
**Fourteenth meeting of the Adaptation Committee
Bonn, Germany, 24-26 October 2018**

Revised report on various approaches to adaptation

Recommended action by the Adaptation Committee

The Adaptation Committee will be invited to consider the revised technical paper contained in this document. It may wish to agree on next steps and consider any relevant recommendations for consideration by the Conference of the Parties.

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1. Introduction and background

1. The Adaptation Committee, as part of its 2016–2018 workplan and as part of its workstream A (Technical support and guidance to the Parties on adaptation action), agreed to prepare a report on various approaches to adaptation, such as community-based adaptation (CBA) and ecosystem-based adaptation (EbA), taking into account livelihoods and economic diversification (LED). This report also constitutes a follow-up activity to an expert meeting on promoting livelihood and economic diversification in 2015.¹

2. At its 11th meeting, the AC considered a draft outline of the report (contained in document AC/2017/6) and provided further guidance to the secretariat for its preparation. Following a discussion of the draft report (contained in document AC/2018/6) at its 13th meeting, the AC provided further guidance to the secretariat to revise the report.

1.1. Relevant work under the Convention

3. Under the Convention, Parties have been accumulating experiences, knowledge, lessons learned and best practices relating to various adaptation approaches, including CBA, EbA, the risk-based approach and LED. Institutions inside and outside of the Convention are contributing greatly to enrich the pool of information. Through submissions, technical papers and workshops, the Nairobi work programme (NWP), its partner organizations and the AC, in particular, have contributed to this growing body of knowledge (see Box 1).

Box 1. Relevant work under the Convention

CBA and EbA

- “Good practices and lessons learned in adaptation planning processes addressing ecosystems, human settlements, water resources and health, and in processes and structures for linking national and local adaptation planning: a synthesis of case studies”, FCCC/SBSTA/2015/4, http://unfccc.int/documentation/documents/advanced_search/items/6911.php?preref=600008772
- “Synthesis report on methods and tools for, and good practices and lessons learned relating to, adaptation planning processes addressing ecosystems, human settlements, water resources and health, and good practices and lessons learned related to processes and structures for linking national and local adaptation planning”, FCCC/SBSTA/2014/4, http://unfccc.int/documentation/documents/advanced_search/items/6911.php?preref=600008090

EbA

- “Adaptation planning, implementation and evaluation addressing ecosystems and areas such as water resources”, FCCC/SBSTA/2017/3, <http://unfccc.int/resource/docs/2017/sbsta/eng/03.pdf>
- “Ecosystem-based adaptation and adaptation planning processes addressing ecosystems: overview, good practices and lessons learned”, 2016 https://unfccc.int/files/adaptation/application/pdf/2_synopsis_ecosystem.pdf
- ‘Report on the technical workshop on ecosystem-based approaches for adaptation to climate change’, FCCC/SBSTA/2013/2, <http://unfccc.int/resource/docs/2013/sbsta/eng/02.pdf>
- “Ecosystem-based approaches to adaptation: compilation of information”, 16 November 2011, FCCC/SBSTA/2011/INF.8,

¹ <https://unfccc.int/event/adaptation-committee-expert-meeting-livelihoods-and-economic-diversification>

http://unfccc.int/documentation/documents/advanced_search/items/6911.php?preref=600006572

LED

- “Fact sheet on livelihood and economic diversification: complementary tools for adaptation”, https://unfccc.int/files/adaptation/groups_committees/adaptation_committee/application/pdf/ledinfo_factsheet_2016.pdf
- “Report on the expert meeting on promoting livelihoods and economic diversification to build resilience in the context of planning, prioritizing and implementing adaptation”, 9 September 2016, AC/2016/17, http://unfccc.int/files/adaptation/groups_committees/adaptation_committee/application/pdf/ac10_5c_report_led.pdf
- “Report on the technical workshop on increasing economic resilience to climate change and reducing reliance on vulnerable economic sectors, including through economic diversification”, FCCC/SBSTA/2009/7, http://unfccc.int/documentation/documents/advanced_search/items/6911.php?preref=600005427#beg details of the meeting are available at <http://unfccc.int/4781>
- “Synthesis of information on economic diversification submitted by parties and relevant organizations”, FCCC/SBSTA/2007/14, http://unfccc.int/documentation/documents/advanced_search/items/6911.php?preref=600004420

Momentum for Change, an initiative led by the UNFCCC, incorporates the perspectives of different approaches through innovative and transformative solutions. Examples and lessons learned are available at unfccc.int/6214

Adaptation Knowledge Portal, an open online platform, provides information on existing tools and methodologies for various adaptation approaches in different thematic areas. Available at <http://www4.unfccc.int/sites/NWP/Pages/Tools.aspx>

1.2. Purpose and scope of the report

4. This report provides concise information about features of CBA, EbA, LED and risk-based adaptation approaches to assist Parties in exploring and identifying appropriate approaches for their specific national contexts. There is no universal, one-size-fits-all solution to adapt to the adverse impacts of climate change and build resilient societies. Countries need to identify the optimal combination of approaches and methods. The discussed approaches are not mutually exclusive, but rather complementary allowing for synergy in enhancing resilience.

