-breakthrough-understanding-assessing-equity-conservation

actions, but marginalized groups often lack the ability to make their voices heard.

- In addition to marginalized groups, recognition refers to all relevant actors who have a significant interest in Nature-based Solutions. This includes the need to recognise (and counteract) the disproportionate influence wielded by some stakeholders, such as individuals keen to make a personal profit, powerful conservation actors, or influential development actors such as logging companies.

Enabling conditions go beyond the immediate control of the EbA project managers and other local stakeholders and can greatly advance (or hinder) the equity aspects under which EbA projects are established, governed and managed at the local level. They include e.g. legal frameworks or resolving serious conflicts – this is easier if relevant national laws are aligned with international laws, and if policies on climate change/biodiversity conservation are aligned with those on other land uses.

NATURAL RESOURCE GOVERNANCE FRAMEWORK IN THE CONTEXT OF EBA

Ecosystem-based Adaptation to climate change relies on ecosystem services for human wellbeing. Therefore, the principles that have been identified in the context of the IUCN working group of the Natural Resource Governance Framework (NRGF) are of special relevance for EbA. In the table below, the NRGF principles have been restructured and adapted specifically for EbA projects.

Table 3 Suggested framework and principles for EbA governance

Principles		Description
1	**Inclusive decision-making**	A horizontal process in which power dynamics are balanced and the views especially of groups at risk of marginalisation are considered, is necessary in all EbA decisions. The need for inclusive decision-making, including through appropriate representation of actor groups, is most often highlighted in relationships between local people and the state. However, the principle is also relevant within communities – e.g. in relation to the views and interests of women, youth, and other groups – and between local people and the private sector, NGOs and other non-state actors. Inclusive decision-making requires strong organisational representation, as well as free, prior, and informed consent (FPIC) where activities take place on the lands, waters or territories of indigenous peoples or other customary rights holders. This applies in EbA projects that could imply impacts on rights, resources or livelihoods, or involve the use of traditional knowledge or cultural heritage.
2	**Social and environmental accountability**	Accountability can be defined simply as the requirement to accept responsibility and answer for actions. It is widely recognised as a fundamental principle for good governance, including natural resource governance and adaptation outcomes and thus concerns both environmental and social impacts. Accountability is closely related to transparency of information and requires that structures and capacities are in place for people to hold governments, the private sector and other actors with roles and authority for adaptation and natural resource governance responsible for their actions (e.g. long-term impacts of climate action or inaction).
3	**Coordination & coherence**	Actors involved in climate adaptation and natural resource governance need to cooperate around a coherent set of strategies and management practices. Coordination and coherence may be 'vertical' where it concerns links across multiple levels of actors with some role in the governance of the same ecosystem or resource. It may be 'horizontal' where it concerns collaboration and consensus across different sectors operating in or with effects on the same geographical space.

Principles		Description
4	**Sustainable resources & livelihoods**	The diverse EbA actors, especially local communities, need resources or revenues as a basis for the financial sustainability of the actions required (beyond mere adaptation functions of the ecosystems). It includes the equitable sharing of long- and short-term costs and benefits of EbA actions, and the need for incentives for actions that contribute to sound natural resource governance, or the compensation for losses stemming from governance restrictions.
5	**Recognition & respect for tenure rights**	The recognition and respect for land, sea and resource rights (especially customary, collective rights), can contribute strongly to effective and equitable EbA governance by enabling local stewardship of lands, seas and resources, providing a foundation for sustainable livelihoods, and contributing to the fulfilment of human rights and cultural survival.[11]
6	**Rule of law**	Both the laws (or rules) themselves and their application in the EbA context need to be fair, transparent and consistent, especially as they affect actors with different powers (e.g. youth, women, indigenous and local communities, as well as state agencies, the private sector), and natural resources. In particular, rule of law requires that those with decision-making authority do not apply laws arbitrarily. Rule of law also implies the elimination of corruption and illegality.
7	**Empowerment**	All actors need to have the capacities and support to contribute effectively to decision-making, claiming of rights, and/or meeting their responsibilities. This principle picks up on the elements of capacity and performance frequently found in governance frameworks, while emphasizing rights and responsibilities, and overcoming power disparities.
8	**Access to justice**	Access to justice on climate change and natural resource issues concerns the ability of people to seek and obtain remedies for grievances in accordance with human rights standards. This may involve formal, indigenous and traditional, and/or other informal judicial institutions. In the context of EbA governance this is required to resolve conflicts over land, sea and natural resources, climate impacts and risks, as well as to prevent or remedy environmental, social and economic loss and damage.
9	**Special attention to the vulnerable**	Sustaining nature and promoting equity in the context of EbA require specific attention to how natural resource governance decisions or changes could affect people and ecosystems that are particularly vulnerable to climate change and other risks, as well as people who may be marginalized in economic, social or political terms. Such attention often takes the form of climate, social and environmental risk assessments and safeguards requiring specific steps to ensure that impacts are understood, avoided or minimized to the extent possible, and agreed with affected people, in accordance with human rights standards. This principle also implies a need for differentiated actions that respond to the specific situations of vulnerable groups.

[11] International frameworks such as the Voluntary Guidelines on the Governance of Tenure (FAO, 2012) and UN Declaration on the Rights of Indigenous Peoples (UNDESA, 2019) reflect a global consensus on the need to recognise and respect all legitimate tenure rights, including customary rights not currently protected by law, and women's tenure rights.

Principles	Description
10 Embracing diverse cultures & knowledge systems	Bringing diverse, including scientific and traditional, knowledge, practices and innovations on climate change and resource use into EbA planning and implementation is of crucial value for EbA measures. This draws attention to the close links between the earth's biological diversity and its cultural and linguistic diversity ('bio-cultural diversity'), and the ways they sustain one another and enhance ecosystem functions, including adaptation options. Embracing diversity means acknowledging and supporting the multiple values that motivate women, men, indigenous peoples and local communities to engage and contribute to the stewardship of nature.
11 Devolution & subsidiarity	Devolution is defined as 'a process by which state control over the use of natural resources is gradually and increasingly shared with local communities' (Campese et al., 2016). It is closely linked to subsidiarity, by which decisions on climate adaptation and resource management are taken at the lowest possible level, considering fit with the social and ecological systems being governed. Devolution and subsidiarity are key elements of good governance as they enable more flexible and adaptive processes for decision-making.
12 Strategic vision & direction	Strategic vision is widely recognised as a core principle for good governance, as it sets the direction for mobilizing adaptation action and achieving change. It includes the precautionary principle against taking on risks of environmental harm, as an important component of effective natural resource governance (thus avoiding e.g. maladaptation). Strategic vision and direction should be set through inclusive processes with relevant rights holders and stakeholders. This also entails considering the wider environment, civil society groups, scientists and the private sector. Strategic vision and direction are responsive to needs and changing conditions; they should therefore incorporate reflection and ongoing learning.

Based on: IUCN principles for Natural Resource Governance, Campese et al. 2016

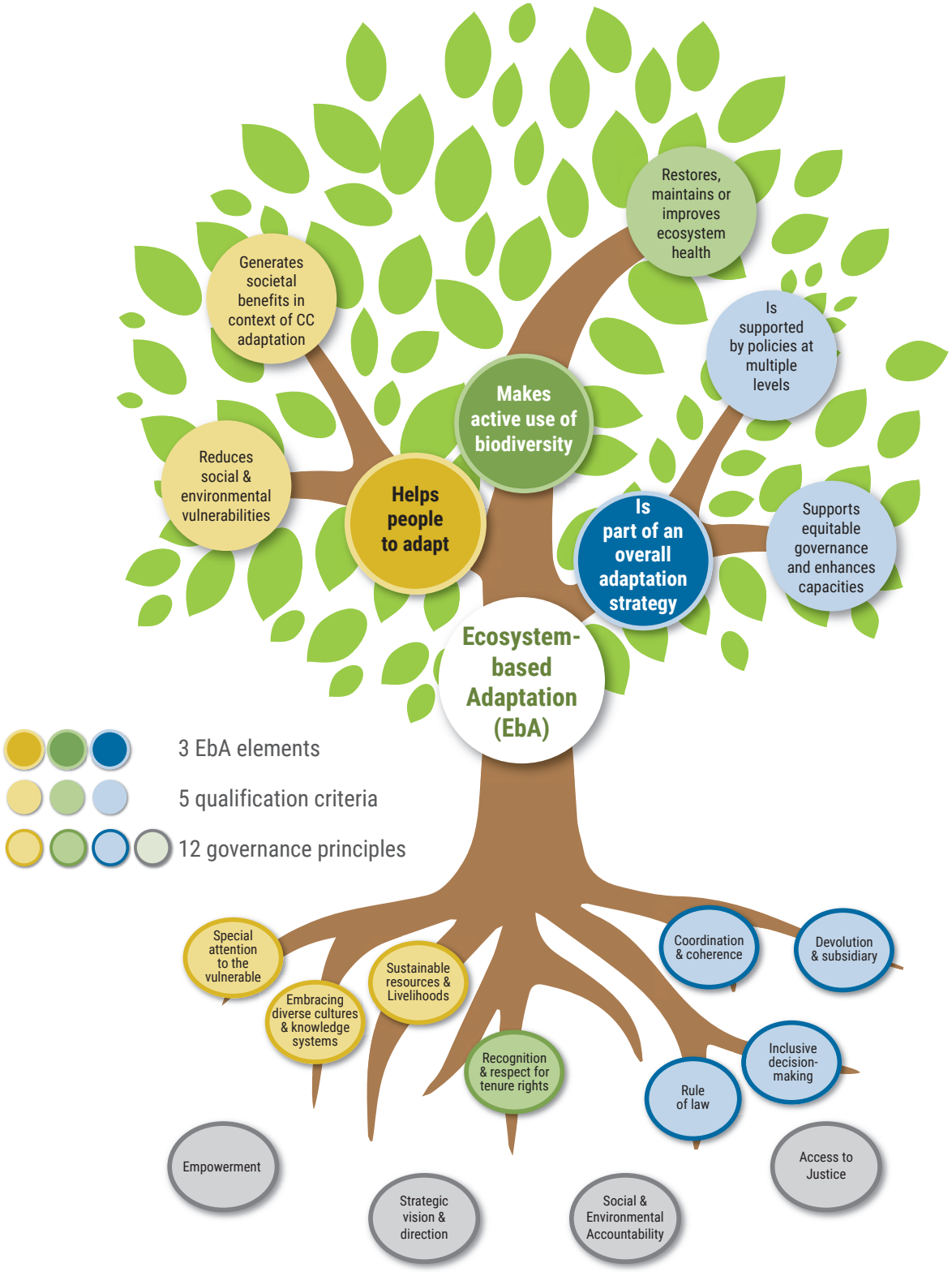
Good governance in EbA (and most other spheres of society) is an ideal which is difficult to achieve in its totality. However, to ensure sustainable human development and the reduction of vulnerability to climate-related risks, actions must be taken to work towards this ideal.

The following Figure 10 illustrates the EbA governance tree – it combines the three basic elements that define Ecosystem-based Adaptation as branches with the five criteria established by the network of EbA practitioners (FEBA) as leaves. This EbA tree is deeply rooted with the twelve governance principles for natural resources.

Description of the EbA Governance Tree:

The EbA governance tree illustrates, how the 12 governance principles are interlinked with the 3 defining elements of EbA (main branches) and the 5 qualification criteria (secondary branches) as specified by the Friends of EbA network (FEBA) in 2017.

Figure 11 **EbA governance tree,** with elements and criteria for Ecosystem-based Adaptation, based on the principles of the IUCN Natural Resource Governance Framework and FEBA.



GIZ, 2019 (Th. Amend) based on: FEBA, 2017; IUCN, 2016

Description of the EbA Governance Tree

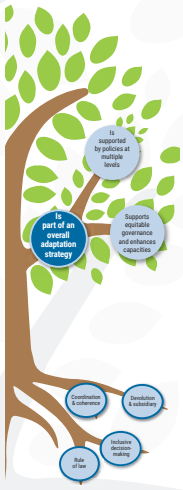
Left main branch & roots

The three principles *Special attention to the vulnerable*, *Embracing diverse cultures & knowledge systems* and *Sustainable Resources and livelihoods* are the central 'roots' helping people to adapt (element A), reducing vulnerabilities (criterion 1) and generating societal benefits (criterion 2).

