Mainstreaming Ecosystem-based Adaptation (EbA) and Accessing EbA Finance

Policy Brief

EbA South, 2014
This policy brief is based on the results of the ‘Inter-regional training workshop on accessing climate change adaptation finance and mainstreaming ecosystem-based approach to adaptation’, a side event of the Asia-Pacific Climate Change Adaptation Forum held in Kuala Lumpur, Malaysia, on 30 September-3 October 2014. It was prepared by Charles Rodgers for the Regional Resource Centre for Asia and the Pacific (RRC.AP, member of the UN Environment Asia-Pacific Adaptation Network) and edited by the EbA South project team.

For more information about EbA South, please visit: www.ebasouth.org

The views expressed in this publication are solely those of the authors, and do not represent the views of the donors, implementing and executing agencies, or other partners of the EbA South project.
Key messages

- A robust evidence base establishing the effectiveness of EbA in specific settings is needed to demonstrate to policymakers the value ofEbA as a component of sustainable development, poverty reduction and climate change adaptation programs, policies and planning frameworks.
- Likewise, robust evidence on the economic costs and benefits of EbA helps to support the business case for mainstreaming EbA in policies and programs.
- Lack of human capacity to pursue ecosystem-based approaches and to manage involvement of all relevant stakeholders in the planning process is an impediment to mainstreaming in many countries.
- Lack of awareness and understanding of EbA by policy- and decision-makers also act as barriers to mainstreaming EbA at national, sectoral and regional levels.
- The UNFCCC National Adaptation Plan (NAP) process provides an effective entry point to mainstreaming EbA in national programs, policies and planning frameworks, and is supported by a range of resources.
- Linkages between EbA and other high-profile policy priorities, such as disaster risk reduction and natural resources conservation, provide additional points of entry for mainstreaming.

What is Ecosystem-based Adaptation?

Ecosystem-based Adaptation (EbA) is defined as “the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people adapt to the adverse effects of climate change” (Convention on Biodiversity, 2009). Adaptation and resilience-building through EbA are achieved by managing existing natural resources in a sustainable and equitable manner, restoring ecosystems and ecosystem functions where they have been lost or degraded, and integrating these activities within broader efforts to secure community well-being and resilience. When properly implemented, EbA can support social, economic, cultural and ecological objectives in addition to climate change adaptation. Examples of ecosystem-based approaches to adaptation include (IPCC, Fifth Assessment Report, 2014):

- Sustainable water management through restoration of river basins, aquifers, flood plains, and associated ecosystems to provide water storage, enhanced baseflow, flood regulation services, reduction of erosion/siltation and support for aquatic species.
- Disaster risk reduction through the restoration of coastal habitats (e.g., mangroves, wetlands, and deltas) to provide effective measure against storm-surges, saline intrusion, and coastal erosion.
- Restoration and sustainable management of grasslands and rangelands to protect topsoil against erosion, improve soil hydraulic properties and the infiltration of precipitation, and to increase resilience to drought and flooding.
- Establishment of diverse and resilient agroforestry systems, conservation of agrobiodiversity and adaptation of crop and livestock mixes to provide food security, diversified livelihoods and preservation of genetic resources.

The effectiveness of EbA as a key component of comprehensive adaptation strategies is increasingly acknowledged. The Intergovernmental Panel on Climate Change (IPCC), in their Fifth Assessment Report (2014), notes that EbA “[…] is becoming an integral approach to
adaptation” with benefits demonstrated in a range of applications. An analysis of the 44 National Adaptation Programmes of Action (NAPAs) submitted to the UNFCCC indicated that half (50%) of the proposals acknowledged the value of ecosystems services and 22% explicitly included the use of ecosystem services in support of adaptation objectives (IPCC AR5 WGII Ch. 14).

EbA can also deliver ancillary or co-benefits in addition to the specific adaptation objective; including among others wildlife habitat and protection of species diversity; improved stewardship of land and water resources; restoration of degraded ecosystems; various ecosystem services (supporting, provisioning, regulating, cultural), opportunities for livelihood diversification, and climate change mitigation via carbon sequestration.

