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THE SOCIAL DIMENSION OF ECOSYSTEM-BASED ADAPTATION



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EXECUTIVE SUMMARY

ecosystem-based Successful adaptation (EbA) necessitates the creation of an enabling environmentforimplementation and, to this end, an embedding of EbA in the broader policy landscape (environmental, economic and social), the provision of adequate (financial and political) support, and a strengthening of local capacities via guidance, knowledge and best-practice sharing and political increased support. Successfully establishing this socially-conscious framework for implementation will support a transition towards a green economy and therewith deliver increased security and improved well-being. community Furthermore, such framework will be helpful to achieve the SDGs and MDGs, addressing local communities' world-wide.

The purpose of this paper is to address and raise awareness of the social dimension of ecosystem-based adaptation (EbA) to climate change, laying particular emphasis on: i) the social impacts of EbA on global national and regional level and local communities and ii) social considerations in designing and implementing EbA. By highlighting appropriate methods and measures by which these issues can be



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addressed, the paper will provide information to facilitate successful EbA implementation and thereby the delivery of the expected benefits for local communities as well as for the authorities coping with climate change-related challenges and nature protection issues.

Insights will be drawn from relevant literature and studies as well as from the on-site experiences of practitioners from around the globe. On this basis, recommendations for policy makers will be provided on how to best pursue EbA in the future considering different social factors and the diverse (in particular social) benefits EbA can generate and its ability to simultaneously address multiple policy objectives and societal challenges.



The world is in a state of economic, social and environmental change, which has not previously been experienced. Society is facing the enormous challenge of dealing with poverty alleviation and social and gender inequality, climate change, biodiversity loss and ecosystem degradation against a background of a financial crisis and recession in significant portions of the global economy. Beyond this, an increasing human population (estimates indicate the potential for ca. 9 billion people by 2050¹), food and water insecurity, energy supply shortages and an unsustainable rate of resource consumption are foreseen for the future. The challenges we face are therefore complex and require the achievement of multiple objectives and goals at several geographical levels in parallel, including; climate stability through greenhouse gas emissions reduction; the maintenance of our essential 'life support systems' (ecosystem services); the development of a sustainable economic model (the so-called 'green economy'2) as well as the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) (taking effect in 2015).

Recognizing this context, the ecosystem approach has risen to the forefront of discussions as one proven and promising path for tackling the

aforementioned challenges [1]. The Convention Biological Diversity (CBD) defines the on ecosystem approach as "a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Humans, with their cultural diversity, are an integral component of ecosystems."³ More specifically, ecosystem-based adaptation (EbA) is considered as "an approach that help to build resilience and reduce the vulnerability of local communities to climate change" [2]. While EbA has already been recognized for its tremendous potential⁴, substantial issues remain, including its thorough integration into relevant international and national policies and strategies.

An important feature of EbA as compared to other approaches is the pursuit of not only environmental and adaptation benefits, but also of social benefits for the local community including vulnerable groups, such as women, youth and indigenous people (e.g. increases in income, diversification of jobs, educational opportunities and gender equality). Thus, the social dimension needs to be taken into account when developing and implementing ecosystem-based approaches to climate change adaptation. Such actions also encompass the design of supporting policies and policy instruments.

¹ According to the medium variant of the UN's 2010 Revision of World Population Prospects.

² In short, "the green economy is one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. Green economy is an economy or economic development model based on sustainable development and a knowledge of ecological economics". URL: http://www. unep.org/greeneconomy/AboutGEI/WhatisGEI/tabid/29784/ Default.aspx

³ The Ecosystem Approach. http://www.cbd.int/ ecosystem/

⁴ http://www.unep.org/greeneconomy/AboutGEI/ WhatisGEI/tabid/29784/Default.aspx



Social impacts of ecosystem-based adaptation

While EbA can target specific social or environmental impacts, one of its strengths is in the ability to maximize synergies between multiple environmental, economic and social goals simultaneously. With regards to social benefits, properly implemented EbA projects have the potential to deliver benefits for local communities including food security, shelter, risk reduction, freshwater and medicine supply, and local climate regulation [3]. At a national, regional and local scale, EbA can enhance socioeconomic development via the generation of employment and alternative livelihood opportunities. Such benefits are of particular importance to vulnerable populations lacking basic shelter and sanitation and having a limited ability to relocate or access surrogate income sources.

BOX 1: INCREASING ECOSYSTEM RESILIENCE TO PROVIDE SOCIAL BENEFITS

The community-based coastal habitat restoration project 'Green Coast' in Indonesia, Sri Lanka, Thailand, Malaysia and India restored and sustainably managed damaged coastal ecosystems as a means to restore livelihoods and increase resilience to the impacts of climate change. In addition to producing significant environmental benefits, the project increased the resilience of 91,000 people in the coastal regions. By providing financial and technical support to communities to explore alternative livelihood activities, the project facilitated an increase in the income for over 12,000 households (from e.g. fishing, small scale aquaculture, eco-enterprises, home gardening and animal husbandry activities).