5. Following the outline and guidance provided at previous AC meetings, this report first provides an overview of different approaches to adaptation, highlighting their strengths and differences. Second, the paper describes common challenges of the different approaches. Case studies are used to highlight practical experience with the different approaches. Following a brief conclusion of the potential of various approaches, the last section of the paper proposes possible next steps and recommendations for consideration by the Conference of the Parties.

2. Overview of the different approaches to adaptation

6. This section highlights the features of CBA, EbA, LED and the risk-based approach and compares the strengths of each approach in relation to different timescales and operating levels.

2.1. Community-based adaptation

7. Community-based adaptation is a bottom-up planning approach. It is a community-led process, based on communities' priorities, needs, knowledge, and capacities, to empower people to plan for and cope with the impacts of climate change.² CBA emphasizes the importance of engaging local communities, especially vulnerable groups and people, in the adaptation process. CBA is in part a response to criticisms that previous adaptation policies were carried out in a top-down manner, without hearing priorities, needs, existing knowledge and capacity of people who are in the community and recipient of the benefits of adaptation action. CBA responds to the needs of vulnerable people through a decentralized, inclusive, participatory approach that enables integration of local and community perspectives into adaptation planning (see box 2).

8. Climate change severely affects the living conditions of poor people who do not have the option of moving from geographically vulnerable areas. Moreover, the livelihoods of many poor people heavily depend on natural resources, such that climate impacts on ecosystems, including loss of biodiversity, also deteriorate their income resources. The uncertainty associated with climate change creates additional complexities for vulnerable people already facing significant social and economic challenges, and who often have little influence on political decision-making. By taking an integrated approach to the needs of local community, and especially of vulnerable people, CBA strives to deliver benefits directly to people who otherwise may be left out of adaptation decision-making processes.

Box 2. Example of a community-based approach in the Arctic

Although reindeer husbandry is one of the traditional income resources and livelihood for Indigenous people in the Barents area of the Arctic, it is susceptible to warming winter conditions that limit access to food. Reindeer herders have actively and flexibly responded to changing climate conditions to strengthen their coping capacity. Participatory planning processes along with advanced technology have substantially strengthened the resilience of herding livelihoods. For example, development of Sweden's reindeer husbandry involved GPS tracking data of reindeer whereby a comprehensive GIS database is used to integrate the knowledge of herders and regional authorities, linking reindeer herding and land use with pasture resource data.

Sources: AMAP, 2017. Adaptation Actions for a Changing Arctic: Perspectives from the Barents Area. Arctic Monitoring and Assessment Programme (AMAP), available at www.amap.no/documents/doc/Adaptation-Actions-for-a-Changing-Arctic-Perspectives-from-the-Barents-Area/1604

2.2. Ecosystem-based adaptation

9. EbA is defined as "the use of biodiversity and ecosystem services as a part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change".³ Besides enhancing adaptive capacity and resilience, EbA provides multiple benefits for natural resource conservation and management. Sustainable agriculture, water and forest resource management are standard EbA measures (see box 3).

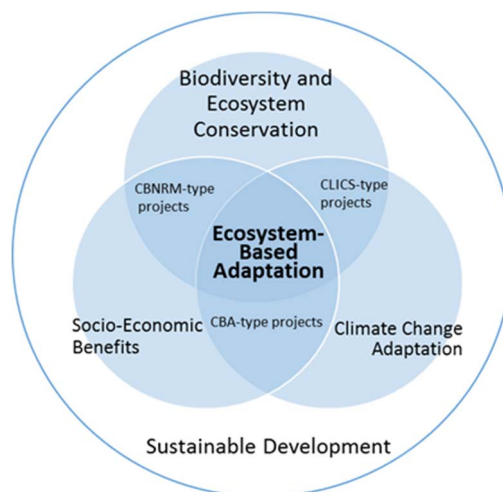
10. EbA not only contributes to the restoration of ecosystems and biodiversity, it also delivers socio-economic benefits. EbA tends to be cost effective because it utilizes the existing services of biodiversity and ecosystem as much as possible, and is generally less costly than built infrastructure. Successful EbA

² Reid H, Alam M, Berger R, Cannon T, Huq S and Milligan A. 2009. Community-based adaptation to climate change: an overview. *PLA 60: Community-based adaptation to climate change*: p13. Available at <http://pubs.iied.org/pdfs/14573IIED.pdf>

³ Lo V. 2016. *Synthesis report on experiences with ecosystem-based approaches to climate change adaptation and disaster risk reduction*. Technical Series No.85. Secretariat of the Convention on Biological Diversity: p16. Available at www.cbd.int/doc/publications/cbd-ts-85-en.pdf

requires the engagement of local people who rely on ecosystems for their livelihood, and focusses on maintaining and enhancing these ecosystem services. EbA approaches link biodiversity, ecosystem conservation, socio-economic development and climate change adaptation in order to enhance sustainable development (see figure 1). Inclusion of the local community is critical in both EbA and CBA, and participatory approaches are a common element of both methods.