The growing interest in EbA as primary and/or complementary adaptation strategy is reflected in the share of projects financed by the special purpose climate change funds that utilize EbA. Rapid reviews of the portfolios of several climate funds indicate that roughly 20% of Special Climate Change Fund (SCCF) projects; 16% of Least Developed Countries Fund (LDCF) projects, and 90% of Adaptation Fund (AF) projects funded to date contain evidence of EbA components, approaches or activities. The Green Climate Fund (GCF), which will commence operations in 2014 with committed financial resources exceeding all other special purpose climate funds combined, has identified ecosystems and ecosystem-based adaptation as among the priority target results areas for adaptation.

EbA can be used as a stand-alone approach to address a range of specific adaptation challenges. Alternatively, EbA can be used to complement engineering (infrastructure) or other technological approaches to adaptation by increasing their resilience and effectiveness. In many applications EbA is inherently less likely to result in maladaptation due to the adaptability of natural ecosystems and their capacity for self-regeneration.

EbA approaches have been found to be applicable in both developing and developed economies; in both rural and urban settings and over a range of scales of implementation. However, challenges remain in mainstreaming EbA into national, sectoral and local development plans, policies and programs. These challenges include (among others) gaps in (i) financing, (ii) skills and capacity, (iii) documented effectiveness of EbA in providing specific adaptation benefits (both physical and economic) and (iv) more broadly, lack of strong incentives for the effective integration of adaptation and development agendas. Each of these gaps must be addressed if EbA is to be mainstreamed successfully.

**Mainstreaming defined**

Mainstreaming of climate change adaptation has been defined as “integrating considerations of climate change adaptation into policy-making, budgeting, implementation and monitoring processes at national, sectoral and subnational levels”.¹ The process is understood to be continuous, to involve multiple stakeholders at different levels of governance, and to support other policy objectives including sustainable and equitable development, effective natural resources management and improved environmental quality. The benefits of successful mainstreaming of EbA include:

- Increasing awareness of climate change and its likely impacts on society by policy- and decision-makers at many levels and in many sectors.
- Avoidance of conflicts with respect to the multiple objectives of development planning.

• Opportunity to leverage much larger financial resources available to sectors potentially affected by climate risks (e.g., national, local government budgets; ODA).
• Reduced likelihood of maladaptive actions.

Identifying suitable entry points

Much can be learned about effective mainstreaming from previous and ongoing efforts and approaches taken in recent years with respect to gender equality, responses to HIV/AIDS, environmental and poverty reduction issues. While these remain works in progress, many important lessons have been learned. Among the most important is that it is more effective to align efforts with existing policies and practices, rather than creating new ones. Building new and separate institutions and processes to support EbA is not only inefficient with respect to the use of scarce resources, it carries the risk of creating policy conflicts².

Another key message is the importance of identifying suitable entry points for mainstreaming. In many developing countries, poverty reduction, agriculture and rural development, natural resources management and climate change adaptation are all strongly linked, as agriculture is highly climate-sensitive, and the poor are the most vulnerable to climate impacts. Therefore, poverty reduction strategies are often logical entry points for mainstreaming EbA. Other logical entry points for integrating EbA at the national level include national development plans, disaster risk reduction strategies, water resource strategies, and natural resources conservation strategies.

Focus on mainstreaming should not be limited to national-level planning activities. EbA is inherently local in application, reflecting regional climate, ecology, land use planning and the nature of climate vulnerability, so that efforts at mainstreaming must reflect local needs and conditions, requiring mainstreaming of EbA into local government planning and policies. This, in turn, will often require capacity building.

