

EbA Info Brief Series #1  
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## Adapting to climate change in India – the value of an ecosystem-based response

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



Participatory governance at local level for more effective natural resource management is an important element of EbA  
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### The climate crisis in India

- The **Global Climate Risk Index** (2020) ranked India as the fifth most affected country world-wide.<sup>1</sup>
- In 2018 alone, climate-related hazards, including heat waves, storms, floods and droughts, caused more than two thousand deaths and an **economic loss of USD 37.8 billion** in purchasing power parity.<sup>1</sup>
- India is already spending about **USD 9 to 10 billion** annually to deal with extreme weather events.<sup>2</sup>
- Recorded meteorological, hydrological, and agricultural droughts in Maharashtra have **increased in intensity in recent years**.<sup>3</sup>
- One-quarter of India's drought-prone districts are located in Maharashtra and farming in many parts, especially the rainfed regions, is highly vulnerable to climate change.
- The Covid-19 pandemic is exacerbating, existing vulnerabilities of the rural poor, who are already deeply impacted by climate change. This highlights the need for building more resilient livelihoods in an ecologically sustainable, and equitable way.

### Elements of Ecosystem-based Adaption

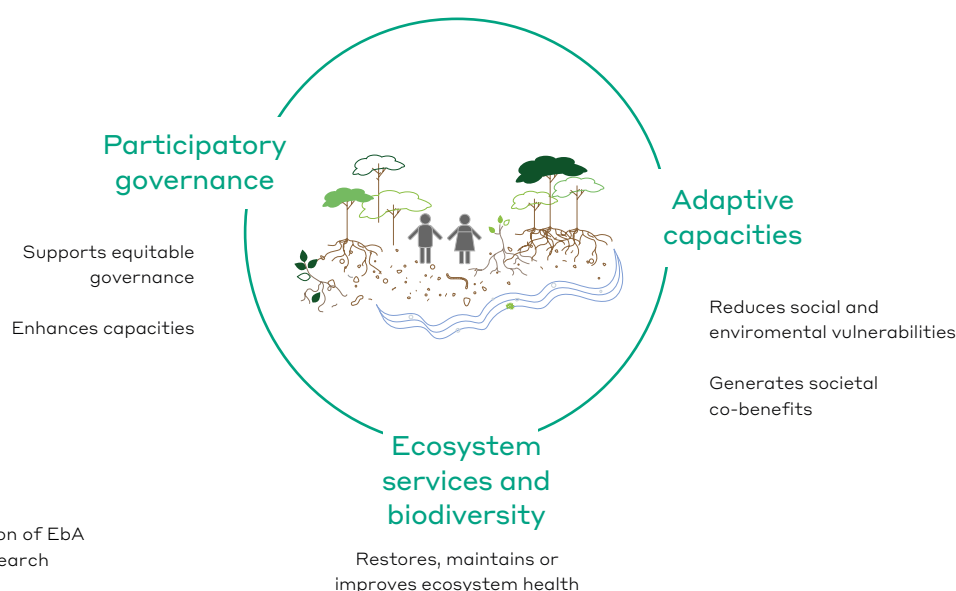


Figure 1: Conceptualisation of EbA  
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## What is EbA?

Ecosystem-based Adaptation (EbA) is 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 (United Nations Convention on Biological Diversity, 2009).

EbA can therefore be described as a human-centred and nature-based response to the impacts of climate change.

Implementing an EbA approach involves taking actions that: (1) reduce the social and environmental vulnerabilities of rural communities; (2) restore and maintain degraded ecosystems, and enhance biodiversity; and (3) strengthen participatory governance and benefits sharing (Fig 1).

Given the complex interlinkages among these different impacts of climate change, one-dimensional actions, such as a focus on improving crop productivity, or restoring degraded lands, do not constitute a holistic adaptation response.

Watershed development (WSD), which has been practiced in the rainfed regions of India for decades, is an integrated approach that seeks to simultaneously address environmental, as well as socio-economic development challenges. When implemented in a holistic manner, WSD can be viewed as an example of a human-centred, and nature-based response to climate change – the essence of EbA.