Figure 1. Linkage between EbA and related fields



Source: Figure adapted from Midgley et al. 2012.⁴ CBNRM refers to community based natural resource management⁵, while CLICS refers to climate change-integrated conservation strategies⁶

Box 3. EbA approaches in the adaptation strategy for the Danube region

Central and Eastern European countries within the Danube River basin cooperate under the International Commission for the Protection of the Danube River (ICPDR). In 2012, they adopted a climate change strategy that stresses cross-cutting measures for water management, including a monitoring and forecasting system, knowledge and capacity building, infrastructure reforms, and policy and institutional arrangements. Ecosystem-based measures are a key pillar of the policy and promote the use of healthy ecosystems as green infrastructure and water-retention services in a variety of bio-geographical settings and habitats. The Danube delta includes parts of Romania, Ukraine, and Moldova, and the three countries collaborated to develop a strategy targeting a unique ecosystem as the second largest wetland in Europe. The strategy includes risk evaluation of climate change impacts on socio-economic sectors, such as agriculture, fisheries, forestry, energy, tourism and public health, and identifies possible interventions for each sector using an ecosystem-based approach. For example, with respect to agriculture, fisheries and forestry, the strategy suggests introducing native species to improve water quality.

⁴ Midgley G, Marais S, Barnett M, Wägsæther K. 2012. *Biodiversity, climate change and sustainable development – harnessing synergies and celebrating successes Final Technical Report*: p5. Available at unfccc.int/files/secretariat/momentum_for_change/application/pdf/biodiversity_climate_change_sustainable_development_technical_report.pdf

⁵ CBNRM is the management of natural resources by all concerned stakeholders. Communities managing the resources have the legal rights, the local institutions, and the economic incentives to take substantial responsibility for sustained use of these resources (CBNRM Net 2001).

⁶ CLICS are climate-resilient conservation plans that often result in spatial and related types of planning products. These guide planning for ecosystem service corridors and protected areas that are resilient to climate change (Hannah et al. 2002a, Hannah et al. 2002b).

Sources: ICPDR Strategy on Adaptation to Climate Change, available at <http://www.icpdr.org/main/climate-adaptation-strategy-adopted>.

Adapting to change: Climate Change Adaptation Strategy and Action Plan for Danube Delta Region Romania-Ukraine-Moldova, available at http://d2ouvy59p0dg6k.cloudfront.net/downloads/2_danube_delta_adaptation_strategy.pdf

2.3. Livelihood diversification

11. The diversification of livelihoods is one means of strengthening adaptive capacity of marginalized groups and people. Livelihood refers to the resources used and the activities undertaken in order to live. Livelihoods are usually determined by the entitlements and the human, social, natural, physical, or financial assets to which people have access.⁷ In the context of adaptation planning and implementation at household and community level, diverse sources of income is a mechanism to disperse risks. Ideally, some of them are less vulnerable to the impacts of climate change.

12. The sustainable livelihoods approach (SLA), developed with the goal of poverty eradication at the household level, analyses the “main factors that affect poor people's livelihoods and the typical relationships between these factors”.⁸ Climate change could be one risk factor included in an SLA assessment framework. The International Fund for Agricultural Development (IFAD) highlights seven guiding principles for SLA, including a people-centred approach for active participation, holistic perspective beyond sectors and actors, and encouraging broad partnership between the public and private sectors. Those principles provide informative and useful lessons for climate change adaptation. IFAD is also playing an active role in facilitating holders of small-sized farms access to climate change-related information, tools and technology (see Box 4).

Box 4. Livelihood diversification programme for small-scale farmers

Adaptation for Smallholder Agriculture Programme (ASAP), established in 2012 by IFAD, initiated projects in 41 countries and has reached at least 8 million small-scale farmers. Information strives to reduce climate vulnerability by promoting production of different crops and livestock through measures such as diversifying household food production, enhancing agricultural extension services, promoting greater crop diversity and biodiversity, integrating farming and agroforestry systems, and improving post-harvest management through climate-smart agriculture (CSA).

One project, implemented in Nicaragua, is promoting cacao production to transform agriculture systems currently dependent on coffee production. IFAD introduced shade-grown coffee and cacao cultivation to farmers to help offset losses related to climate change. In Rwanda, a solar energy project created new income for smallholder farmers selling excess electricity to charge neighbours' mobile phones. The next step for ASAP is to integrate economic diversification and mitigation co-benefits, and to monitor progress. More detail about the programme is available at www.ifad.org/web/guest/asap#.

Source: Submission from IFAD on adaptation actions and plans that could enhance economic diversification and have mitigation co-benefits.