A primary challenge in bridging the skills and capacity gaps is that EbA is not easily codified and learned on the basis of theory alone, but requires hands-on experience. Gaps in skills and capacities can best be addressed through learning by doing. A number of models exist which suggest approaches through which the skills required for EbA can be acquired and developed. EbA Field Schools, modelled on the successful Climate and Farmer Field Schools, can bring expert practitioners and novices together and provide the required hands-on experience. Internationally, the dissemination of the System for Rice Intensification (SRI) provides an additional model of peer-to-peer learning through which skilled practitioners share experience through training and events organized by nonprofit organizations and dedicated academics. In addition, there is a clear opportunity for learning from traditional and indigenous natural resource management approaches. Capacity building is a stated objective of the GCF, and resources may become available through the GCF to directly support these and other capacity building activities³.

³ “The Board is also required to ensure adequate resources for capacity-building and technology development and transfer, as well as resources for innovative and replicable approaches.” GCF/B.07/08.
**Aligning EbA with existing sectoral priorities**

The lack of strong incentives to mainstream EbA in national adaptation and development agendas to date reflects, to a large extent, a lack of awareness of EbA and its potential applicability to a range of adaptation challenges and more generally a lack of understanding about multiple functions and services of ecosystems. On a more practical level, weak incentives reflect a lack of human capacity to pursue ecosystem-based approaches; lack of knowledge and information on costs and benefits; and a lack of knowledge on funding opportunities.

Planning frameworks within specific sectors offer the most promising entry points for EbA. The IPCC Fifth Assessment Report (2014) has emphasized four sectors within which EbA has already been established as a credible approach. These are (i) sustainable water management, (ii) disaster risk reduction, (iii) conservation and land use management, and (iv) agriculture and agroforestry.

Hydrology and water resources are inherently sensitive to alterations in climate, and the water resources of many developing countries are understood to be highly vulnerable to climate change. Even in the absence of climate change water resources in many regions such as South and East Asia are already under considerable stress from growing demand, inefficient use and management and degraded quality. Many countries have already established long-range planning frameworks for water resources, including India, for which the National Water Mission is an important component of the National Action Plan on Climate Change (NAPCC). Many countries have also adopted integrated water resources management (IWRM) at river basin level. EbA approaches to catchment management, which can both improve water quality and favorably impact seasonal flow patterns, can be promoted as effective components of IWRM that also enable local participation in water management with co-benefits of livelihood diversification. In Kenya, restoration of catchment forests re-established seasonal flows of the Mara River, an important source of domestic water supply for millions downstream, in addition to supporting wildlife populations and providing migration corridors⁴ (E. Kanga, *workshop presentation*).

Another entry point for EbA is in the area of disaster risk reduction. In recent years there has been a broad shift in emphasis from post-disaster relief and reconstruction to risk reduction, and responsible agencies increasingly seek approaches that reduce risks at manageable costs so that the capacity to respond to disasters when they occur is retained. The Philippines is among the world’s countries most highly exposed to natural disasters, with more than 20 typhoons striking the country annually on average, and many – like Typhoon Yolanda in 2013 – causing extensive loss of life and property damages in the billions of USD. As a response, the Philippines enacted the Peoples’ Survival Fund (RA 9729) in 2009, to mainstream climate change adaptation into government policy. The Act integrates adaptation and resilience-building from national level, through the Philippines Climate Change Commission, to the local (barangay) level, and integrates poverty reduction with disaster risk reduction and climate change adaptation objectives⁵ (C. Balanon, *workshop presentation*). A share of financial resources originally programmed for post-disaster relief and reconstruction can now be re-programmed for disaster risk reduction. An example of EbA used in the context of disaster risk reduction.

---


reduction is the restoration of coastal ecosystems, including mangroves, wetlands, and deltas, as alternatives or complements to physical infrastructure in providing protection against storm-surges.