The Working for Water Programme in South Africa implements EbA via the replacement of water intensive invasive alien trees with native species [5]. This approach increases the available water supply for agricultural, domestic and industrial usage while also supporting biodiversity and creating livelihood and employment opportunities for the affected communities. As illustrated in the above examples, the basis of obtaining EbA-induced social benefits rests on maintaining or improving ecosystem resilience and thus ensuring the continued delivery of critical ecosystem services. For example, healthy mangrove forests defend against erosion, stabilize the coastline and protect nearby populations in the event of severe storms. They also serve as nurseries for fishes and a food source for local communities. There are many social benefits and the discussions below showcases this.

FOOD SECURITY

Climate change has the potential to adversely impact food availability and the stability of food supplies by altering their ecological foundation, thereby indirectly impacting food access and its utilization [6]. Given that provisioning services serve to maintain food supplies and regulating and supporting services underpin society's ability to produce sufficient food

resources, maintaining a high level of ecosystem health is thus fundamentally important for food security. Ecosystem-based adaptation therewith offers a means by which basic food needs can continue to be met while also minimizing negative tradeoffs for the environment. For example, а heavy dependency of agricultural fields on fertilizer could lead to severe nutrient leaching and downstream water quality issues like eutrophication. therefore EbA promotes systems based on agroforestry, tillage, conservation crop diversification, legume intensification. Alternatively, EbA can involve the restoration of fragmented or degraded natural areas to enhance critical ecosystem services such as food and fisheries provision [1] or the conservation of agricultural biodiversity to maintain specific gene pools for crop and livestock adaptation to climate change [5].



LIVELIHOOD IMPROVEMENT

Ranging from the practice of subsistence agriculture to marketing goods or services (e.g. (eco-) tourism), EbA provides a venue for generating increased income via alternative employment and livelihood opportunities, acquiring new skills and accessing opportunities for social mobility increased income through and personal empowerment Achieving these social [7]. benefits ultimately results in an improved resilience of the people that most intimately depend on natural resources, especially the poor communities [8]. For example, shifting from excessive fishing and sea cucumber harvest to seaweed and sea bass cultivation and home garden improvement, the Kudawa village in Sri Lanka transitioned from unsustainable exploitation practices to the sustainable management of natural resources [9]. In Malmö, Sweden, using natural solutions (e.g. drainage ponds, green roofs and green spaces) to create sustainable urban drainage systems helped the inhabitants adapt to the increasing floods linked with climate change while simultaneously delivering socioeconomic benefits. As a result of the implemented adaptation measures, unemployment in the area fell from 30% to 6% and the turnover of tenancies decreased by 50%, indicating increased financial security and improved livelihoods of local stakeholders [10].

BOX 2: WOMEN'S EMPOWERMENT IN THE FACE OF CLIMATIC VULNERABILITY

In Bangladesh, many women are economically dependent on their husbands and are not involved in decision-making processes surrounding disaster response. The SHOUHARDO community-led duck rearing initiative aimed to change this situation by educating women not only about agricultural techniques, but also about the risks and impacts of natural disasters. The project ultimately empowerment to the participants via increased incomes as well as improved food security during heavy rain and flooding periods. Many village residents have since raised the foundations of their houses to protect against floods [11].

The Maya Nut Institute works actively in Latin America to help empower women, as they are the main link between families and the environment. Since beginning their activities in 2001, the Institute has helped over 600 rural and indigenous women to form autonomous businesses to produce and market Maya Nut products and act as multipliers for other regions. The initiative has raised family incomes, improved women's' self-esteem and increased the awareness of and efforts to conserve the rainforest areas from which the nut stems [12].

Contribution to MDGs, SDGs and a green economy

EbA is a promising pathway towards establish a green economy [13]. By maintaining healthy ecosystems and increasing their resilience, EbA preserves the economic values of natural resources and utilizes these natural capitals to alleviate climate change impacts and poverty. In this context, EbA increases vulnerable groups' ability to adapt and cope with foreseen climate change impacts. This the Millennium Development Goal (MDGs) 1 and 7 - 'to eradicate extreme poverty and hunger' and 'ensure environmental sustainability'. EbA, if properly implemented, will also indirectly improve gender equity (goal 3) and human health (goals 5 and 6).

EbA increases vulnerable

Environmental sustainability is gaining increasing attention as a result of the negative impacts of climate change and environmental degradation being experienced globally. The Sustainable Development Goals (SDGs) build on the achievements and lessons of the MDGs and give environmental objectives а higher profile alongside the poverty-reduction objectives in the MDGs. Although the specific SDGs are vot to he established

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