Central main branch

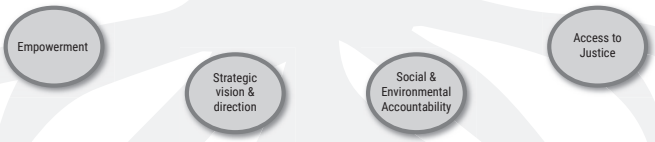
The principle: *Recognition & respect for tenure rights* is the foundation for making use of biodiversity and ecosystem services (element B), restoring, maintaining or improving ecosystem health (criterion 4).

Right main branch & roots



The four principles: *Devolution & subsidiarity*, *Rule of Law*, *Inclusive decision-making* as well as *Coordination & coherence* are essential for making EbA part of an overall adaptation strategy (element C) being supported by multiple policies (criterion 4) and supporting equitable governance (criterion 5).

The foundation (bedrock)



The four principles: *Strategic vision & direction*, *Empowerment, Social & Environmental Accountability* as well as *Access to Justice* are underlying principles (i.e. the bedrock in which the tree is rooted).

VI. Barriers and opportunities for EbA governance

CHALLENGES FOR EBA GOVERNANCE

Various studies on EbA show that a successful integration of EbA into planning and implementation of measures on the ground needs to work across multiple sectors and scales. Some of the challenges for strengthening EbA in national policy frameworks include:

- fragmented national policies;
- weak institutional coordination and collaboration between stakeholders (e.g. line ministries);
- weak institutional structures;
- weak enforcement of existing policies, laws and regulations;
- lack of financial and human resources;
- lack of a common understanding;
- limited capacities among individuals and organisations who make important decisions; and
- limited access to appropriate information and evidence.

Identified challenges for EbA governance can be grouped according to the actors (e.g. state, private sector, civil society groups, local communities), or to issues. The following section aims at providing guidance to overcoming governance challenges.

OVERCOMING BARRIERS

In order to strengthen EbA, it is essential to understand the governance obstacles, the underlying factors behind them and identify patterns. Consequently soft but essential policy and governance elements such as planning and decision-making in a multi-sectoral environment, developing incentive systems, dealing with resistance and managing institutional change processes have to be analysed and made available to decision makers. Some aspects are highlighted below – they reach from the quality of multi-actor processes, engaging the private sector, to seizing crisis-induced opportunities and enhancing governance at site level.

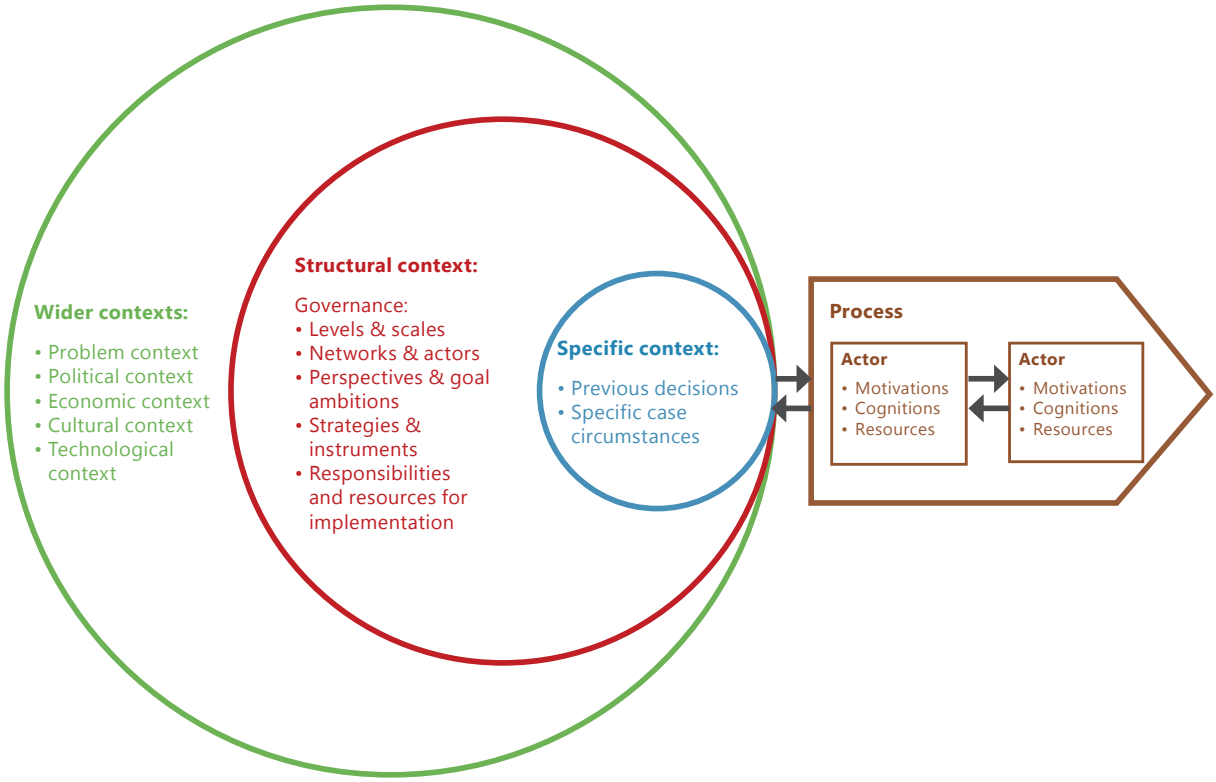
Enhancing the quality of multi-actor processes

Multi-actor processes and transparency. The 2030 Agenda and UNFCCC support multi-stakeholder partnerships; SDG 13 and 17 explicitly aim to strengthen the means of implementation and revitalize the global partnership to combat climate change and to foster sustainable development. In addition to these important framework goals, in governance of EbA the project coordinators specifically need to assure more transparency on the different actors, the constituencies and financial dependencies created by different forms of multi-actor collaboration, and on the economic incentives that might influence actors to advocate for certain development policies.

Example 13 **Europe:** European governance toolkit for water governance

The DROP project (DROught adaPtation) was created to enhance the preparedness and resilience to water scarcity and drought in North-West Europe (NWE), and was implemented from 2012 to 2015. Six regional water authorities and five knowledge institutes from Belgium, France, Germany, the Netherlands and the UK took action. The knowledge partners of DROP expanded on an existing governance assessment tool and applied the tool in the six regions of the participating water authorities. The assessment highlighted what aspects of the various regional governance settings supported or restricted drought and water scarcity measures. Additionally, the project focused on improving adaptation plans to drought and raising drought awareness. To do this, the project created a European governance toolkit. The overarching goal was to implement small-scale measures on the ground and promote the use of governance models in the process of designing long-term drought adaptation in order to enable NWE regions to become more resilient to drought (North West Secretariat 2019).

Figure 12 Understanding Policy Implementation as Multi-actor Interaction Process



The Governance Assessment Tool developed for the DROP project views implementation processes not top down, as just the application of policy decisions, but as multi-actor interaction processes that are ultimately driven by the actors involved (Bressers et al., 2016). The basic assumptions of the underlying 'Contextual Interaction Theory' are quite simple and straightforward:

1. Policy processes are multi-actor interaction processes. Individuals, often representing organisations or groups, or organisations themselves can both be considered actors when participating in the process.
2. Many factors may have an influence – but only because and in as far as they change relevant characteristics of the involved actors.
3. These characteristics are: their motivation, their cognitions and their resources, providing them with capacity and power.
4. The three characteristics are influencing each other but cannot be limited to two or one without losing much insight.
5. The characteristics of the actors shape the process but are in turn also influenced by the course and experiences in the process and can therefore change during the process. There is a dynamic interaction between the key actor characteristics that drive social interaction processes and in turn are reshaped by the process.
6. The characteristics of the actors are also influenced by conditions and changes in the specific case context of for instance characteristics of the geographical place and previous decisions that among others can set the stage for some actors and exclude others from the process.
7. A next layer of context is the structural context of the governance regime. This is the context that our Governance Assessment Tool concentrates on.
8. Around this context there is yet another more encompassing circle of political system, socio-cultural, economical, technological, and problem contexts. Their influence on the actor characteristics may be both direct and indirect through the governance regime (Bressers et al. 2016).

Table 4 **Guiding questions for water governance.** Main descriptive questions specifying the five elements of governance for water management implementation in the DROP project, applied in North-Western European countries

Governance dimension	Quality of the governance regime			
	Extent	**Coherence**	**Flexibility**	**Intensity**
Levels and scales	How many levels are involved and dealing with an issue? Are there any important gaps or missing levels?	Do these levels work together and do they trust each other between levels? To what degree is the mutual dependence among levels recognised?	Is it possible to move up and down levels (up scaling and downscaling) given the issue at stake?	Is there a strong impact from a certain level towards behavioural change or management reform?
Actors and networks	Are all relevant stakeholders involved? Are there any stakeholders not involved or even excluded?	What is the strength of interactions between stakeholders? In what ways are these interactions institutionalised in stable structures? Do the stakeholders have experience in working together? Do they trust and respect each other?	Is it possible that new actors are included or even that the lead shifts from one actor to another when there are pragmatic reasons for this? Do the actors share in 'social capital' allowing them to sup-port each other's tasks?	Is there a strong pressure from an actor or actor coalition towards behavioural change or management reform?
Problem perspectives and goal ambitions	To what extent are the various problem perspectives taken into account?	To what extent do the various perspectives and goals support each other, or are they in competition or conflict?	Are there opportunities to re-assess goals?	How different are the goal ambitions from the status quo or business as usual?
Strategies and instruments	What types of instruments are included in the policy strategy? Are there any excluded types? Are monitoring and enforcement instruments included?	To what extent is the incentive system based on synergy? Are trade-offs in cost benefits and distributional effects considered? Are there any overlaps or conflicts of incentives created by the included policy instruments?	Are there opportunities to combine or make use of different types of instruments? Is there a choice?	What is the implied behavioural deviation from current practice and how strongly do the instruments require and enforce this?
Responsibilities and resources	Are all responsibilities clearly assigned and facilitated with resources?	To what extent do the assigned responsibilities create competence struggles or cooperation within or across institutions? Are they considered legitimate by the main stakeholders?	To what extent is it possible to pool the assigned responsibilities and resources as long as accountability and transparency are not compromised?	Is the amount of allocated resources sufficient to implement the measures needed for the intended change?

Source: Bressers et al. 2016

Powers and differentiated constituencies. Different actors have different levels of economic and political power and by allowing formal partnerships between economically powerful actors and public institutions, less powerful rights holder groups may be left behind. It should therefore be firmly ensured in the planning phase of EbA, that rights holder groups that represent the assumed beneficiaries (of EbA and other development measures) are able to participate through their own, differentiated constituencies throughout implementation.

NGOs and public-private partnerships in EbA projects. In some constellations, it can be particularly important to distinguish NGOs from rights holder constituencies. Since the NGO sector has become increasingly professionalized over the past 30 years, and it is often dependent upon significant financial support for sustaining its organisational structures. They can thus have an important financial stake in certain policies. The distinction between different actors is also important in light of the trend to promote public-private partnerships (PPPs), blended finance and other forms of collaboration between the private sector and public interest organisations (e.g. UN agencies, scientific institutions, NGOs). In the case of declining public financial support, these actors become increasingly dependent upon private sector support. The financial dependencies can create incentives to support private commercial interests – sometimes even against public interests. [12]

Corruption. Principle 6 (Rule of Law) of the suggested EbA good governance principles includes corruption. Considered to be one of the greatest obstacles to development, corruption also affects EbA mainstreaming: during interviews in partner countries, it was frequently mentioned as a major hindering factor for Nature-based Solutions. This is due to the fact that 'green' options usually require more manpower, but less financial investment than 'grey' infrastructure measures. Deviation of funds, including bribes, is therefore less common in EbA than in other development processes. Corruption leads to squandering or misappropriation of public or community resources, creating legal uncertainty and discouraging investments in Nature-based Solutions. Vital services, such as the provision of drinking water or the reduction of climate risks, fail to reach the population [13]. The poor and marginalized groups notably suffer from the multiple impacts of corruption. International agreements such as the United Nations Convention against Corruption (UNCAC), the Paris Declaration, the Accra Agenda for Action and the G20 Action Plan highlight the significant relevance of the topic. Additionally, the World Bank monitors the 'control of corruption' as one of six different fields in context of their project WGI (Worldwide Governance Indicators). Especially in the planning phase of EbA projects, but also during implementation, attention should be paid to existing power constellations, dependencies, and 'business modes' that might influence decisions. Many countries and organisations have developed specific anti-corruption policies in response to addressing this issue.