Conservation planning provides another entry point. EbA can be introduced in the land and water management planning process both to preserve biodiversity and habitat, to enhance the delivery of ecosystem services, to reduce risks from natural disasters and to protect and diversify livelihoods. An example of mainstreaming EbA as work-in-progress is illustrated in the Greater Mekong Subregion (GMS)6 (R. Dhital, workshop presentation). The GMS faces a range of development and resource management challenges, including stress on key ecosystems due to economic pressure from mining, logging, and plantation development and a high vulnerability to climate change, in particular sea level rise. EbA was explored as a complement to infrastructure-based approaches, and a framework for mainstreaming EbA at regional (e.g., ASEAN), national (Laos, Viet Nam) and sub-national levels developed. The mainstreaming strategy was based on (i) analysis of policies and planning processes to identify and agree upon policy and institutional entry points for mainstreaming, (ii) raising awareness and capacity and building partnerships, (iii) influencing policy and planning processes, and (iv) the use of Strategic Environment Assessment to provide a rationale for mainstreaming EbA.

**Building the business case**

Demonstrating the physical and economic effectiveness of EbA as a component of climate change adaptation, disaster risk reduction, sustainable natural resource management and/or poverty alleviation are important steps in providing the justification for mainstreaming, since a demonstration that an EbA project is likely to yield positive net benefits to society provides a strong rationale. Similarly, economic analysis can be used to determine which among several competing approaches to addressing specific climate-related risks - such as structural, social, policy, and EbA approaches - will do so in the most cost-effective way.

To date, there is relatively little documentation on the physical effectiveness of EbA in specific settings. As a review7 of lessons from adaptation in practice has noted, “The body of scientific evidence that indicates how effective they (EbA) are is in some cases lacking but in other cases is dispersed across a range of related fields, such as natural resource management, disaster risk reduction and agroecology, from which it needs to be synthesized. Without presenting and strengthening this evidence in a consolidated way, EbA cannot secure the policy traction at local, national and international levels that it merits.”

Available evidence8 tends to support the effectiveness of EbA interventions, and this information needs to be more readily available to policy-makers at all levels. There are even greater gaps in our understanding of the economic performance (cost effectiveness) of EbA approaches, due in part to the methodological difficulties in valuing the ancillary benefits of EbA, which are in many cases non-market goods. In particular, economic analysis is required to evaluate EbA against alternative, infrastructure-based adaptation approaches. It is often assumed that EbA is likely to

---


deliver adaptation benefits at lower costs than hard infrastructure, but this must be demonstrated. It is encouraging that documentation of EbA projects and activities is taking place through a range of initiatives, including the UNFCCC Nairobi Work Program and the Adaptation Learning Mechanism (UNDP). This process can be greatly facilitated by requiring that all programs receiving funding through the targeted adaptation funds (including the GCF) produce case study documentation that is publically available.

One recent study serves to illustrate the value of economic analysis. Lami Town, Fiji, is vulnerable to a wide range of natural hazards, including coastal flooding, storm surges and coastal erosion that are exacerbated by the impacts of climate change. The community evaluated a range of adaptation options to address these risks. EbA options included the replanting of mangroves, establishment of riparian buffers, and reductions in upland logging and coral extraction. Policy- and social-based adaptations included re-zoning land use, relocation of households in highly vulnerable areas and flood early warning systems and mapping. Infrastructure-base interventions included river engineering, sea walls, beach replenishment and elevation of infrastructure. EbA were found to be more cost-effective than infrastructure alternatives even when the physical effectiveness in reducing damages was not assumed to be as high. Through this study a strong case has been established for the use of EbA which will be useful both in securing funding for the Lami Town project and in guiding adaptation decisions in other communities facing similar risks.

A second illustration of the value of economic analysis is provided by the Microfinance for EbA project, a joint effort of PNUMA, UNEP and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, along with Latin American partners9 (J. Buenfil, workshop presentation). Many EbA approaches, including diverse and resilient agroforestry systems and associated practices, are utilized at the scale of individual smallholder farms. Small farmers have no access to climate change finance and often face difficulties in obtaining bank finance as well. The objective of the project was to identify indicative costs and benefits for a wide range of EbA and related approaches in order to enable small farmers to seek microcredit. To date the project has evaluated over 40 EbA approaches suitable for small farmers, enabling many hundreds to gain access to credit.

