

EbA Info Brief Series #3

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Managing Land and Forests – the value of ecosystem-based adaptation

UPSCALING ECOSYSTEM-BASED ADAPTATION
(EBA) TO CLIMATE CHANGE IN THE RAINFED
REGIONS OF MAHARASHTRA, INDIA



Sustainable land management in Bhojdari village, Maharashtra.
Photo credit: TMG Research gGmbH

Challenges to land and forest management in the rainfed regions of Maharashtra

- Between 2003 and 2013, land degradation in India increased by 1.9 million ha to 13.8 million ha¹ (about 4% of India's geographical area), of which approximately 0.5 million ha was in the state of Maharashtra.
- An important driver for land-use change in India is the continued expansion of agriculture and horticulture, with an associated reduction in forest cover. Water erosion too is a major contributor to land degradation, especially in rainfed regions².
- Climate variability³ and land-use changes have been cited as key factors contributing to land degradation, and an increase in aridity across the country, including Maharashtra⁴.
- The lack of understanding about local biodiversity and bio-geographical characteristics creates challenges for sustainable land management. Some of the associated responses, such as afforestation with non-native plant species, and damage caused by invasive species, further add to these concerns⁵.

EbA as a systemic approach for linking nature, and the human dimensions of land and forest management

Ecosystems are dynamic in nature, and sensitive to human-induced climate change, as well as land-use transitions. At the same time, changes in ecosystems are directly and indirectly linked to human well-being, with the poor, and rural communities being at higher risk (Millennium Ecosystem Assessment 2005).

When landscapes and forests are protected and/or re-developed according to their respective typography, while taking account of local biodiversity, they provide humans with the basics of survival. These ecosystem services

include food, water, oxygen, livelihoods, climate regulation, and numerous other services.

What is Ecosystem based Adaptation (EbA)

The United Nations Convention on Biological Diversity (CBD) defines EbA 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” (CBD, 2009)

Active engagement with local communities, especially those located near forests, provides an opportunity for protecting and increasing local biodiverse food and livelihoods, while enhancing the ecosystem services that forests provide.

Opportunities for upscaling EbA in the land and forest management sector

- Various land restoration programmes of the state government provide opportunities for upscaling EbA. These include some ongoing watershed development projects, as well as soil and water conservation work implemented under the auspices of the Mahatma Gandhi National Rural Employment Guarantee Act⁶. Local evidence suggests these programmes are much more effective when carried out in a well-planned, ridge-to-valley approach, and with effective participatory governance.
- The Maharashtra State Biodiversity Strategy and Action Plan (MSBSAP), establishing Biodiversity Management Committees at village level and / or the active involvement of local Joint Forest management Committees, offer relevant entry points for adopting an EbA approach that links biodiversity conservation with land and forest management. If implemented in tandem with the People's Biodiversity Register⁷, the MSBSAP has additional potential to protect our rich local biodiversity, and help unleash the full benefits of its services.
- Scaling-up EbA can contribute to the synergistic achievement of India's targets under diverse global frameworks, including the [2030 Agenda on Sustainable Developments](#), the [Paris Agreement on Climate Change](#), and the UN [Conventions on Biological Diversity \(CBD\)](#) and [Desertification \(UNCCD\)](#).

ABOUT THE PROJECT

As part of the [International Climate Initiative](#) by the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU), the [Watershed Organisation Trust \(WOTR\)](#), based in Pune, India, and Berlin-based [Think Tank TMG Research](#), aim to develop a roadmap for upscaling of EbA in Maharashtra. This project entails a series of participatory multi-stakeholder dialogues at both the local and state levels, with the intention of identifying promising [EbA initiatives](#). An important aspect of these processes is to identify the enabling environment for EbA to be implemented and sustained at a broader scale. These stakeholder dialogues are expected to contribute to building the required political, and societal support for EbA at the country level.

For more information about our project, visit our websites: www.wotr.org and www.tmg-thinktank.com/iki

Supported by:



based on a decision of the German Bundestag

¹ Desertification and Land Degradation Atlas of India, ISRO, GoI, 2017

² Sarojini et al. Assessment of Land Use/Land Cover Changes on the Purna River Basin, Maharashtra, under publication

³ In this region, climate variability is typically experienced in the form of reduction in precipitation, high intensity-short duration rainfall, longer summers, increase in land surface temperature

⁴ Ramarao, M.V.S. et al. On observed aridity changes over the semiarid regions of India in a warming climate. *Theor Appl Climatol* 136, 693–702 (2019)

<https://doi.org/10.1007/s00704-018-2513-6>

⁵ Mungi, N.A., Qureshi, Q. and Jhala, Y.V., 2020. Expanding niche and degrading forests: Key to the successful global invasion of *Lantana camara* (sensu lato). *Global Ecology and Conservation*, p.e01080.

⁶ Mahatma Gandhi National Rural Employment Guarantee Act. <https://nrega.nic.in/netnrega/home.aspx>

⁷ India's Biological Diversity Act 2002