[12] (Lovera 2016). On Stakeholders, Rightsholder and Conflicts of Interests in Agenda 2030. https://globalforestcoalition.org/stakeholders-rightsholder-conflicts-interests-agenda2030

[13] The World Bank estimates that 20 to 40 per cent of water sector finances, in the range of USD 155 to 700 billion annually, are lost to dishonest and corrupt practices (Water Integrity Global Outlook 2016).

Example 14 **Global:** Overcoming governance barriers – fighting corruption

Many donor organisations and implementing agencies, e.g. GIZ in collaboration with the World Bank or other international partners, support partner countries in developing comprehensive solutions to prevent corruption. Holistic approaches and cooperation with various government institutions are the answer, including anti-corruption commissions, supreme audit institutions and the judiciary, but also with civil society and private actors. The aim is to strengthen government institutions of relevance for EbA (and beyond) that guarantee access to public services for all – in accordance with the good governance principles of transparency, integrity, participation and accountability. GIZ's guidelines for integrating anti-corruption into the planning and implementation of technical cooperation projects provides managers and staff with key questions about actors and processes and helps teams to identify context-specific corruption risks for sectors or programs. Anti-Corruption WORKS is a hands-on workshop format which supports the development of feasible, tailor-made corruption measures that can be integrated into ongoing activities and the planning of new EbA projects (GIZ 2017).

Example 15 **South Africa:** Combating Corruption

In 2004, the South African government passed the Prevention and Combating of Corrupt Activities Act. With support from GIZ, the National Anti-Corruption Forum prepared a guide designed to help citizens understand this act. It explains the legal framework in the country's various languages, enriched with images. Fifteen thousand copies of the guide are already in use across the country. In addition, as part of the National Anti-Corruption Forum, two initiatives (Business Against Crime South Africa and Business Unity South Africa) signed an agreement in the furtherance of the objectives of the partnership between business and government in the fight against crime (NACF South Africa 2019).

Engaging the private sector in EbA

In order to meet the aims, set out by the Paris Agreement and the Sustainable Development Goals, the private sector must play an active role in the design, planning, financing, implementation and monitoring of EbA and other adaptation actions. These actors, as the engines of economic growth and development, will be central to strengthening climate resilience in both developed and developing countries. Increased funding for adaptation actions is also a necessity, and while much of this financing will come from public sources, whether domestic or international, the private sector will need to fund adaptation as well, either as enterprises investing in their businesses or as financiers investing in adaptation actions (Crawford & Church 2019).

To engage the private sector, for example in the national adaptation planning (NAP) process, a clear and coherent business case for adaptation processes must be articulated by both governments and the private sector, covering the expected risks and costs of engaging in adaptation actions. Efforts should also be made to address the existing informational, financial, technical, and institutional barriers to adaptation investment. The factors that enable private sector engagement should be identified and enhanced, such as: facilitating information sharing; improving financing strategies; promoting clear and inclusive institutional arrangements; establishing a stable political and regulatory environment that supports both investment and adaptation; and strengthening private sector capacities to design and deliver prioritized adaptation activities (ibid.). In many countries, the private sector is already making valuable contributions to adaptation processes. Communicating the impacts of this engagement to broader audiences and combating corruption in state agencies and business will be a key step to crowding-in further private sector support to the NAP and NDC processes.

Example 16 **Mexico:** Private sector and strategic communication

Targeted communication based on the private sector's needs and ways of thinking is required to get companies interested and involved in EbA measures. Experiences from the BMU IKI-financed project 'Adaptation to climate change in the tourism sector' in Mexico highlight that it is essential to invest in dialogues with private actors for a deeper understanding on their perception of EbA-related business risks and opportunities. Business actors tend to plan in short time frames and prefer agile planning methods. Using existing and reliable structures and creating trust between the 'new' business actors and further actors of the governance structure is vital to make the system work in the long run. In Mexico, the State of Yucatán promotes coastal tourism combined with cultural heritage and world-class tourism infrastructure as their unique selling point. These assets are at risk due to the effects of climate change. The message of the communication strategy, targeted at different private sector actors and political leaders, was designed according to local standards, reliable data and adapted, with support of GIZ, to the way of business thinking. Dissemination channels include web blogs, the local press, and events (GIZ et al 2019).

Example 17 **Global:** Good governance guidance of WEF for business leaders

The World Economic Forum in cooperation with PwC has developed a set of principles and questions to guide the development of good climate governance, which are designed to help business leaders practically assess and debate their organisation's approach to climate governance and frame their thinking about how the latter could be made more robust (WEC, 2019). The principles and guidance build on existing corporate governance frameworks, such as the International Corporate Governance Network's (ICGN) Global Governance Principles, as well as other climate risk and resilience guidelines. The drafting process involved extensive consultation with executive and non-executive board directors, as well as important organisational decision-makers, including chief executives, and financial and risk officers (World Economic Forum 2019b).

Seizing crisis-induced opportunities for EbA governance

Even though sudden impacts of climate change or natural disasters lead to crisis, these situations can provide important prospects not to be neglected for enhancing governance structures or introducing new proposals, e.g. Nature-based Solutions. 'Building back better' (BBB) is an approach to post-disaster recovery that involves multiple stakeholders, aims at reducing vulnerability to future disasters and building community resilience to address physical, social, environmental, and economic vulnerabilities and shocks.

Example 18 **South Africa:** Crisis as an opportunity – multi-actor governance to tackle the water crisis

The long-lasting water crisis in South Africa affected all social groups and sectors. It emphasized the urgency of establishing effective governance mechanisms, including new actors, to address the crisis in the short- and medium term. A range of factors had led to the water scarcity in Cape Town, they included:

- structural challenges (exceptionally rapid urbanisation and high per capita consumption among the upper and middle class);
- the non-diversified water supply combined with low rainfalls over consecutive four years; and
- a lack of planning and harmonisation among different policies and mandates.

However, the water crisis provided a window of opportunity to change processes: Strategic communication and use of terminology that responded to different values and mandates was crucial to get non-environment actors and the private sector involved in EbA and water governance. Since water pricing became an important issue in times of scarcity, communication on ecosystem services as a cost-effective way to provide water increased public awareness on natural solutions. Behaviour change was stimulated by communicating clear ecological thresholds; especially Day Zero as a set date when public water supply would be cut drastically, and basic water rations would be allocated (GIZ 2018 a).

Enhancing EbA governance at site-level

The most relevant changes made by EbA should become visible on the local scale: the people-centric aspect of EbA implies the close coordination with farmers and fishing communities, private landowners and indigenous organisations. The following table clusters examples of typical EbA governance challenges in relation to aspects of good governance and attempts to provide practical guidance for practitioners via a list of exemplary guiding questions (questions have been grouped according to the Good Governance Principles for EbA, presented in Table 3).

Table 5 Guiding questions for good governance in EbA

Principles of EbA governance		Guiding questions for good governance in EbA
1	Inclusive decision-making	• Is the set-up of the decision-making process inclusive (appropriate representation of all relevant actor groups, including local communities and sub-groups, state agencies, private sector)? • Is the process of EbA decision-making known, the steps understood, and relevant information made accessible to all affected actors (spatially, socially, culturally, linguistically)? • Is there any kind of external or political interference in local EbA decision-making? • Are certain sectors or actors largely ignored, due to influence on decisions? • Which factors potentially limit the involvement of women in EbA decision-making? • Are the elections of representatives in EbA governing bodies democratic? • Have resource users been refused membership of EbA co-management committees?
2	Social and environmental accountability	• Are structures and capacities in place for people to hold governments, the private sector and other actors with roles and authority for adaptation and natural resource governance responsible for their actions (e.g. long-term impacts of climate action or inaction)? • Do all actors know their required responsibilities and exercise their activities/actions accordingly? • Have private investors shared relevant information openly (e.g. fees, costs, gains)? • Do state agencies/researchers communicate in appropriate ways (not too technical language, or legal clauses, time lags)? • Do the EbA committee members properly inform the people/organisations they represent? • Are all actors, but especially community members, aware of the responsibilities of the co-management institution/EbA unit? • Is notice for EbA steering meetings sent out timely?
3	Coordination & coherence	• Is the coordination of activities between government and non-government line agencies effective and appropriate? • Are there misunderstandings between sectors/actors due to different terminology, timelines, guidance, M&E, reporting frameworks? • Is the vertical coordination of EbA-relevant actions (planning and implementation) exercised in a coherent way, considering links across multiple levels of actors and political processes (from local to national/international and vice versa)?, • Is the horizontal coordination of EbA-relevant actions (planning and implementation) exercised in a coherent way, considering collaboration and consensus-building across different sectors that operate in or affect the same spatial area?
4	Sustainable resources & livelihoods	• Are the beneficiaries of the EbA measure the intended target group? • Have negative social impacts of measures been analysed (e.g. reforestation that reduces pasture areas in highlands, controlled periodic flooding that limits agricultural crop options)? • How are social-ecological conflicts dealt with that could undermine social and conservation objectives? • Is the distribution of costs and benefits fair? • Are costs appropriately compensated (e.g. between upstream communities that prevent erosion through reforestation, and down-stream communities that benefit from fewer/less damaging flooding)? • Do all actors, but especially community members, have the opportunity to explain their development needs before EbA interventions are brought? • In the case of alternative income projects: have these been consulted with the target groups? • Is there an appropriate follow-up of community development projects? • Is there appropriate involvement of community members/esp. women in decision-making or on benefit sharing? • Does nepotism in any way affect access to employment opportunities generated through EbA action? • Do community members or other relevant actors not attend EbA meetings since there are no benefits for them?

5	Recognition & respect for tenure rights	• Have mechanisms been established to resolve over-lapping land titles or resource use rights issued by different state agencies? • Are community rights over territories (land and sea) or resources known, recognised, respected and fully exercised?
6	Rule of law	• Are the EbA-relevant laws, rules and regulations consistent and coherent, and is their application fair, transparent and consistent? • Have there been instances of loss of revenue sharing funds due to corruption? • Can community staff effectively enforce regulations on family and friends (e.g. no cutting of trees)? Can they deal effectively with illegal invaders (e.g. in sites of ecosystem restoration) that are heavily armed? • Is it probable that official staff of EbA sites, e.g. rangers in protected areas are bribed to ignore illegal activities? • Is there evidence of political influence so that people caught in illegal activities escape prosecution?
7	Empower-ment	• Do all actors have the skills, knowledge and capacities to contribute effectively to EbA decision-making? • Can they claim their rights, articulate their needs and bring in their knowledge and skills? • Are they able to meet the agreed responsibilities? • What kind of support is needed to enhance their capacities?
8	Access to justice	• Do all actors or community members know their rights (e.g. women, youth, other social groups, NGOs, academia)? • Are formal structures for dispute resolution between rights holders and stakeholders established and accessible? • Do affected people and actors have the ability to seek/access and obtain remedies for grievances in accordance with human rights standards? • Does this access include indigenous, traditional and/or informal judicial institutions? • Does EbA governance in this context consider possible conflicts over land, sea and natural resources, climate impacts and risks, as well as diverse forms of loss and damage (environmental, social and economic spheres)?
9	Special attention to the vulnerable	• Are the views (values, needs, skills and knowledge) especially of groups at risk of marginalisation considered appropriately? • Are risk assessments and safeguards (climate, social and environmental) designed in such a way, that they consider specifically the impacts of adaptation action or inaction on vulnerable groups? • Are the assessed impacts communicated in appropriate ways? • Is the EbA measure designed in a way that it avoids or minimizes impacts on the most vulnerable to the maximum extent possible? • Are the intended measures to minimize or avoid those impacts agreed upon with the affected vulnerable people, and are they based on human rights standards?
10	Embracing diverse cultures & knowledge systems	• Are values, skills and knowledge of different actors, especially indigenous peoples, or their institutions considered in EbA planning? • Is the traditional knowledge/information/data gathering of local communities appropriately recognised and built into EbA monitoring schemes? • Are scientific institutions working together with holders of traditional knowledge and indigenous communities to receive more comprehensive data for the development of EbA projects?
11	Devolution & subsidiarity	• Does the set-up of the EbA measure encourage devolution of decision-making from state actors to other actors, e.g. local communities? • Are decisions on climate adaptation and resource management taken at the lowest possible level, most appropriate for the social, spatial and ecological dimension?
12	Strategic vision & direction	• Does the design and set-up of the EbA measure reflect a strategic vision that can provide the direction for mobilizing adaptation action and achieving change (considering short-, mid- and long-term impacts, different actor groups, and the wider landscape)? • Have social and environmental risks been analysed and a precautionary principle be applied in order to avoid harm and/or maladaptation? • Has the strategic vision and direction of the EbA measure been defined in an inclusive process with all relevant rights- and stakeholders? • Does the set-up of the EbA project allow for on-going learning and reflection?