**Securing finance for EbA projects**

Workshop participants and detailed studies both report that lack of sufficient and predictable finance often acts as a barrier to the implementation of EbA projects and activities10. The great majority of EbA projects for which documentation is available11 have been financed in part or in full by the special purpose climate change funds, in particular the Special Climate Change Fund (SCCF) and Least Developed Countries Fund (LDCF) of the GEF; and the Kyoto Protocol

---


11 Sources of EbA project documentation include *inter alia* UNFCCC Nairobi Work Program, Convention on Biological Diversity, Adaptation Learning Mechanism, Asia Pacific Adaptation Network and WeADAPT.
Adaptation Fund (AF). Resources from these funds have been instrumental in supporting and advancing the practice of EbA, but they are limited.

Detailed analysis of global climate change finance flows\textsuperscript{12,13} indicate that while the special purpose climate change funds are a significant source of finance for adaptation, they are far from the most important sources in overall magnitude, representing only around 3% of total adaptation financing globally in recent years. National development banks, multilateral and regional development banks, national governments and bilateral development assistance organizations (in that order) all contribute significantly more to total adaptation finance, although their respective shares of finance specifically supporting EbA is not presented. Similarly, studies examining the utilization of EbA approaches in the European Union found that public (including EU, national, municipal and local) and private sources supported the largest number of EbA projects, with public-private partnerships (PPP) among the most common arrangements.

These observations suggest that while the special purpose adaptation funds will continue to perform a vital function in enabling the mainstreaming of EbA by supporting the implementation of specific projects, policy-makers and practitioners should not focus too narrowly on these funding sources alone. Many opportunities exist to access the far greater resources available through government budgets, development finance and the private sector to support EbA, but to do so it may be necessary to take a broader view of EbA. In order to access the special purpose climate change funds, project teams have often focused on demonstrating additional cost logic for EbA, while noting ancillary benefits of sustainable development and environmental stewardship. Ecosystem-based approaches can also be promoted as sound development, supporting increased employment and income diversification, and as effective community-based natural resources management strategies, with both climate change mitigation and adaptation co-benefits. An important part of this strategy is to broaden the evidence base for EbA as cost-effective development.

Although gaps in adaptation financing are likely to persist as the demand for adaptation finance, and in particular grant finance, greatly exceeds available resources, the Green Climate Fund (GCF), once operational, may go some distance in addressing the EbA financing gap for several reasons. First, EbA interventions are inherently local in scale and in general involve fewer expensive inputs (construction materials, energy, technical expertise) than infrastructure-based alternatives, so that more adaptation can be achieved at a lower resource costs using EbA in many settings, an attractive feature to Fund donors and administrators. Second, EbA has been identified as a priority adaptation results area by the GCF, suggesting that well-prepared EbA proposals are likely to be competitive. Third, the expanded use of direct access modalities by the GCF, strengthening the roles of National Designated Authorities (NDAs) and National Implementing Entities (NIE), may enable expanded national programming directed at community, local and regional projects such as EbA which have historically been under-funded due both to small project size and low profile in national adaptation portfolios. The GCF has been mandated to develop simplified processes for the approval of proposals for small-scale activities\textsuperscript{14} and there may in addition be scope for bundling multiple local EbA proposals.


\textsuperscript{14}GCF/B.07/08.
Policy recommendations:

• Mainstreaming of EbA is a special case of the mainstreaming of climate change adaptation, and efforts should thus be informed by the experiences gained in mainstreaming adaptation. Among the most important lessons is to introduce EbA through existing policies, plans and institutions to the extent possible, since these reflect a social consensus and have been developed, often at great expense in time and effort, to address priority development issues. It has been proposed that a first step in mainstreaming is to identify development measures that are already under discussion and demonstrate how EbA can support these objectives; and can often provide low-cost, low-risk “no-regrets” approaches for doing so.