13. Another critical aspect is the resilience of livelihoods themselves. Livelihood resilience has been defined as “the capacity of all people across generations to sustain and improve their livelihood

⁷ IPCC. 2014. *Climate Change 2013: Impacts, Adaptation and Vulnerability*. Annex II, p.1769, available at www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-AnnexII_FINAL.pdf

⁸ IFAD. *The Sustainable Livelihoods Approach*. Available at www.ifad.org/topic/resource/tags/sla/2179541

opportunities and well-being despite environmental, economic, social and political disturbances".⁹ Research emphasizes the importance of giving attention to negative socioeconomic impacts of climate change, including impacts on social inequality, rights and poverty and on different types and degrees of vulnerability. Diversifying livelihoods contributes not only to strengthening adaptive capacity, but also to improving people's well-being and empowerment through active participation in decision-making processes.

2.4. Economic diversification

14. Reducing the economic risks of climate change by ensuring different income sources is a critical element of national adaptation strategies, as well as at the level of livelihoods (see Box 5 for examples). Economic diversification describes the process in which a growing range of economic outputs is produced. It can also refer to the diversification of markets for exports or the diversification of income sources away from domestic economic activities (i.e. income from overseas investment). Economic diversification in its standard usage, either regarding the diversity of economic activities or markets, is a significant issue for many developing countries, particularly those that have traditionally relied on the production of commodities that are vulnerable to climate variability and change.¹⁰ Therefore, countries may consider using macroeconomic policies to promote a greater balance between domestic industries that are vulnerable to climate change, and those that are more climate secure.

Box 5. Examples of livelihood and economic diversification

Climate-proofing natural resource-based rural enterprises through value chain analysis

The Caribbean Natural Resources Institute (CANARI) project *Building climate-resilient rural enterprises in Trinidad and Tobago* is undertaking value chain analysis to identify vulnerabilities. The project, which is funded by the GEF small grants programme, involves collaboration with local tourism committees and farmers' associations. It focuses on two communities with small-scale business that rely on cocoa and honey production. It has identified potential adaptation measures to enhance climate resilience, including planting of climate resilient native plants and the installation of rainwater harvesting and solar power systems to increase production. At least 20 community members acquired awareness and understanding of climate risks through the participatory process applied in this project, and identified tailor-made solutions based on local knowledge.

Source: Submission from CANARI on adaptation actions and plans that could enhance economic diversification and have mitigation co-benefits.

Multi-beneficial livelihood installation at a small fisher village

MANTA Sail Training Centre is a sailing and water sports centre in Vietnam with the goals of conserving marine biodiversity from overfishing and damage caused by motor boats and fossil fuels, and creating new opportunities for the tourism and water-sports markets. They introduced sailing and water sports techniques that meet safety standards to local fishers, and created new livelihoods in the local tourism industry. The training also raised awareness about climate change impacts and the protection of marine ecosystems, and will generate mitigation co-benefits by encouraging the use of wind rather than fossil fuel power. Beyond enhancing the capacity to cope with climate changes, the centre also provides educational opportunities and motivation for local youth.

⁹ Tanner T, Lewis D, Wrathall D, Bronen R, Cradock-Henry N, Huq S, Lawless C, Nawrotzki R, Prasad V, Rahman Md, Alaniz R, King K, McNamara K, Nadiruzzaman Md, Henly-Shepard S and Thomalla F. Livelihood resilience in the face of climate change. *Nature climate change* 1: p.23, available at www.nature.com/articles/nclimate2431

¹⁰ unfccc.int/3994

Source: Submission from MANTA Sail Training Centre on adaptation actions and plans that could enhance economic diversification and have mitigation co-benefits.

2.5. Risk-based approach

15. Assessing risk is a starting point for all approaches to adaptation planning and implementation. The Intergovernmental Panel on Climate Change (IPCC) defines the risks of climate change impacts as the “potential for consequences where something of value is at stake and where the outcome is uncertain”.¹¹ Risk will change dramatically in the context of who, to whom, when and where. The risk-based approach provides a framework to manage multi-dimensional risks and their consequences, taking both climate and non-climate risks into consideration in the larger socio-economic, political and cultural context.¹² A risk-based approach includes four steps: 1 - identification of relevant risks; 2 - characterization of those risks; 3 - selection of policy options to address the risks; and 4 - feedback to respond to developing risks.¹³

16. The first step commonly involves both top-down and bottom-up approaches. Top-down approaches start with analysis of climate change projections, while bottom-up approaches start with analyses of the human systems and ecosystems affected by climate change. Stakeholder engagement is critical for the bottom-up approach. Both approaches examine vulnerability, exposure, and hazard, as determinants of risk.¹⁴ The second step involves the characterization of risks to determine appropriate responses in terms of risk avoidance (e.g. relocation from eroding coasts), risk reduction, risk transfer and risk monitoring. Estimation of the frequency of events, the severity of consequences, and the costs and benefits of intervention are elements that must be considered. The next step involves choosing policy options that fit a wide range of actors. Adaptation measures can be considered to fit into two broad categories: soft approaches, which include capacity-building, institutional arrangements, and policy planning; and hard approaches, which involves technology and action, including grey and green measures. In practical application, options and measures generally include both categories. Once implementation starts, the process needs to include regular monitoring and evaluation. The results of the feedback process should be used to adjust adaptation planning and implementation process continuously.