VII. Conclusions

INSIGHTS

'The quality of results produced by any system depends on the quality of awareness from which people in the system operate.'

'We have entered an age of disruption. Financial collapse, climate change, resource depletion, and a growing gap between rich and poor are but a few of the signs.'

Otto Scharmer, 2013

Otto Scharmer, professor at MIT, creator of 'Theory U', and his co-author Katrin Kaufer ask, 'why do we collectively create results nobody wants?'.[14] Meeting the challenges of this century requires updating our economic logic and operating system from an obsolete 'ego-system' focused entirely on the well-being of oneself, to an eco-system awareness that emphasizes the well-being of the whole.

Governance is a key factor for EbA mainstreaming. With climate change being recognised as a global issue, diverse forms of governance are increasingly driven by other than state-actors, and taking off at local scale, building upon the notion of 'think global, act local'. These new, emerging forms of governance – within and beyond the different levels of the government – can provide new entry points for mainstreaming. If successful, these initiatives have the potential to initiate also bottom-up mainstreaming processes for EbA.

- **Multi-level governance is a source for policy innovation.** Stakeholder participation in all phases of the policy cycle is crucial, from design to implementation, to monitoring and evaluation.
- **Multi-lateral agreements support policymaking.** At the subnational level, communities, cities and the private sector are all establishing their own climate policy approaches, which is supportive for advancing policies at other levels. Multi-lateral agreements and policy networks also serve as catalysts for policy learning between countries.

No blueprints in governance schemes. Governance in general, in particular for EbA, is only appropriate when tailored to its specific context.

- It needs to be based on the understanding of climate risks and the special characteristics of the social-ecological system. Only then can EbA be effective in delivering lasting adaptation results, livelihood benefits and the respect of rights.
- Collaborative or shared EbA governance is not a panacea for all governance challenges but a tool to be selected in particular situations. It requires time and dedicated resources, as well as clear frameworks, rules and guidance. To be successful, the mandate, scope, and role of collaborative groups must be clearly stated in written documents.
- Without clear objectives for the EbA measure and accountability rules, without stakeholder support and the spirit of collaboration (especially in conflict situations), collaborative EbA governance schemes can even make things worse, not better.

Coherence is key for the effectiveness and efficiency. Vertical integration is important, especially for multi-level governance constellations, while horizontal integration is especially relevant for multi-sectoral constellations.

As part of an overall adaptation strategy, EbA projects can contribute in important ways to the NAP process and the implementation and review of NDCs. Governance-related aspects can be enhanced in diverse spheres of influence:

- Integration of different knowledge systems, based on mutual respect for the values, perceptions and needs of different actors.
- Institutional arrangements with clear roles/mandates and responsibilities, but with a certain grade of flexibility that allows for adaptive management.
- Integrated policy approaches of climate and environmental concerns across sectors and at all levels (including agriculture, fisheries, tourism, forestry, industry, manufacturing and processing, energy and mining, transport, infrastructure, health).

Local and sub-national levels are of specific relevance for planning and implementation of concrete EbA projects, and part of regional development plans which can further tap on new financing options.

- Local governance, i.e. authority handed down to local governments (decentralisation policies), has been in many cases perceived to out-do policy goals within the national and international arena, with some local governments taking on their own initiatives for tackling urban climate change (see example the city of Durban in the South Africa report, GIZ 2018). Local actors including governments, civil society but also private sector play a key role in EbA governance if mandates, interests, land tenure and resource use rights are clearly defined.

New skills require capacity development. Enhanced vertical and horizontal integration might require new skills, e.g. for facilitation of multi-stakeholder dialogues (including the sensibility to distinguish rights holders and

[14] (Scharmer & Kaufer 2013) 'Leading from the Emerging Future: From Ego-System to Eco-System Economies'. Filled with real-world examples, their thought-provoking book presents practices for building a new economy that is more resilient, intentional, inclusive, and aware.

other stakeholders), cross-sectoral planning, or transparent accounting. Capacity development is therefore an important element for enhancing governance structures.

- **Organisational development** needs to be encouraged and enhanced, so that flexibility, adaptive management, shared responsibilities and accountability are strengthened.[15]

Governance quality needs to consider equity issues, via effective legal, procedural and institutional mechanisms for environmental policy integration and climate change.

- **Equity has three interlinked dimensions** that apply to EbA: 1. Recognition (accepting the legitimacy of rights, values, interests and priorities of different actors); 2. Procedure (ensuring the inclusive and effective participation of all relevant actors); and 3. Distribution (of costs and benefits, including trade-offs between people in different places and generations).
- **Gender aspects require particular consideration** when climate and environment policies are being developed and implemented; a gender-integrative approach could support more effective and transformative policies and speed-up implementation.

EbA governance needs to spell out co-benefits. Tools for ex ante assessment of projects can reveal potential social and economic co-benefits, in addition to climate change adaptation, risk reduction and biodiversity conservation. These need to be clearly communicated and considered in future policies.

- **Joint monitoring and learning from successes and failures** should be considered as an inherent element of all multi-actor processes.
- **External costs and future risks.** Environmental accounting systems need to ensure that external costs are addressed and that processes are incorporated that will identify possible future risks, opportunities and conflicts (intergenerational equity).
- **Precautionary approach** application can reduce future risks. Coalitions between government institutions, businesses and civil society to tackle societal risks can achieve progress, even under conditions of great uncertainty.

[15] (Robertson 2015) The organisational pioneer and trainer Brian Robertson promotes 'Holacracy', a complete system for structuring organisations, including companies, without a management hierarchy, yet with clear accountability, authority and agility. This aims at creating new structures and ways of making decisions that empower the people who know the most about the issues at stake: local people affected by climate change, planners and business leaders who have to deal with present and future climate risks. Agile decision-making is crucial in a rapidly changing world, it enhances social and ecological resilience.

Many governance barriers relate to power issues. The fair distribution of EbA costs and benefits might hinder mainstreaming. The integration of Nature-based Solutions into other sectors can be insufficient if costs are imposed on influential groups while benefits are widely dispersed in society.

- **Environmental agencies,** which usually play a major role for EbA governance, are often too weak to enforce environmental policy integration and adaptation, and therefore need to be empowered in setting up partnerships.
- **Deviating use of funds.** Especially in high-investment sectors such as infrastructure-building, conventional grey measures provide more potential for deviating use of funds or corruption than green labor-intensive options. Enhancing transparency and negotiating hybrid solutions might offer viable alternatives for mainstreaming.

Compliance of policies. Successful models of environment and climate governance are usually built upon well-designed policies and their implementation, compliance and enforcement.

- **Cooperation of science and society.** Early signals from science and society are important, as is investment in different knowledge systems, such as data collection, assessments, policy evaluation, and sharing platforms.
- **Use of strategic tools for enhanced EbA governance.** Although analyses such as strategic environmental assessments (SEA), environmental impact assessments (EIA) and assessments of natural resources are increasingly being carried out, their potential for EbA mainstreaming and for enhancing governance structures needs to be better exploited.

Policymaking can become more dynamic through scaling-up over time. Climate policies are revised and improved, based on experience; e.g. by increasing the level of ambition or choosing more effective instruments (e.g. effective and efficient governance schemes).

- **Revisions and increases of ambitions** need to be applied on a systematic basis with EbA-friendly mechanisms and governance schemes built in.
- **Multi-level coordination** between local and national policy levels will be instrumental in accelerating the transition towards sustainable development models.

Transformative changes are required. To pursue climate change adaptation alone, the 2030 Agenda for Sustainable Development will not be sufficient – instead, transformative change, in the sense of reconfiguration of basic social and production systems and structures, including institutional frameworks, social practices, cultural norms and values, is necessary.

The Way Forward

'What we need is not merely some grand vision of a new type of organisation. We need concrete answers to dozens of practical questions. Taking this practical perspective does not preclude us from also considering much larger societal and environmental implications. Our way of conducting business has outgrown our planet. Our organisations contribute on a massive scale to depleting natural resources, destroying ecosystems, changing the climate, exhausting water reserves and precious top soils. We are playing a game of brinkmanship with the future, betting that more technology will heal the scars modernity has inflicted on the planet. Economically, a model of ever more growth with finite resources is bound to hit the wall; the recent financial crises are possibly only tremors of larger earthquakes to come. It is probably no exaggeration, but sad reality, that the very survival of many species, ecosystems, and perhaps the human race itself hinges on our ability to move to higher forms of consciousness and from there collaborate in new ways to heal our relationship with the world and the damage we've caused.' (Frédéric Laloux 2014)

Photo: © Freunde von Freunden – Robert Rieger

Frédéric Laloux, author of a guidebook (2014) that analyses different paradigms of human organizations through the ages and proposes a new one, built on the pillars of 'wholeness', 'self-management' and 'evolutionary purpose'.

- **Visionary, strategic and integrated policymaking** needs to be combined with the enabling of bottom-up social, technological and institutional innovation and the systematic use of experience and lessons learned by all actors in the process.[16]
- **The emergence of new organisational models** is needed to enhance inspiring, innovative environments that allow for agile decision-making processes and for continued evolution in an ever-changing world. The principles of wholeness, self-management and purpose allow agility, flexibility and speed of response.

We need frameworks that help cultivate strategic innovation and organisational change, both of which are required for managing organisations in times of disruption and multiple global challenges.

Climate change is perceived as the greatest threat for societies and economies (Global Risk Report 2019). Despite its impacts affecting society as a whole, in most countries, adaptation action is still considered a government task. With regards to planning and implementation of EbA measures, pure state-driven 'top-down' models, often initiated by environmental ministries in collaboration with government agencies at different levels, need to be reconsidered. Partnerships with civil society and private sector entities in the context of EbA governance are desirable to secure ownership and sustainability.