• Mainstreaming of EbA should build on the effectiveness of EbA in addressing specific, important sectoral objectives. These include sustainable water management, disaster risk reduction, environmental conservation and land use management, sustainable agriculture and agroforestry, and poverty reduction. The case for interventions and investments in each of these areas has already been made, and the task in mainstreaming EbA is to establish that it represents a proven, low-cost approach to achieving sectoral objectives. It follows that sectoral policies, planning documents and strategies are ideal entry points for mainstreaming EbA.

• A strong business case for EbA will support and enable mainstreaming, therefore the assembly of a robust evidence base for EbA, encompassing both physical and economic performance, is a priority for the EbA community. There is an abundance of anecdotal evidence in support of the effectiveness of EbA and similar interventions in a wide range of settings, and a considerable literature on ecosystem-based approaches across disciplines including natural resource management, disaster risk reduction and agroecology, although a synthesis of this evidence is now required. The need is even greater for evidence of the economic effectiveness of EbA in specific applications, both as primary adaptation approach and as a complement to infrastructure-based adaptation and “climate-proofing”. The community of adaptation practitioners should establish as a priority the careful monitoring and evaluation (M&E), post-project analysis and ongoing collection of data from EbA projects to support such a synthesis, as it will greatly strengthen mainstreaming going forward.

• The dedicated climate change adaptation funds, and in particular the Special Climate Change Fund (SCCF) and Least Developed Countries Fund (LDCF) of the GEF and the Adaptation Fund (AF), have provided much of the targeted finance for EbA over the last several years. Yet, analysis of overall adaptation financial flows indicates that while the special purpose adaptation funds are significant sources of EbA finance, they may not be the largest sources, particularly when projects supported by national, municipal and local governments can be accounted for. It is also reasonable to expect that EbA finance from non-traditional sources, and in particular from the private sector, will increase substantially over time as the practice of EbA matures and the evidence base supporting the efficacy of EbA interventions becomes more robust. The message to EbA practitioners when seeking finance is to look beyond the targeted climate funds (although they will continue to be indispensable sources of EbA finance) and consider the full range of financing options, including those involving non-traditional partners, including private sector actors.

• The Green Climate Fund (GCF), which now has indicative resources exceeding USD 5 billion targeting adaptation, is reviewing the first proposal for funding this year (2014). EbA practitioners and potential beneficiaries should seize the funding opportunities presented by the GCF. In addition to substantial financial resources and strong commitments both to adaptation in general (an indicative 50% of GCF resources) and to EbA as a priority theme,
the GCF is committed both to capacity-building and to support for smaller projects, potentially addressing constraints to the mainstreaming and wider practice of EbA.

- To improve access to expanded resources, including both targeted adaptation funds (GEF, AF, GCF) and national, state, municipal and private sources, project proposals should emphasize three messages: (i) the context of climate vulnerability and risk (i.e., why the EbA interventions are required); (ii) the explicit commitment to address these risks and sources of vulnerability; and (iii) the links between proposed EbA interventions and the sources of risk and vulnerability. This is to “build the business case” for EbA financing and will improve effectiveness regardless of the source of financing.

- EbA is practiced at a range of spatial scales, from regions such as the GMS to communities and even households. Thus, efforts to mainstream EbA must engage policy- and decision-makers and stakeholders at all levels, specifically including the local level. It is important to engage national policy-makers, since national (Ministry-level) decisions and priorities often determine the flow of resources to specific regions and locations. National policies and resources must in turn enable local responses and support local capacity-building. There are also promising roles for alternative sources of financial resources, including microfinance, local government and public-private partnerships, to support EbA at local level.
Ecosystem-based Adaptation through South-South Cooperation (EbA South) is a Global Environment Facility (GEF)-funded project implemented by UN Environment and executed by the National Development and Reform Commission of China (NDRC) through the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences (IGSNRR, CAS).

For more information, please visit: [www.ebasouth.org](http://www.ebasouth.org)

EbA South develops global and regional framework information briefs and policy recommendations on ecosystem-based approaches to climate change adaptation.