2.6. Emerging challenges and co-benefits

17. The application of EbA and CBA in urban contexts is still new and presents challenges that differ from rural areas. Many climate change risks concentrate in urban areas and hamper economic development, for example urban infrastructure systems and essential services, including water and energy supply, sanitation, drainage, transportation and telecommunication are particularly vulnerable to climate change impacts.¹⁵

18. It is projected that 66% of the total population of the world will live in urban area by 2050.¹⁶ In middle- and low-income countries, a high concentration of population in a city can quickly go beyond

¹¹ IPCC. 2014. *Climate Change 2013: Impacts, Adaptation and Vulnerability*. Annex II: p1772. Available at http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-AnnexII_FINAL.pdf

¹² OECD. 2015. *Climate Change Risks and Adaptation: Linking Policy and Economic*: p78. Available at <http://dx.doi.org/10.1787/9789264234611-en>

¹³ OECD. 2015. *Climate Change Risks and Adaptation: Linking Policy and Economic*: p79. Available at <http://dx.doi.org/10.1787/9789264234611-en>

¹⁴ IPCC. 2014. *Climate Change 2013: Impacts, Adaptation and Vulnerability*. Annex II: p1772. Available at http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-AnnexII_FINAL.pdf

¹⁵ IPCC. 2014. *Climate Change 2013: Impacts, Adaptation and Vulnerability*. Chapter 8: Urban Areas, available at https://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap8_FINAL.pdf

¹⁶ UN DESA, *World's population increasingly urban with more than half living in urban areas*, Available at <http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html>

the capacity of providing minimum public services by the local government. As a result, most economically and socially vulnerable people could be left without access to basic daily services and be forced into risk-prone situations. This is of particular relevance for vulnerable groups of society being part of the informal economy and living in illegal settlements. They could be left behind in disaster-prone areas and living conditions exposed to severe climate change impacts.¹⁷ Community-centred approaches including CBA, EbA and livelihood diversification need to take into account this perspective in densely populated areas.

19. The urban context also requires different considerations from a rural context. For example, EbA interventions need to consider the high ratio between infrastructure and land surface. In some management plans of urban cities, management of vegetated area as a flood retention zone, water reservoir and cooling and shading place tends to be a common ecosystem-based intervention.¹⁸ In Durban, the total cost of EbA is higher than the infrastructure interventions because the plan included the land acquisition to protect the ecosystem under the municipality management.¹⁹

20. While there are emerging challenges in urban application, various approaches deliver co-benefits with mitigation in some cases. Utilising EbA in management of existing carbon storage and creating new carbon stock capacity is one of common activities in EbA projects in several countries. Ecosystem-based mitigation approaches have been practised to protect and enrich ecosystem services and increase carbon storage by the restoration of forests, wetlands and peatlands (see Box 6). In urban areas, installing urban forestry for cooling effect is an adaptation measure with important mitigation co-benefits in terms of reducing energy demand for cooling. Regarding livelihood diversification, approaches with mitigation and adaptation co-benefits could enhance both climate and economic resilience of local communities. For example, reducing dependence on livestock populations and changing agriculture practices can foster greater contribution to emission reduction while improving livelihood security.

Box 6. Community-based fire management in Australia

In order to reduce the frequency of devastating wildfires, the West Arnhem Fire project in Northern Australia partners with local Aboriginal people in implementing prescribed fire management plan. The project works with indigenous fire managers who manage prescribed, early dry-season burning in order to avoid disastrous wildfires in the late-dry season. In addition to benefits such as reducing ecosystem degradation and protecting cultural sites of Aboriginal rock art, the project also has mitigation benefits as early dry-season fires emit fewer greenhouse gases than more intense late dry-season fires. This case demonstrates that well-coordinated community- and ecosystem-centred approaches enabled benefits for both mitigation and adaptation, and also had multiple social and economic benefits including the creation of employment and cultural protection.

Source: Adaptation Knowledge Portal, Case studies; Community-based fire management in Australia <https://www4.unfccc.int/sites/NWP/Pages/item.aspx?ListItemId=23220&ListUrl=/sites/nwp/Lists/MainDB>

IUCN, Ecosystem-based Adaptation: A natural response to climate change, p10
https://cmsdata.iucn.org/downloads/iucn_eba_brochure.pdf

¹⁷ International Institute for Environment and Development. *Is community-based adaptation suited to cities?* Available at <https://www.iied.org/community-based-adaptation-suited-cities>

¹⁸ Geneletti D and Zardo L. 2016. *Ecosystem-based adaptation in cities: An analysis of European urban climate adaptation plans*. Land use policy: pp38-47. Available at <https://www.sciencedirect.com/science/article/pii/S0264837715002732>

¹⁹ Cartwright A, Blignaut J, De Wit M, Goldberg K, Mander M, O'Donoghue S, Roberts D. 2013. *Economics of climate change adaptation at the local scale under conditions of uncertainty and resource constraints: The case of Durban, South Africa*. Environment and Urbanization: pp.139-156. Available at <http://journals.sagepub.com/doi/pdf/10.1177/0956247813477814>

3. Analysis of different approaches

21. Considering the core concepts, methods for planning and implementation of each approach described above, it is worth examining the timescale and engagement levels of adaptation interventions that can maximize the advantages, or decrease the weaknesses, of these approaches.