Traditional top-down management models seem to be not only outdated, but in many cases are destructive and insufficient. In our rapidly changing world where we face new challenges day by day that require quick, out-of-the-box solutions, hierarchical, rule-driven organisations cannot keep pace anymore. Due to their rigid inherent logic, many of them are unable to react quickly and fail to unlock human potential and creativity.[17]

When thinking about mainstreaming of EbA, three different stages need to be taken into account:

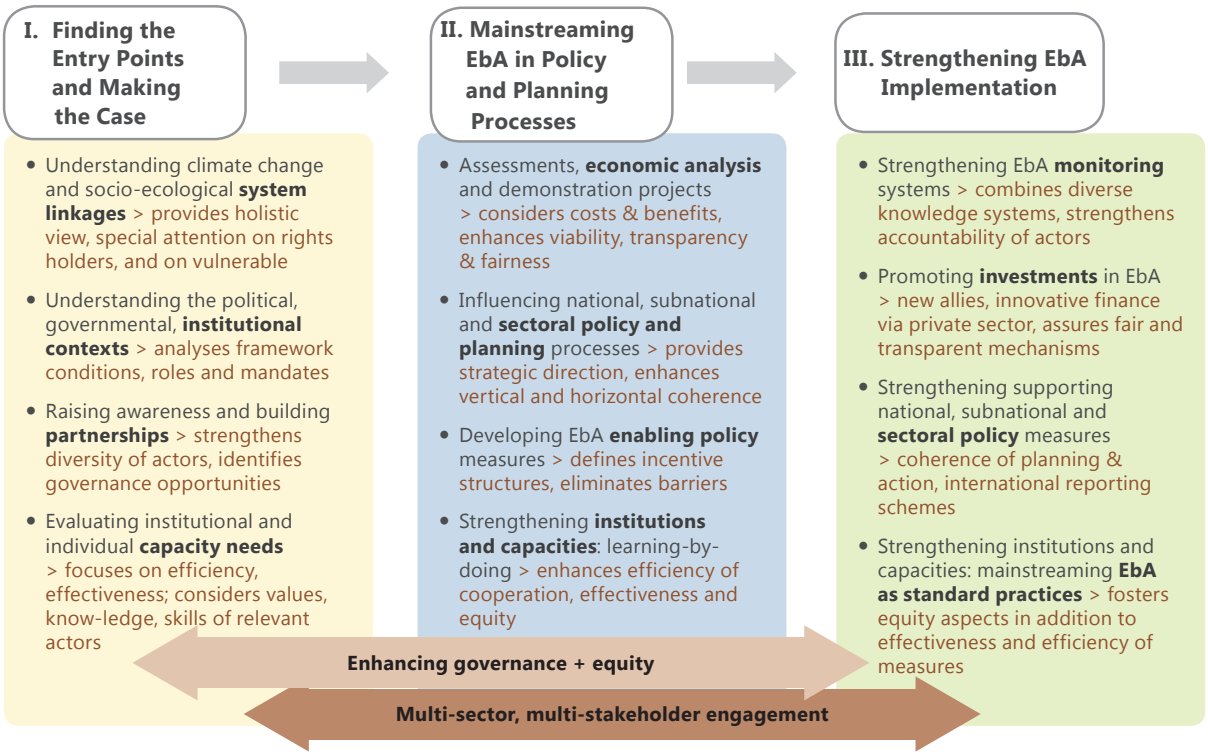
I. Finding the entry points and making the case.
II. Mainstreaming EbA in Policy and Planning.
III. Strengthening EbA Implementation.

All three stages consist of different aspects and each have governance implications (some of which are highlighted in red in the following graph).

[16] **Creating Conditions for Change:** Scharmer & Kaufer (2013) write: 'You cannot engineer [change] in the old way which is by controlling it. You can create conditions that help leaders in a system to broaden and deepen their view of the system…'. The system is not only those working within a given company but might also include a much larger, interconnected web of stakeholders. It's not an easy or simple process: 'the future is not just about tinkering with the surface of structural change. It's not about replacing one mindset that no longer serves us with another. It's a future that requires us to tap into a deep level of our humanity, of who we want to be as a society. It is a future that we can sense, feel, and actualize by shifting the inner place from which we operate. It's a future that in those moments of disruption begins to presence itself through us.'

[17] **The emergence of a new organisational model:** Former management consultant and McKinsey partner Frédéric Laloux investigated 12 organisations of very different sizes, ages and sectors that do things differently. He explored the question of what a radically new form of meaningful cooperation can look like and looked for commonalities among the organisations that make the difference from 'conventional' organisations. He brought his findings together in the basic book 'Reinventing Organizations'. This book fundamentally questions many of today's forms of business. The alternative form of organisation is based less on an adaptation of the previous models than on a radical paradigm shift. With the subtitle 'A guide to designing meaningful forms of cooperation' he wants to answer practical questions like: How can new organisations be shaped concretely? What makes the difference? What are the characteristics and practices of these new type organisations?

Figure 13 **Framework for EbA mainstreaming and governance aspects.** The mainstreaming of Ecosystem-based Adaptation in development planning requires the consideration of governance aspects (implications highlighted)



Source: GIZ/Amend 2019, adapted from CBD, 2018

The following aspects should be considered, for including new actors or partnership constellations in EbA:

Incentives: Effective EbA governance requires involvement from a broad range of actors whose participation is not always guaranteed. The diverse stakeholders need incentives to remain committed to such processes. These can range from enhanced effectivity for their interests, sectors or spheres, public recognition of their engagement for EbA or other Nature-based Solutions, to financial incentives and tax reduction schemes.

Alignment: In order to be efficient, actors want to see alignment with other planning processes such as municipal land use planning, forest or water management plans, or NAPs (horizontal integration and vertical coherence of regulations).

Policy design: EbA policy design is at least as important for governance and mainstreaming as the choice of policy instruments. Common elements of good policy design from a governance perspective should include the following:

- setting a long-term vision through inclusive, participatory design processes;
- effectively integrating environmental, social and economic concerns (especially considering the perspectives of rights holders);
- ensuring vertical and horizontal integration and coherence with NAP/NDC processes;
- establishing a baseline of environmental conditions, risks & vulnerabilities of actors, and quantified science-based targets and milestones for EbA measures;
- conducting ex ante and ex post cost-benefit and cost-effectiveness analysis to ensure that public and private funds are being used with optimal transparency/efficiency and effectiveness, and that equity aspects are being considered in sufficient detail;
- building-in monitoring regimes during implementation that support adaptive policies, ideally involving affected stake- and rights holders; and
- conducting post-intervention evaluation of policy outcomes and governance impacts to close the loop for future EbA policy design improvement.

Visionary approaches: Future management and governance challenges for EbA and other Nature-based

Solutions require consideration of more inclusive decision-making processes as a means to identify shared problems and potential solutions.

- **Build shared knowledge and understanding of the dynamics of social-ecological systems:** Decision making over ecosystems and resources management requires ecological knowledge and understanding of ecosystem processes and functions. All sources of understanding need to be mobilized from traditional to scientific knowledge; management of complex adaptive systems may benefit from the combination of different knowledge systems.
- **Deal with external perturbations, uncertainty and surprise:** The governance set-up of an EbA intervention needs to develop capacity for dealing with changes in climate, disease outbreaks, disaster, global market demands, subsidies, and policies. The challenge for the social-ecological system is to accept uncertainty, be prepared for change and surprise, and enhance the adaptive capacity to deal with disturbance.
- **Create flexible and inspiring learning environments:** Successful management is characterized by continuous testing, monitoring, and reevaluation of actions to enhance adaptive responses, that acknowledge the above-mentioned uncertainty. Knowledge generation of social and ecosystem dynamics is ideally explicitly integrated in the EbA intervention set-up. Such a learning environment that builds on past experiences but embraces the future, requires leadership and changes of social norms within management organisations.
- **Support flexible institutions and multi-level governance systems:** Adaptive co-management relies on the collaboration of a diverse set of stakeholders and rights holders, operating at different levels through social networks. Multi-level social networks can generate and transfer knowledge and develop social capital as well as legal, political, and financial support to ecosystem management initiatives.

Diversity of actors: The cognition that 'Governance needs to go beyond the Government', also in set-ups for EbA projects, is just starting to be discovered in many countries. In most cases, EbA is still driven by the environment sector, primarily by state agencies.

- **EbA mainstreaming** can be supported by different sectors, at different governance levels and by different stakeholders.
- **Champions** e.g. within state agencies or the private sector can play a crucial role.
- **Motivations & powers.** It is important to understand the motivation of stakeholders for EbA with attention to power structures. Different stakeholders possess different powers in a governance structure including i) political position, ii) finance and iii) knowledge. Commonly used governance and network analysis tools can help to better understand the motivations and power constellations.
- **External agents:** an additional aspect is the role of external agents (e.g. donors, implementing agencies). Up to now many EbA projects have been pushed, initiated/encouraged by external finance providers, e.g. aid agencies.

Quality of arrangements: The conventional model of governance by government is already being complemented by diverse forms of collaborative EbA project management, partnership arrangements, delegated authority and community governance. Powers and responsibilities, while still substantially vested in governments and their agencies, are increasingly been taken up by private sector companies, individual landholders, indigenous and local communities, or NGOs, often working in partnership with each other.

- **Equity** in EbA governance is a topic to be explored further, especially with regard to the three dimensions of the framework (recognition, procedure, distribution).
- **Creativity and innovation** in business but also in state agencies and NGOs are becoming more important than ever in times of disruption and of climate change. Many actors are desperately seeking new ideas, trying to keep up while continuing to apply a traditional organisational structure that has not been reviewed and changed for a long time. It seems obvious that continuing to push for innovation without innovating the system itself is 'flogging a dead horse' (Laloux 2014).
- **New organisational paradigms.** The well-known hierarchical, rule-based management style has its benefits and has worked well for a long time, but as the world is changing, seems to have reached its limits and can no longer serve us adequately. It is time to realize that if we want to unleash human potential and make use of new opportunities, we need to modify the surroundings and provide the right conditions for those new ideas to thrive.

It is encouraging to see new organisational paradigms emerge that turn many of our current concepts of work and management upside down. The growing diversity of actors and constellations, as well as the increasing awareness upon the importance of quality of EbA governance, is inspiring and merits further exploration. This study is meant to trigger discussions within the international community of EbA practitioners and beyond on this topic.

In Bolivia, the joint trials of the local Altiplano communities and agronomists enhance climate change adaptation via the use of drought-resilient potato varieties. Photo: © Th. Amend

VIII. Annexes

ANNEX I
HOW DO MANAGEMENT AND GOVERNANCE RELATE?

There is a very simple way to distinguish management from governance:

- **governance** describes who decides, what is done and how it is done; while
- **management** describes what is done.

On a macro scale, governance in Ecosystem-based Adaptation (EbA) projects looks into the decision-making processes and interactions between institutions and actors relevant for climate change, biodiversity conservation, and sustainable development. On a micro scale, it analyses the governing body of an organisation or coordination unit (e.g. an EbA project steering committee), e.g. how it appoints, provides direction and oversees the functioning of the organisation.

Management aims to achieve the objectives of climate change adaptation via planning and implementation of concrete actions, as well as the monitoring and evaluation of their results. Management units work within a defined legal, institutional yet ethical and cultural framework – this is the governance context that defines the 'rules of the game' for any project. The managers of an EbA project commonly need to report back and provide assurance to the governing body that the goals are being accomplished.

Both governance and management systems (on macro and micro scales) are symbiotic, but whilst being mutually interdependent, the two systems fulfil very different functions (see table 1). A well-governed 'EbA unit' (on any scale) is designed to allow these two systems to work together to the benefit of the overall stakeholder community (Mosaics 2014).

Table 6 Relationship between the functions of governance and management in EbA

Governance functions	Management functions
To determine the **objectives** of the organisation/e.g. EbA coordination unit	To **forecast and plan** concrete EbA actions, e.g. reforesting mangroves
To determine the **ethics** of the EbA unit, e.g. level of stakeholder involvement, transparency	To **organise** the work, e.g. make annual/monthly work plans
To create the **culture** of the EbA unit, e.g. how do actors interact	To **command or direct** (lead) EbA actions, e.g. plant trees together with locals/or hire selected specialists/or employ drones for reforestation
To design & implement the **governance framework** (guiding document that considers the objectives, ethics and work culture, as defined in the previous stages)	To **coordinate**, e.g. define staff required, working hours and conditions, meeting times with stakeholders
To ensure **accountability** by management (define e.g. incentives or sanctioning mechanisms, team evaluations or third-party/external reviews)	To monitor/evaluate/**control results**, e.g. assess reforestation results, money invested, define follow-up measures
To ensure **compliance** by the EbA unit, e.g. to donors/ funding unit	

ANNEX II
PERCEPTIONS ON GOVERNANCE BY THE 'COMMUNITY OF EBA PRACTITIONERS'

During the meeting of the Community of EbA Practitioners (EbA-CoP in South Africa, 2018), participants were asked to share their perceptions on challenges and opportunities for EbA governance. The answers highlight aspects of the current discussions and ongoing research.