## EbA in action

WOTR's comprehensive approach to WSD<sup>4</sup> promotes soil and water conservation with afforestation, "from 'ridge-to-valley.'" This EbA approach is implemented both at the farm and landscape level, in combination with other climate-adaptive measures such as sustainable agriculture, locale-specific crop and weather advisories, water-use management, and biodiversity conservation.

If practiced more widely, such a response can help the state of Maharashtra, and India as a whole, to make progress towards the Sustainable Development Goals (SDG India Index) contribute towards state action plans on climate change, conserve biodiversity, and manage land degradation.

WOTR's community-based, holistic approach to watershed development. © WOTR



## Key differences between an EbA approach and integrated watershed development

### INTEGRATED WATERSHED DEVELOPMENT, INCLUDING ALLIED DEVELOPMENT ACTIVITIES

Soil and water conservation (area treatment, drainage line treatment), from ridge to valley with afforestation.

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Water harvesting and increase in ground water levels; integrated watershed development (WSD) includes water management with farm ponds and micro-irrigation and water budgets.

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The main focus of WSD is to increase agricultural production, and secure agri-related livelihoods through attention to soil conservation and water availability.

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WSD actively engages local communities in project management. Some have Joint Forest Management Committees (JFMC).

### AN EBA APPROACH TO WATERSHED DEVELOPMENT

Soil and water conservation from ridge to valley, according to the respective ecosystem; attention to upstream-downstream needs of humans, flora and fauna with promotion of local bio-diversity and maintaining a People's Biodiversity Register.

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Water management through community driven water stewardship that includes: water harvesting; demand-side management through annual water budgets; crop choices appropriate to the eco-system; water conservation technologies; and water sharing. Plans prioritise water for domestic use, livelihoods, and ecology /environmental flows.

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In addition to enhancing agricultural production and agri-related livelihoods, an EbA approach seeks to achieve broader benefits through a focus on: crop diversity and rotation; local agro-biodiversity; a package of practices for climate-resilient agriculture; nature-based solutions; and soil health.

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An EbA approach involves much more active and inclusive community-based management of their watershed by Gram Panchayat (village Council) with respective committees, the JFMC, the Village Development Committee and Biodiversity Management Committee, amongst others.

# A Roadmap for upscaling EbA in Maharashtra

Along with a number of national and state thematic experts, WOTR and TMG are developing a roadmap for **upscaling EbA in the state of Maharashtra**. The proposed roadmap builds on WOTR's experience in managing holistic WSD programmes, as well as Maharashtra's track record in implementing successful natural resource management programmes to regenerate degraded

lands. These include the Drought Prone Area Programme (1995-2006), Integrated Watershed Management Programme (since 2009 and later merged into PMKSY),<sup>5</sup> Indo-German Watershed Development Programme) 1992-2015. These and the many land, water and agriculture related programmes led themselves to make the move towards EbA.

## Elements of the proposed roadmap include:

- Mainstreaming EbA into state-government policies and programmes.
- Identifying good practices.
- Facilitating collaboration through multi-stakeholder engagements.
- Implementing model EbA projects.
- Building capacities of stakeholders at all levels.
- Communicating impacts and learnings.

Once completed, it is expected that the Roadmap for EbA will help Maharashtra scale-up climate change adaptation measures, while meeting the goals of environmental conservation, and socio-economic development. This is a win-win scenario that will enhance synergies in achieving 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](http://www.wotr.org) and [www.tmg-thinktank.com/iki](http://www.tmg-thinktank.com/iki)

Supported by:



based on a decision of the German Bundestag

<sup>1</sup> Eckstein et al. (2019). Global Climate Risk Index 2020. Germanwatch e.V

<sup>2</sup> Mohan, V. (2017). Climate change costs India \$10 billion every year: Government. The Economic Times

<sup>3</sup> Sharma et al (2020). Increasing agricultural risk to hydro-climatic extremes in India. Environmental Research Letters

<sup>4</sup> Gray, E., Srinidhi, A. (2013). "Watershed Development in India: Economic valuation and adaptation considerations". WRI.

<sup>5</sup> PMKSY press release accessed on 21st September, 2020 - <https://pib.gov.in/PressReleasePage.aspx?PRID=1602380>