22. The risk-based approach provides a common framework to analyze climate change risk and vulnerability, with the scope of the approach dependent on the focus of the intervention. CBA is a people-centred approach designed to involve vulnerable people in the decision-making process.^{20,21} For this analysis, CBA is considered to operate optimally at the community/household scale.²² With respect to the use of future climate projections, combining local lessons with regional or global projections and available scientific data can strengthen the intervention-specific context, respecting community needs. The process to identify and prioritize risks and vulnerabilities, and to discuss future climate projections with local community participation helps build the link between people's daily life and the risks of climate change, generating local ownership.

23. Livelihood diversification is likely to be a primary focus at the community and household level. In responding to ongoing climate changes and the uncertainty of climate risks, households may seek out secondary and tertiary livelihood options as well as taking measures to make existing primary income sources climate resilient. Communities need to identify needs and gaps, and a range of adaptation options. CARE developed a toolkit for climate-resilient livelihood consisting of critical questions.²³ The toolkit highlights essential perspectives for livelihoods security, including diversification from agricultural to non-agricultural or more climate-proof activities, an appropriate range of targeted people, enhanced accessibility to climate information, efficient delivery of available resources and the ability to influence local policy. The goal of livelihood diversification is to create an environment that enables people to choose their income sources while maintaining a certain level of living quality. Providing a set of options is vital given the bottom-up nature of the approach.

24. While livelihood diversification is most relevant at the household level, economic diversification aligns best with regional and national policy-making processes. Strong ownership of planning and strategies, application of a gender sensitivity approach, and inclusiveness of national adaptation plans (NAPs) can assist economic growth and increase the income of vulnerable people. The private sector also plays a critical role in economic diversification.

25. EbA can be applied to a broad range of interventions from the community to national scale. Like CBA and livelihoods diversification, EbA responds to the needs of the people primarily dependent on natural resources and therefore directly affected by climate change impacts.²⁴ The approach involves a range of stakeholders, aligning their needs to planning outcomes and forging partnerships for implementation. Stakeholder involvement was the key to success in community-focused projects for

²⁰ IIED provides extensive resources about CBA and convenes the international conference for CBA every year.

<https://www.iied.org/community-based-adaptation>

²¹ Further information on CBA field projects can be found in;

The GEF-SGP (GEF-Small Grants Programme). Community Based Adaptation.

https://sgp.undp.org/index.php?option=com_areaofwork&view=summary&Itemid=244

UNDP (United Nations Development Programme). Community-Based Adaptation

<http://www.adaptation-undp.org/community-based-adaptation>

²² Forsyth T. 2017. *Community-Based Adaptation to Climate Change*: p7. Available at

<http://climatescience.oxfordre.com/view/10.1093/acrefore/9780190228620.001.0001/acrefore-9780190228620-e-602>

²³ CARE. *Toolkit for Integrating Climate Change Adaptation into Development Projects*. Available at

http://www.careclimatechange.org/tk/integration/en/step_by_step_guidance/design/climate-resilient_livelihoods.html

²⁴ Bertram M, Barrow E, Blackwood K, Rizvi A.R, Reid H and von Scheliha-Dawid S. 2017. *Making Ecosystem-based Adaptation Effective: A Framework for Defining Qualification Criteria and Quality Standards*: p5. Available at

<http://pubs.iied.org/G04167/>

coastal ecosystem-based adaptation,²⁵ with community leadership needed to build the foundation for capacity building through training and education, contributing to seamless implementation.^{26,27}

26. Some countries have introduced EbA into national planning. For example, Brazil included an ecosystem approach in its NAP, noting that there are still gaps to be addressed to incorporate EbA into public policies. The NAP states six possible steps to foster further development of the EbA methodology, including enhancement of the understanding for policymakers, awareness raising among sectors and actors, development of an evaluation system and financial incentives.²⁸ Some countries mention EbA or ecosystem approaches for adaptation as a tool for implementing their national adaptation programme.²⁹

27. Challenges to obtaining wider acceptance of EbA at a national scale are the lack of an outcome-based evaluation methodology. Data collection is the primary step for monitoring an intervention, however the complexity of issues, including those related to data collection and coordination between local institutions, make EbA monitoring and evaluation challenging to address, especially for developing countries with limited capacities and facilities.

28. The lack of standardized tools and guidelines for tracking progress and assessing the outcome of a project have also hindered EbA. In some cases, outcomes may not be evident for a decade after the completion of the intervention.³⁰ Thus, EbA approaches should consider a long-time scale to evaluate the results of the intervention, and the need to maintain communication and contact with stakeholders to track the impact beyond the project management cycle.

29. Economic diversification similarly can require a long time for the transition to a greater range of economic outputs across industries. Transforming a national economy from being dependent on a single or limited sectors to a resilient combination of income sources from multiple sectors requires engagement at the highest political level, a long-term mandate, inclusion of all stakeholders, endorsement from finance and planning ministries, and coordination between regional and national governments.