Table 7 Perceptions on EbA governance

EbA workshop on Governance (Community of Practice, Cape Town, 2018)

Task *(3 min. individual brainstorming, 30 min. group discussion)*
'When I think of the relationship between EbA and governance in my working context:
- which opportunities do I see?
- which challenges?'

Feedback from tables and discussion:

2 sides of a coin	• Governance opportunities: EbA brings actors across sectors together, offers potential to find innovative solutions to a jointly perceived problem. • Challenges: this requires new thinking, openness, willingness to interact and understand each other
Conflicts	• Establish institutions for the adaptation process • Distribute competencies, mandates and roles • Define processes and implementation mechanisms • Detail rights and obligation
Planning & budgeting	• Planning, implementing, evaluating, overseeing, controlling, sanctioning and enforcement

Strategies	• Partners need to create consensus on EbA interventions, as part of an overall adaptation strategy:
	  • Is the focus rather reactive (reconstruction phase after disaster > 'build back better', DRR)?
	  • or proactive (prevent CC impacts, attend slow onset factors)?

Existing Structures	• Resist the temptation to create new structures – rather work with the existing (e.g. use board meetings, steering committee sessions, etc. to bring EbA to the table and into ongoing processes and discussions).
Stakeholders & rights holders	• Be aware of formal and informal/visible and not-so-visible structures. • Identify and recognise diverse influences, procedures, rules & regulations, social sanctioning mechanisms > try to build them into EbA agreements.
Time & skills	• Participation requires time and financial resources. • Meaningful partnerships require trust building between actors > calculate time for this in the (EbA) planning. • Invest resources in the participation process, including the enhancement of specific skills (e.g. facilitation of multi-stakeholder negotiation processes).

Competing priorities	• Development agendas include many aspects – climate change adaptation has usually not the highest priority (however: given the increasingly perceived impacts this is on the rise).
	  • Limited resources, especially finances, for CCA have to be distributed among conventional 'grey' measures and EbA > lobbyism for natural solutions is important, together with experienced strategists/marketing knowledge.
	  • Governance plays an important role for the alignment of international processes (NDC, conventions), but also on national and sub-national levels.

Common language	• Create a common understanding between spheres and issues e.g. local/national/global, or scientists and sectors, as well as local development interests. • Challenge to find meaningful expressions and arguments, according to actors' skills & knowledge/ values, perceptions & needs. • Example South Africa: term 'ecological infrastructure' has enhanced societal perception of value, investment; it associates with grey infrastructure and potentially thus opens minds of society/ political leaders for investment needs.
Ecosystem needs and potentials	• Bring specific knowledge from the green sector into other development sectors, enhance integral under-standing, esp. on natural processes/ecosystem needs to maintain functions for CC adaptation. • Link specific potentials of nature to aspects of CSR (corporate social responsibilities) in the private sector.
Timing & momentum	• Use perceptions of crisis to introduce EbA and create new governance structures (e.g. water: Who uses the resource, how, when? Who perceives which problem? – What solutions/proposals exist? – Is there a political will to act? Who holds the power, has the mandate?)
Think broad	• Don't narrow your views (only EbA, just one actor) > try to best incorporate the different levels and powers of actors. • Solutions for the challenges need to be broad to create union; natural solutions can attend a specific aspect, but are credible only, when advocates highlight the role EbA can play in an overall adaptation strategy/development agenda

Crisis as a chance	Crisis can create opportunity to also discuss governance challenges
	• Quality of governance schemes:
	  • Distribution of costs and benefits: who decides 'fair' resource distribution (ex. South Africa: 'water war', private boreholes versus common need)?
	  • Power & time scales: power issues and short-term gains (of sectors, e.g. mining, or individuals) vs. long-term needs of community.
	• Communication & new alliances:
	  • Example Cape Town: open communication of the problem has enhanced joint solution seeking process/common responsibility beyond the government.
	• How to deal with anticipated crisis: prevent further mismanagement of catchments?
	  • Example South Africa: create water funds and innovative financing schemes, enhance trans-sectoral think tanks and joint learning, strengthen collaboration mechanisms, reward champions and pioneers, promote resource saving practices and integrated solution approaches.

Learn from failures	• Document and analyse EbA governance set-ups and experiences:
	  • create encouraging participatory learning spaces; and
	  • jointly adapt governance structures according to the actors' needs and new partnerships and other opportunities.

Source: GIZ, 2018, EbA Community of Practice Workshop: Perceptions of participants on EbA Governance

ANNEX III
FURTHER EXAMPLES OF EBA GOVERNANCE: PANORAMA SOLUTIONS FOR A HEALTHY PLANET

A diversity of inspirational cases for governance in the context of EbA: The online platform PANORAMA Solutions for a Healthy Planet is hosted GIZ, IUCN, UN-Environment, GRID Arenda, Rare, IFOAM and UNDP; the thematic area of EbA is coordinated by GIZ [18]. In May 2019, the database covered 110 EbA Solutions which consisted of more than 370 'building blocks' from more than 40 countries and 15 ecosystems. Many of the success factors, the so-called building blocks, relate to governance aspects:

- 120 building blocks focus on alliance and partnership development (e.g. institutional agreements, negotiations, co-management and institutional partnerships);
- 22 on legal and policy frameworks/advocacy; 18 on enforcement & prosecution (including environmental compliance, community arrangements);
- 28 on organisational structures (e.g. stakeholder engagement, participatory planning, community self-organisation);
- 181 on communication, outreach and awareness building (e.g. multi-sectoral dialogue platforms, transmission of knowledge through local networks, trust-building with local partners); and
- 82 on education, training and other capacity development activities (actor- and context-specific, needs-based).
- Other categories involve: management planning (50x); data & knowledge handling (71x), and sustainable finance (11x) (PANORAMA 2019).

A steadily increasing diversity of actors and governance arrangements characterizes the most recent development of Nature-based Solutions. The climate-related challenges are growing worldwide at a fast pace, and so are the societal perception of impacts and the search for answers to reduce the risks. The task is too immense for governments alone – all forms of societal engagement are required to speed-up adaptation and increase resilience. EbA governance examples worldwide range from enhancing the development of EbA blue-prints to scaling up approaches for water governance, to developing communication strategies to reach new players.

[18] The Global Project Mainstreaming Ecosystem-based Adaptation is being implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) through its International Climate Initiative (ICI). The project cooperates with key governmental partners from Mexico, Peru, South Africa, Philippines and Viet Nam and international organisations like the International Union for Conservation of Nature (IUCN), the World Conservation Monitoring Centre of the United Nations Environment Programme (UNEP-WCMC) the International Institute for Environment and Development (IIED) and others. Since 2015, the project develops instruments and methodologies for strengthening EbA in policies, decision making, planning and implementation. This entails compiling and sharing experience gained by implementing EbA approaches in different regions and ecosystems by following the 'solutioning' approach. The project has also set up a community of practice involving various exchange formats (online platforms, trainings and workshops) for sharing knowledge and lessons learned.

IX. References

Andrade, A.; Córdoba, R.; Dave, R.; Girot, P.; Herrera-F., B.; Munroe, R.; Oglethorpe, J.; Paaby, P.; Pramova, E.; Watson, E. & W. Vergar (2011). Draft Principles and Guidelines for Integrating Ecosystem-based Approaches to Adaptation in Project and Policy Design: a discussion document. Turrialba, Costa Rica: IUCN- CEM, CATIE. http://cmsdata.iucn.org/downloads/draft_guidelines_eba_final.pdf

Ansell, C. & A. Gash (2007). Collaborative governance in theory and practice. Journal of Public Administration Research and Theory 18: 543–571. https://www.scribd.com/document/340708276/Ansell-and-Gash-Collaborative-Governance-in-Theory-and-Practice-pdf

Avis, W. R. (2016). Urban Governance (Topic Guide). Birmingham, UK: GSDRC, University of Birmingham. http://gsdrc.org/wp-content/uploads/2016/11/UrbanGov_GSDRC.pdf

Bache, I. & M. Flinders (Eds., 2004). Multi-level governance. Oxford/New York. http://www.oxfordscholarship.com/view/10.1093/0199259259.001.0001/acprof-9780199259250

Bakker & Cohen (2011). Collaborative Water Governance and Sustainable Water Management. Workshop Report, 27 pp. http://warming.apps01.yorku.ca/library/wp-content/uploads/2013/03/NRTEE-2010-Collaborative-Water-Governance-and-Sustainable-Water-Management-Workshop-Report.pdf

Boedeltje, M. & J. Cornips (2004). Input and output legitimacy in interactive governance. https://ep.eur.nl/bitstream/1765/1750/2/NIG2-01.pdf

Booker, F. & P. Franks (2018). Governance, Equity and the Green List. London, UK: IIED. https://pubs.iied.org/pdfs/17616IIED.pdf

Borrini-Feyerabend, G.; Dudley, N.; Lassen, B.; Pathak, N. & T. Sandwith (2010, draft): Governance of Protected Areas - From understanding to action, 141 pp. https://www.cbd.int/pa/doc/draft-governance-pa-2012-07-en.pdf

Bossuyt, J. (2011). Deepening governance and political economy analysis - Sector Operations: The EC Governance Analysis Framework Contribution to the GTZ Forum: 'Political Economy of health and social protection'. Bonn, Germany. https://slideplayer.com/slide/12974705

Bressers H., Bressers N., Kuks S. & C. Larrue (2016) The Governance Assessment Tool and Its Use. – In: Bressers H., Bressers N. & C. Larrue (eds) Governance for Drought Resilience. Cham, Germany: Springer. https://link.springer.com/chapter/10.1007/978-3-319-29671-5_3

Brouwer, H; Woodhill, J; Hemmati,M; Verhoosel, K. & S. van Vugt (2016). The MSP Guide, How to design and facilitate multi-stakeholder partnerships. Wageningen, Netherlands: Wageningen University and Research, CDI &Rugby, UK: Practical Action Publishing. http//dx.doi.org/10.3362/9781780446691

Brunner, R. D.; Steelman, T. D.; Coe-Juell, L.; Cromley, C. M.; Edwards, C. M. & D. W. Tucker (2006). Adaptive governance: integrating science policy and decision making. New York, NY, United States: Columbia University Press, 368 pp. https://cup.columbia.edu/book/adaptive-governance/9780231136259

Burhenne-Guilmin, F. & J. Scanlong (eds, 2004). International Environmental Governance. – In: Gland, Switzerland: IUCN Environmental Policy and Law Paper No. 49.

Campese, J.; Nakangu, B.; Silverman, A. & J. Springer (2016) Natural Resource Governance Framework Assessment Guide – Learning for improved natural resource governance. – Working Paper. Gland, Switzerland: IUCN (International Union for Conservation of Nature), 40 pp. https://www.iucn.org/sites/dev/files/content/documents/the_nrgf_assessment_guide_working_paper.pdf

Chaffin, B.C.; Gosnell, H. & B. A. Cosens (2014). A decade of adaptive governance scholarship: synthesis and future directions. Ecology and Society 19(3): 56. http://dx.doi.org/10.5751/ES-06824-190356

Cohen-Shacham, E., Walters, G., Janzen, C. & S. Maginnis (eds.) (2016). Nature-based Solutions to address global societal challenges. Gland, Switzerland: IUCN. https://portals.iucn.org/library/sites/library/files/documents/2016-036.pdf

Collof, M. ; Martín-López, B. ; Lavorel, S.; Locatellie, B. ; Gorddardb, R. ; Longarettig, P.-Y. ; Walters, G.; van Kerkhoff, L.; Wyborn, C. ; Coreau, A. ; Wise, R. M.; Dunlop, M.; Degeorges, P.; Grantham, H.; Overton, I. C.; Williams, R. D.; Doherty, M. D.; Capon, T.; Sanderson, T. & H. T. Murphy(2017). An integrative research framework for enabling transformative adaptation, Environ. Sci. Policy 68: 87 – 96. http://www.cifor.org/publications/pdf_files/articles/ALocatelli1604.pdf

C-Span (2018) Clip Of U.S. Conference Of Mayors Winter Meeting, Climate Change. People Featured in this video: Ashok Sridharan. https://www.c-span.org/video/?c4711763/ashok-sridharan&start=0

Crawford, A. & C. Church (2019). Engaging the private sector in National Adaptation Planning Processes. Winnipeg, Canada: International Institute for Sustainable Development. http://napglobalnetwork.org/wp-content/uploads/2019/04/napgn-en-2019-engaging-the-private-sector-in-national-adaptation-planning-processes.pdf

Dazé, A., Price-Kelly, H. & N. Rass (2016). Vertical Integration in National Adaptation Plan (NAP) Processes. A guidance note for linking national and sub-national adaptation. IISD, NAP Global Network. https://www.iisd.org/reader/napgn-en-2016-vertical-integration-in-nap-processes

Dudley, N. (Editor) (2008). Guidelines for Applying Protected Area Management Categories. Gland, Switzerland:

IUCN. x + 86pp. https://cmsdata.iucn.org/downloads/guidelines_for_applying_protected_area_management_categories.pdf

Dugan, C. (2018). Engaging Multi-sectoral Partners for Climate Resilience. Philippine Locally Managed Marine Area (PhiLMMA) Network, Inc. https://panorama.solutions/en/solution/engaging-multi-sectoral-partners-climate-resilience

Dutch Water Sector (2015) Indonesia and Netherlands launch initiative for coastal safety Java. https://www.dutchwatersector.com/news-events/news/13323-indonesia-and-netherlands-launch-initiative-for-coastal-safety-java.html

ECOLOGIC Institute (2017). 'Paris compatible' governance: long-term policy frameworks to drive transformational change. A comparative analysis of national & sub-national case studies. https://www.ecologic.eu/sites/files/publication/2017/governance-to-fight-climate-change.pdf

EU, European Parliament Think Tank (2019). The concept of 'climate refugee'. Towards a possible definition. Author: Apap, J. EPRS | European Parliamentary Research Service. http://www.europarl.europa.eu/RegData/etudes/BRIE/2018/621893/EPRS_BRI(2018)621893_EN.pdf

FEBA (2017). Making Ecosystem-based Adaptation Effective: A Framework for Defining Qualification Criteria and Quality Standards (FEBA technical paper developed for UNFCCC-SBSTA 46). Bonn, Germany: GIZ & London, UK: IIED & Gland, Switzerland: IUCN. Authors: Bertram, M.; Barrow, E.; Blackwood, K.; Rizvi, A. R.; Reid, H. & S. von Scheliha-Dawid https://www.iucn.org/sites/dev/files/feba_eba_qualification_and_quality_criteria_final_en.pdf

FAO, Food and Agriculture Organization (2012). Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security http://www.fao.org/3/i2801e/i2801e.pdf

Folke C., Hahn, T., Olsson, P. & J. Norberg (2005). Adaptive governance of social-ecological systems. In: Annual Review Environmental Resources, 30 pp. https://www.researchgate.net/publication/228662276_Adaptive_Governance_of_Social-Ecological_Systems

Franks, P.; Booker, F. & D. Roe (2018). Understanding and assessing equity in protected area conservation – A matter of governance, rights, social impacts and human wellbeing. – IIED Issue paper. London, UK: IIED, 39 pp.

GIZ (2011). Integrating Climate Change Adaptation into Development Planning. GIZ Climate Protection Programme. Eschborn, Germany: BMZ. http://www.seachangecop.org/node/875

GIZ (2017). The role of the NAP process in translating NDC Adaptation goals into action. Bonn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. http://www.adaptationcommunity.net/wp-content/uploads/2017/10/The-Role-of-the-NAP-Process-in-Translating-NDC-Adaptation-Goals-into-Action.-Linking-NAP-processes-and-NDCs.pdf

GIZ (2017, draft paper). Mainstreaming Ecosystem-based Adaptation – a guidance and toolbox for strengthening EbA in planning and decision-making. Author: Michael Hoppe.

GIZ (2017) Making the SDGs work: Why and how to address corruption in sectors. https://www.giz.de/de/downloads/giz2017_eng_Addressing-corruption-in-sectors.pdf

GIZ (2018, draft paper). Enabling governance structures for Ecosystem-based Adaptation (EbA). Learning Brief, international EbA Community of Practice. Bonn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

GIZ (2018 a). Entry Points for Mainstreaming Ecosystem-based Adaptation. The Case of South Africa. Authors: Knowles, T.; Bragg, C.; Amend, T. & A. Calzada Vázquez Vela (ed). Bonn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. https://www.adaptationcommunity.net/wp-content/uploads/2018/07/EbA-South-Africa_v05-lr.pdf

GIZ (2018 b). Entry Points for Mainstreaming Ecosystem-based Adaptation. The Case of Mexico. Author: A. Calzada Vázquez Vela & T. Amend (ed). Bonn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. https://www.adaptationcommunity.net/wp-content/uploads/2018/06/EbA_Entry-Points_Mexico.pdf

GIZ (2018 c). Entry Points for Mainstreaming Ecosystem-based Adaptation. The Case of Peru. Author: Lili Ilieva, Amend, T. & A. Calzada Vázquez Vela (ed). Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Bonn, Germany. https://www.adaptationcommunity.net/wp-content/uploads/2018/06/EbA_Entry-Points_Peru.pdf

GIZ (2018 d). Entry Points for Mainstreaming Ecosystem-based Adaptation. The Case of Philippines. Author: Ramos, E. R.; Amend, T. & A. Calzada Vázquez Vela (ed). Bonn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. https://www.adaptationcommunity.net/wp-content/uploads/2018/06/EbA_Entry-Points_Philippines.pdf

GIZ (2018e). Finance options and instruments for Ecosystem-based Adaptation. Overview and compilation of ten examples. Authors: Hunzai, K.; Chagas, T.; Gilde, L.; Hunzai, T. & N. Krämer. Bonn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. https://www.adaptationcommunity.net/wp-content/uploads/2018/06/giz2018-en-eba-finance-guidebook-low-res.pdf

GIZ (2019). Emerging lessons for mainstreaming Ecosystem-based Adaptation: Strategic entry points and processes. Authors: Ilieva, L. & T. Amend. Bonn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. https://www.adaptationcommunity.net/wp-content/uploads/2019/04/giz2019-en-study_Emerging-lessons-for-EbA-mainstreaming_web.pdf

GIZ, SECTUR, SEMARNAT, CONANP, INECC (2019). ADAPTUR - Un nuevo enfoque para promover soluciones naturales para la adaptación al cambio climático en el sector turismo https://www.adaptur.mx/index-adaptur.html

Graham, J.; Amos, B. & T. Plumptre (2003). Principles for Good Governance in the 21st Century. Institute on Governance, Canada, Policy Brief No. 15. http://unpan1.un-.org/intradoc/groups/public/documents/UNPAN/UNPAN011842.pdf

Gunderson, L. & S. Light (2006). Adaptive management and adaptive governance in the Everglades ecosystem. Policy Sciences 39: 323 – 334. http://research-legacy.arch.tamu.edu/epsru/Course_Readings/Ldev671MARS689/LDEV671_Readings/PolicySciences_gunderson_light_everglades.pdf

Henze, J.; Schröter, B. & C. Albert (2018). Knowing Me, Knowing You—Capturing Different Knowledge Systems for River Landscape Planning and Governance. Water 10 (7): 934. https://www.mdpi.com/2073-4441/10/7/934

Heylings, P. & M. Bravo (2007). Evaluating governance: a process for understanding how co-management is functioning, and why, in the Galapagos Marine Reserve. Ocean and Coastal Management 50 (3): 174 – 208. https://www.researchgate.net/publication/222736486_Evaluating_governance_A_process_for_understanding_how_co-management_is_functioning_and_why_in_the_Galapagos_Marine_Reserve

Hockings, M.; Stolton, S.; Leverington, F.; Dudley, N. & J. Courrau (2006). Evaluating Effectiveness: A Framework for Assessing Management Effectiveness of Protected Areas, second ed., Gland, Switzerland: IUCN. https://portals.iucn.org/library/efiles/documents/PAG-014.pdf

IUCN (2019) Natural Resource Governance Framework. https://www.iucn.org/commissions/commission-environmental-economic-and-social-policy/our-work/knowledge-baskets/natural-resource-governance

IUCN-Environmental Law Center (2019). Enhancing the role of nature for adaptation: governance dimensions Author: Lorena Martínez. https://www.unece.org/fileadmin/DAM/env/documents/2019/WAT/04Apr_29-30_Global_WS_on_Ecosystem-based_adaptation/session_2.1_LMartinez.pdf

Iza A. (ed.) (2019). Gobernanza para la adaptación basada en ecosistemas, UICN, Gland, Suiza

Jiggins, J. & N. Röling (2002). Adaptive management: Potential and limitations for ecological governance of forests in a context of normative pluriformity. - In: J. Oglethorpe (Ed.): Adaptive management: From theory to practice. Sui Technical Series 3: 93–103. Gland, Switzerland: IUCN. https://portals.iucn.org/library/sites/library/files/documents/2002-008.pdf

Jiménez Hernández, A. (2016). Ecosystem-based Adaptation Handbook. Amsterdam, Netherlands: IUCN, 33 pp. https://www.iucn.nl/files/klimaat_water_voedsel/eba_handbook.pdf

Kabisch, N.; Frantzeskaki, S.; Pauleit, S.; Naumann, M.; Davis, M.; Artmann, D.; Haase, S.; Knapp, H.; Korn, J.; Stadler, K.; Zaunberger & A. Bonn (2016). Nature-based solutions to climate change mitigation and adaptation in urban areas: perspectives on indicators, knowledge gaps, barriers, and opportunities for action. Ecology and Society 21 (2): 1 - 39. https://www.ecologyandsociety.org/vol21/iss2/art39

LEAP, Leadership Effectiveness, Accountability and Professionalism Africa (2017). Essential steps for creating an ethical organization. https://elearninga-z.com/index.php?market=1&ctg=details&lesson=150&num_students=3

Locatelli, B.; Kanninen, M.; Brockhaus, M.; Colfer, C. J. P.; Murdiyarso D., & H. Santoso (2008). Facing an uncertain future: How forests and people can adapt to climate change. Bogor Barat, Indonesia: Center for International Forestry Research in Forest Perspectives 5: 1 – 86. https://www.cifor.org/publications/pdf_files/media/CIFOR_adaptation.pdf

Lockwood, M. (2010). Good governance for terrestrial protected areas: A framework, principles and performance outcomes. Journal of Environmental Management 91: 754 – 766. https://www.scribd.com/document/156943409/Good-Governance-for-Terrestrial-Protected-Areas-a-Framework-Principles-and-Performance-Outcomes

Lovera, S. (2016). On Stakeholders, Rightsholder and Conflicts of Interests in Agenda 2030. https://globalforestcoalition.org/stakeholders-rightsholder-conflicts-interests-agenda2030

Mathieson J.E; Saunders, W. & M. A. Coomer (2017). Planning in a changing climate: How is climate change being incorporated into land use plans? Lower Hutt, New Zealand: GNS Science Consultancy Report, 61 pp. https://www.researchgate.net/publication/320411424_Planning_in_a_changing_climate_How_is_climate_change_being_incorporated_into_land_use_plans

Mosaics (2014). The Functions of Governance. - In: Project Management Library. https://mosaicprojects.com.au/WhitePapers/WP1096_Six_Functions_Governance.pdf

McDermott, M.; Mahanty, S. & K. Schreckenberg (2013). Examining equity: A multidimensional framework for assessing equity in payments for ecosystem services. Environmental Science and Policy 33: 416–427. https://www.gov.uk/dfid-research-outputs/examining-equity-a-multidimensional-framework-for-assessing-equity-in-payments-for-ecosystem-services