30. The advantage of economic diversification within national level planning is its top-down and cross-sectoral approach, with a view to pursuing mid- to long-term sustainable economic growth that generates employment and increases the income of vulnerable people. Although the private sector also plays a critical role in the diversification approach, governments generally need to lead and communicate a message of assurance to the private sector to leverage and stimulate private investment for financial and economic reforms.

31. Governments have a responsibility to recognize potential conflicts over existing resources associated with economic transformation, and take steps to avoid harmful and negative impacts during

²⁵ UN Environment. *Coastal Ecosystem-Based Adaptation: Case Studies*. Available at <http://web.unep.org/coastal-eba/case-studies>

²⁶ UN Environment. *Coastal Ecosystem-Based Adaptation: Lauru Ridges to Reef Protected Area Network (Lauru PAN)*. Available at <http://web.unep.org/coastal-eba/lauru-ridges-to-reef>

²⁷ UN Environment. *Coastal Ecosystem-Based Adaptation: Community-based coral aquaculture and reef restoration programme, Puerto Rico*. Available at <http://web.unep.org/coastal-eba/content/community-based-coral-aquaculture-and-reef-restoration-programme-puerto-rico>

²⁸ Brazil. *National Adaptation Plan to Climate Change: Sectoral and Thematic Strategies*. Volume2: pp42-46. Available at http://www4.unfccc.int/nap/Documents%20NAP/English_PNA_Part2%20v4.pdf

²⁹ Costa Rica, Madagascar, Mexico and Morocco mentioned EbA as one of the tools for adaptation in their Nationally determined contributions(NDCs). Their NDCs can be found out at <http://www4.unfccc.int/ndcregistry/Pages/Home.aspx>

³⁰ Lo V. 2016. *Synthesis report on experiences with ecosystem-based approaches to climate change adaptation and disaster risk reduction*. Technical Series No.85. Secretariat of the Convention on Biological Diversity: p80. Available at <https://www.cbd.int/doc/publications/cbd-ts-85-en.pdf>

the transition.³¹ Therefore, it is critical to conduct economic diversification under good environmental governance and coherent institutional arrangements, in particular in the areas of education, youth, employment, social protection and poverty reduction, and to develop an understanding of the co-benefits of resilience, economic growth and diversification in a country-specific context.³² Good governance and regulatory measures also facilitate economic diversification with both innovation and application of traditional practices.

32. In decision-making about economic diversification, attention should be paid to the poorest and most vulnerable, since they have the least capacity to manage risks and are often the most impacted by climate change. Adopting a dual approach of macro and microeconomic policies for the creation of employment, involving both livelihood and economic diversification, could act in a complementary manner and provide a valuable tool for socio-economic resilience.

3.1. Stakeholder engagement and beneficiaries

33. The lessons learned as communicated by Parties highlight that stakeholder engagement is a fundamental and indispensable factor for successful adaptation projects regardless of the approach taken. Depending on the context of an intervention, the approaches taken to stakeholder engagement will be different. It is important to obtain a wide range of involvement from local to high-level decision-makers, without excluding or limiting the participation of a particular group of people. This builds trust and ownership of the project. This ownership can provide a basis for continuity of projects to achieve a positive outcome, particularly when projects require a long time to complete. The level of commitment by stakeholders could also be different at each stage of the intervention.

34. Engagement that includes socially vulnerable groups creates a vital opportunity to raise awareness. Projects using CBA, EbA, and livelihood diversification approaches need to incorporate traditional and empirical knowledge to tailor the different interventions. The awareness of climate change impacts, and the ability to examine the coping capacity developed over many years, can help identify an optimal mix of traditional knowledge and scientific data analysis, and strengthen stakeholder commitment to the intervention.

35. However, in all approaches there is a concern that those stakeholders engaged in the project may not represent appropriately the people who will be affected by an adaptation intervention. "Community" is a simple and broadly accepted notion referring to a group of people who live a similar lifestyle and share a social and cultural background. In fact, it is likely that a group of people that looks like a "community" consists of several smaller interest groups. It is possible that taking a community-centred approach without fully understanding all dimensions can reinforce exploitation and suppression inside a "community".³³

36. There is also concern that projects developed with a tight focus on specific stakeholders could end up being maladaptive by transferring climate change risk to other groups. Therefore, it is important to encourage participation across sectors and different social groups and to pay attention to the poor and vulnerable using a gender-equal approach in planning and implementing an adaptation intervention. Using gender sensitivity and culturally appropriate tools and strategies for engaging women and vulnerable groups enables them to reflect their concerns in each intervention.

³¹ CARE. 2011. *POLICY BRIEF: Climate Change Why community based adaptation makes economy sense*. Available at http://www.care.dk/wp-content/uploads/2013/02/PolicyBrief_ClimateChange_final_web.pdf

³² AC/2016/17.