Nesshöver, C.; Assmuth, T.; Irvine, K. N.; Rusch, G.M.; Waylen, K. A.; Delbaere, B.; Haase, D.; Jones-Walters, L.; Keune, H.; Kovacs, E.; Krauze, K.; Külvik, M.; Rey, F.; van Dijk, J.; Vistad, O.I.; Wilkinson, M. E. & H. Wittmer (2017). The science, policy and practice of nature-based solutions: An interdisciplinary perspective. Science of the Total Environment 579:1215 -1227. https://ac.els-cdn.com/S0048969716325578/1-s2.0-S0048969716325578-main.pdf?_tid=76fc2369-55d7-4ad5-b3e3-dccd6dff6c44&acdnat=1552378686_5033c2ae732615849ebbdb4c9106757b

NAP Global Network Secretariat (2019). Vertical integration. IISD. http://napglobalnetwork.org/themes/vertical-integration

National Anticorruption Forum, South Africa (2019). https://www.nacf.org.za/guide-prevention-combating-corrupt-activities/index.html

National Round Table on the Environment and the Economy (2019). http://nrt-trn.ca/wp-content/uploads/2011/08/progress-process-eng.pdf

North West Secreteriat (2019) The DROP project. Lille, France: North West Secretariat. http://www.nweurope.eu/about-the-programme/our-impact/challenge-5/the-drop-project

Osterhaus, J. & P. Hauschnik (2015). Promising Practices. Eschborn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. https://www.institut-fuer-menschenrechte.de/fileadmin/user_upload/Publikationen/EZ_Promising_Practices/prom-practice_integrating_indigenous_practices_in_biodiversity_conservation.pdf

Ostrom, E. (2009). A General framework for analyzing sustainability of social-ecological systems. Science 325: 419 -422. https://edisciplinas.usp.br/pluginfile.php/4507355/mod_resource/content/1/i_709ab6a5/ostrom%2Ce_a_general_framework_for_analyzing_sustainability_of_social.pdf

Pahl-Wostl, C. (2009). A Conceptual Framework for Analyzing Adaptive Capacity and Multilevel Learning Processes in Resource Governance Regimens. Global Environmental Change. https://www.researchgate.net/publication/222024258_A_Conceptual_Framework_for_Analysing_Adaptive_Capacity_and_Multi-Level_Learning_Processes_in_Resource_Governance_Regimes

PANORAMA (2019). Solutions for a healthy Planet – Thematic Community on Ecosystem-based Adaptation (2019) ISSN 2511 - 7475. https://panorama.solutions/en/portal/ecosystem-based-adaptation

Pérez de Madrid, M. (2019) Governance for adaptation in the Guatemalan highlands. IUCN. https://panorama.solutions/en/solution/governance-adaptation-guatemalan-highlands

Peter, H. (2019) Sustainable land use management in Konegummez village, Turkmenistan. Konegummez Village. https://panorama.solutions/en/solution/sustainable-land-use-management-konegummez-village-turkmenistan

Petrie, B. ; Wolpe, P. ; Reddy, Y. ; Adriázola, P. ; Gerhard, M. ; Landesman, T.; Strauch, L. & A. Marie (2019). Multi-level climate governance in South Africa. Catalysing finance for local climate action. Berlin, Germany: Adelphi & Cape Town, South Africa: OneWorld Sustainable Energy Africa. https://www.adelphi.de/en/system/files/mediathek/bilder/Multi-level%20climate%20governance%20in%20South%20Africa%20-%20adelphi.pdf

Rankin, J. (2019) Forget Brexit and focus on climate change, Greta Thunberg tells EU. – The Guardian. https://www.theguardian.com/environment/2019/apr/16/greta-thunberg-urges-eu-leaders-wake-up-climate-change-school-strike-movement

Robertson, B. J. (2015) Holacracy: The New Management System for a Rapidly Changing World. – Business & Economics, 240 pp.

Romulo, C.; Posner, S.; Cousins, S.; Hoyle Fair, J.; Bennett, D. E.; Huber-Stearns, H.; Richards, R. C. & R. I. McDonald (2018). Global state and potential scope of investments in watershed services for large cities. Nature Communications 9 (4375): 1–10. https://www.nature.com/articles/s41467-018-06538-x#ref-link-section-d9643e775

Sambou, S. (2016) Kawawana community heritage area: good life recovered through conservation. KAWAWANA. https://panorama.solutions/en/solutions/kawawana-community-heritage-area-good-life-recovered-through-conservation

Schloenvoigt, M. (2015) Private sector investment in conservation of dry forests and mangrove restoration. GIZ Costa Rica. https://panorama.solutions/en/solutions/financial-mechanism-for-coastal-forest-restoration

Schreckenberg, K.; Franks, P.; Martin, A. & B. Lang (2016). Unpacking Equity for protected area conservation. In: PARKS, vol.22.2: 1–26. https://ueaeprints.uea.ac.uk/61731/1/PARKS_22.2_Unpacking_Equity.pdf

SCBD, Secretariat of the Convention on Biological Diversity (2019). Voluntary guidelines for the design and effective implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction and supplementary information. Technical Series No. 93. Montreal, Canada: SCBD. https://www.cbd.int/doc/publications/cbd-ts-93-en.pdf

SCBD, Secretariat of the Convention on Biological Diversity (2019). The Rio Conventions. Website accessed on 1 August 2019: https://www.cbd.int/rio

Springer, J. (2016). Initial Design Document for a natural resource governance framework. NRGF working Paper no. 1. Gland, Switzerland: IUCN. https://www.iucn.org/sites/dev/files/content/documents/nrgf_initial_design_pdf_edited_2.pdf

Thoeun, H. C. (2016). Current Status of National Adaptation Plan Process in Cambodia. – National Adaptation Plan Global Network's 3rd Targeted Topics Forum, 21st September 2016, Raffles Hotel le Royal, Phnom Penh. https://www.slideshare.net/NAP_Global_Network/current-status-of-national-adaptation-plan-process-in-cambodia

Transformational Change Leadership (2019) Characteristics. https://tcleadership.org/characteristics

UNDESA, United Nations Department of Economic and Social Affairs (2019). United Nations Declaration on the Rights of Indigenous Peoples, 2007. https://www.un.org/development/desa/indigenouspeoples/declaration-on-the-rights-of-indigenous-peoples.html

UNDP-UNEP (2011). Mainstreaming Climate Change Adaptation into Development Planning: A Guide for Practitioners. Nairobi, Kenya: UNDP-UNEP Poverty-Environment Facility, 86 pp. https://www.uncclearn.org/sites/default/files/inventory/unep170.pdf

UNEP (2012). Ecosystem-based Adaptation Guidance: Moving from Principles to Practice (Appendix B2) https://www.researchgate.net/publication/287319167_Ecosystem-based_Adaptation_Moving_from_Policy_to_Practice

UNEP (2019). They big picture: what do adaptation to climate change and climate resilience mean? https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/what-do-adaptation-to-climate-change-and-climate-resilience-mean

UNESCAP (2008). What is Good Governance? United Nations Economic and Social Commission for Asia and the Pacific https://www.unescap.org/sites/default/files/good-governance.pdf

UNFCCC (2018). Talanoa Dialogue for Climate Ambition. Overview of Inputs. https://unfccc.int/sites/default/files/resource/Overview%20of%20inputs%20to%20the%20Talanoa%20Dialogue.pdf

United Nations Sustainable Development (1992). Agenda 21 – United Nations Conference on Environment and Development. https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf

Vignola, R.; McDaniels, T. & R. Scholz (2013). Governance structures for Ecosystem-based Adaptation: Using policy-network analysis to identify key organizations for bridging information across scales and policy areas https://www.sciencedirect.com/science/article/pii/S1462901113000579

Wamsler, C.; Niven, L.; Beery, T. H.; Bramryd, T.; Ekelund, N.; Jönsson, K. I.; Osmani, A.; Palo, T. & S. Stålhammar (2016). Operationalizing Ecosystem-based Adaptation: harnessing ecosystem services to buffer communities against climate change. Ecology and Society 21(1):31.

Wamsler, C.; Pauleit, S.; Zölch, T.; Schetke, S. & A. Mascarenhas (2016). Mainstreaming Nature-Based Solutions for Climate Change Adaptation in Urban Governance and Planning. - In: Kabisch, N.; Korn, H.; Stadler, J. & A. Bonn (2017) Nature-based Solutions to Climate Change Adaptation in Urban Areas – Linkages between Science, Policy and Practice. Cham, Switzerland: Sprinter Nature.

WEF, World Economic Forum (2019 a). Global Risk Report 2019. https://www.weforum.org/reports/the-global-risks-report-2019

WEF, World Economic Forum (2019 b). How to Set Up Effective Climate Governance on Corporate Boards. Guiding principles and questions. Cologny/Geneva, Switzerland: WEF, 31 pp. http://www3.weforum.org/docs/WEF_Creating_effective_climate_governance_on_corporate_boards.pdf

Welling, R. (2017) The Tacaná Watersheds: Implementing transboundary water governance through local community ecosystem based action. – IUCN. https://panorama.solutions/en/solution/tacana-watersheds-implementing-transboundary-water-governance-through-local-community

Witteveen + Bos (2019) What are Nature-based Solutions (NBS)?. Den Haag, Netherlands: Witteveen + Bos. https://www.nature-basedsolutions.com

WWAP, World Water Assessment Program (2018). The United Nations World Water Development Report 2018: Nature-Based Solutions for Water. Paris, France: UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000261424

Wyborn, C.; Yung, L.; Murphy, D. & D. R. Williams (2015). Situating adaptation: how governance challenges and perceptions of uncertainty influence adaptation in the Rocky Mountains. Reg. Environ. Change 15: 669–682. https://link.springer.com/article/10.1007%2Fs10113-014-0663-3

Wyborn, C. A.; Dunlop, M.; Dudley, N.; van Kerkhoff, L. & O. Guevara (2016). Future Oriented Conservation: knowledge governance, uncertainty and learning. Biodiver. Conserv. 25: 1401–1408. https://link.springer.com/article/10.1007%2Fs10531-016-1130-x

LINKS

Adaptation Community www.adaptationcommunity.net
- EbA https://www.adaptationcommunity.net/ecosystem-based-adaptation
- International EbA Community of Practice https://www.adaptationcommunity.net/ecosystem-based-adaptation/international-eba-community-of-practice
- Publications https://www.adaptationcommunity.net/publications/?topic=ecosystem-based-adaptation

BESnet (Biodiversity and Ecosystem Services network) https://www.besnet.world
- EbA module https://www.besnet.world/ecosystem-based-adaptation

Ecoshape
- Building with Nature https://www.ecoshape.org/en/about-ecoshape

EU Directorate General Environment (platform and searchable database)
- Natural water retention measures http://nwrm.eu/measures-catalogue

FEBA, Friends of EbA https://www.iucn.org/theme/ecosystem-management/our-work/ecosystem-based-approaches-climate-change-adaptation/friends-eba-feba

GIZ www.giz.de
- GIZ – EbA https://www.giz.de/en/worldwide/37322.html
- Mainstreaming EbA https://www.international-climate-initiative.com/en/nc/details/project/mainstreaming-eba-strengthening-ecosystem-based-adaptation-in-decision-making-processes-15_II_117-457/?iki_lang=en

IKI International Climate Initiative BMU https://www.international-climate-initiative.com/en
- Adaptation & EbA https://www.international-climate-initiative.com/en/issues/adaptation

IUCN https://www.iucn.org
- IUCN Nature-based Solutions (CEM, Commission for Ecosystem Management) https://www.iucn.org/commissions/commission-ecosystem-management/our-work/nature-based-solutions
- IUCN Natural Solutions (WCPA, World Commission on Protected and conserved Areas) https://www.iucn.org/commissions/world-commission-protected-areas/our-work/natural-solutions
- IUCN Natural Resources Governance Framework (NRGF) https://www.iucn.org/commissions/commission-environmental-economic-and-social-policy/our-work/knowledge-baskets/natural-resource-governance

PANORAMA solutions for a healthy planet https://panorama.solutions/en
- EbA Solutions on the PANORAMA platform https://panorama.solutions/en/portal/ecosystem-based-adaptation

UNFCCC-NWP-Database (e.g. on ecosystem-based approaches to adaptation)
- http://www4.unfccc.int/sites/nwp/pages/Search.aspx