³³ Forsyth T, *Community-Based Adaptation to Climate Change*, 2017, Oxford Research Encyclopedia of Climate Science. Available at <http://climatescience.oxfordre.com/view/10.1093/acrefore/9780190228620.001.0001/acrefore-9780190228620-e-602?print=pdf>

3.2. Upscaling bottom-up approaches

37. The strength of CBA, EbA and livelihood diversification lies in their bottom-up, decentralized methods that place a high priority on people and community in a specified context. Bottom-up approaches can also inform participatory and deliberative methods at national level adaptation planning process. However, to expand to the national level it is necessary to integrate those activities into institutional and policy frameworks that will mainstream adaptation into national-level planning. It is important to build up an interactive relationship that maximizes the benefits of both top-down and bottom-up methods between the local and national levels. National level upscaling can assist the mobilization of finance for CBA, EbA and livelihood field projects.

3.3. Assessment tools

38. Assessment tools (see Box 7) are used to collect vital information affecting decision-making and to adjust adaptation interventions. Ex-ante evaluation of positive and negative impacts of adaptation interventions should be carried out in a deliberative manner to avoid maladaptation, and regular monitoring and reviews can ensure the improvement of projects over time.

39. However, a common challenge to the application of assessment tools is the lack of relevant data, particularly in developing countries, at the spatial and temporal scales needed to set a baseline for tracking progress. Basic climate, social and economic datasets are the foundation for quantitative assessment and indicators for measuring benefits by intervention. M&E is often time-consuming and costly. Interactive coordination could reduce burdens for M&E, facilitate synergies between institutions and enhance overall implementation.

40. Furthermore, the lack of data collection hinders the development of quantitative assessment methods. It should be recognized that a fixed standard set of indicators cannot capture precisely the outcomes of different adaptation approaches, considering a context-specified nature of adaptation approaches. A combination of quantified and qualified evaluation metrics could complement one another and enhance the accuracy of the assessment framework.

41. The complexity of assessment frameworks affects usability. Many case studies express the need for further reviewing existing guidelines, and encourage the development of more user-friendly and smart indicators and guidelines. For approaches adopting participatory processes, the assessment tools need to take into account the perspective of users as a core value of the approach.

Box 7. Assessment tools for economic diversification from submissions

HELVETAS Guideline - Assessing Climate Risks in Market Systems

This guideline is designed to support the private sector in understanding climate change risks and to identify climate resilient markets. It is an eight-step assessment consisting of two modules; risk and vulnerability assessment and planning in subsectors and selected market system; and identification and implementation of measures dealing with determined risks. By applying the guideline, the subsector could prepare for potential hazards in production and specific value chains, and identify proactive adaptation measures. Available at https://assets.helvetas.org/downloads/guideline_climate_21july_2017_final.pdf

GIZ - The Climate Expert Approach to support SMEs

GIZ has developed several analysis tools and capacity-building packages to improve the climate resilience of the small- and medium-sized enterprises (SMEs), and to assist risk management of industrial zones through regional and inclusive approaches. The tools help to identify climate risk and highlight possible interventions. Case studies from different parts of world and assessment tools available at <http://www.climate-expert.org/en/home/>

Source: Submission from IFAD and GIZ on adaptation actions and plans that could enhance economic diversification and have mitigation co-benefits.

3.4. Lack of resources

42. Financial support from public and private sectors, as well as capacity building are needed to better apply the various approaches described in this report. Institutional capacity to build policy frameworks, the human capacity to understand scientific knowledge, and technology for planning and implementation of adaptation measures are critical for all approaches.

4. Conclusion

43. Each approach discussed in this paper brings unique advantages. The approaches are also complementary and many adaptation planners and implementers are likely to utilize elements of several approaches, maximizing the advantages for a particular situation. When employed well, these approaches have the potential to also help address broader social and economic challenges through the inclusion of stakeholders. They also share challenges. For example, CBA, EbA and LED, which are rooted in the core concept of the bottom-up approaches, face challenges regarding stakeholders and scaling-up of projects. Another challenge relates to monitoring and evaluation and demonstrating the effectiveness of measures. Accumulating lessons learned and good practices is important to allow practitioners to select approaches that best fit their practical context.

5. Next steps and possible recommendations for consideration by the Conference of the Parties

44. At its fourteenth meeting, the AC may choose to:

- a) Finalise this paper, and decide whether it should be published in a user-friendly format as part of the technical paper on long-term adaptation planning;
- b) Discuss any follow-up that could be undertaken as part of the 2019-2021 workplan, including partnering with organizations specialized in EbA;
- c) Formulate possible recommendations, in conjunction with the recommendations from the revised technical paper on long-term adaptation planning, for consideration by the COP and interested stakeholders.

45. The AC may wish to consider the following recommendations on promoting various adaptation approaches to be forwarded to the COP for its consideration:

- a) Invite Parties and relevant institutions to continue developing usable and smart indicators and methodologies to monitor and evaluate positive and negative impacts of the various approaches to adaptation planning;
- b) Invite the Nairobi work programme and its partner organizations to submit good practices and lessons learned to the Adaptation Knowledge Portal.