E-Learning Course Syllabus

Ecosystem-based Adaptation

Working with nature to adapt to a changing climate

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On behalf of:

Federal Ministry
for the Environment, Nature Conservation,
Nuclear Safety and Consumer Protection

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Course Overview

Ecosystem-based Adaptation (EbA; also known as nature-based solutions for climate change adaptation) is increasingly gaining policy support and being implemented by diverse actors around the world. 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."[1] It involves the conservation, sustainable management, and restoration of ecosystems, thereby enhancing the resilience of ecosystems and communities to climate-related risks. EbA has broad applications across diverse sectors in fostering sustainable development and can help achieve multiple benefits for nature and human well-being.

While EbA guidebooks, case studies, and principles have contributed to standardising the EbA approach, there is a clear need for further training opportunities to strengthen EbA implementation across diverse sectors while ensuring that rights-based approaches, gender equity, and better outcomes for biodiversity and ecosystems are achieved.

This EbA E-Learning course, developed for a global audience, will equip learners with transferable and replicable skills in designing and implementing EbA initiatives by offering targeted training on key principles, risk assessments, monitoring, and governance. A key aim of the course is to increase EbA knowledge outside of the environmental conservation community, helping participants integrate EbA solutions into other sectors—including infrastructure, water, agriculture, public works, and social development—to better link research and science with practice.

The EbA E-Learning course is the product of a collaboration between Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the International Union for Conservation of Nature (IUCN), and the International Institute for Sustainable Development (IISD). It builds on a decade of research, experience, and strong partnerships in implementing EbA. It is hosted on edX in partnership with the SDG Academy.

The E-Learning course has been developed with financial support from The Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), and Global Affairs Canada as part of the Nature for Climate Adaptation Initiative (NCAI) funded by the Government of Canada.

[1] Secretariat of the Convention on Biological Diversity (CBD).(2009). *Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change.* Technical Series No. 41. https://www.cbd.int/doc/publications/cbd-ts-41-en.pdf

Learning Objectives

By the end of the course, participants will:

- Understand the role of EbA within an overall climate change adaptation strategy.
- Be able to plan EbA activities in a logical order and apply EbA best practices.
- Consider and integrate social aspects, such as gender, livelihoods, and local and Indigenous knowledge, into EbA projects.
- Understand how to mainstream EbA across sectors.

Target Audience

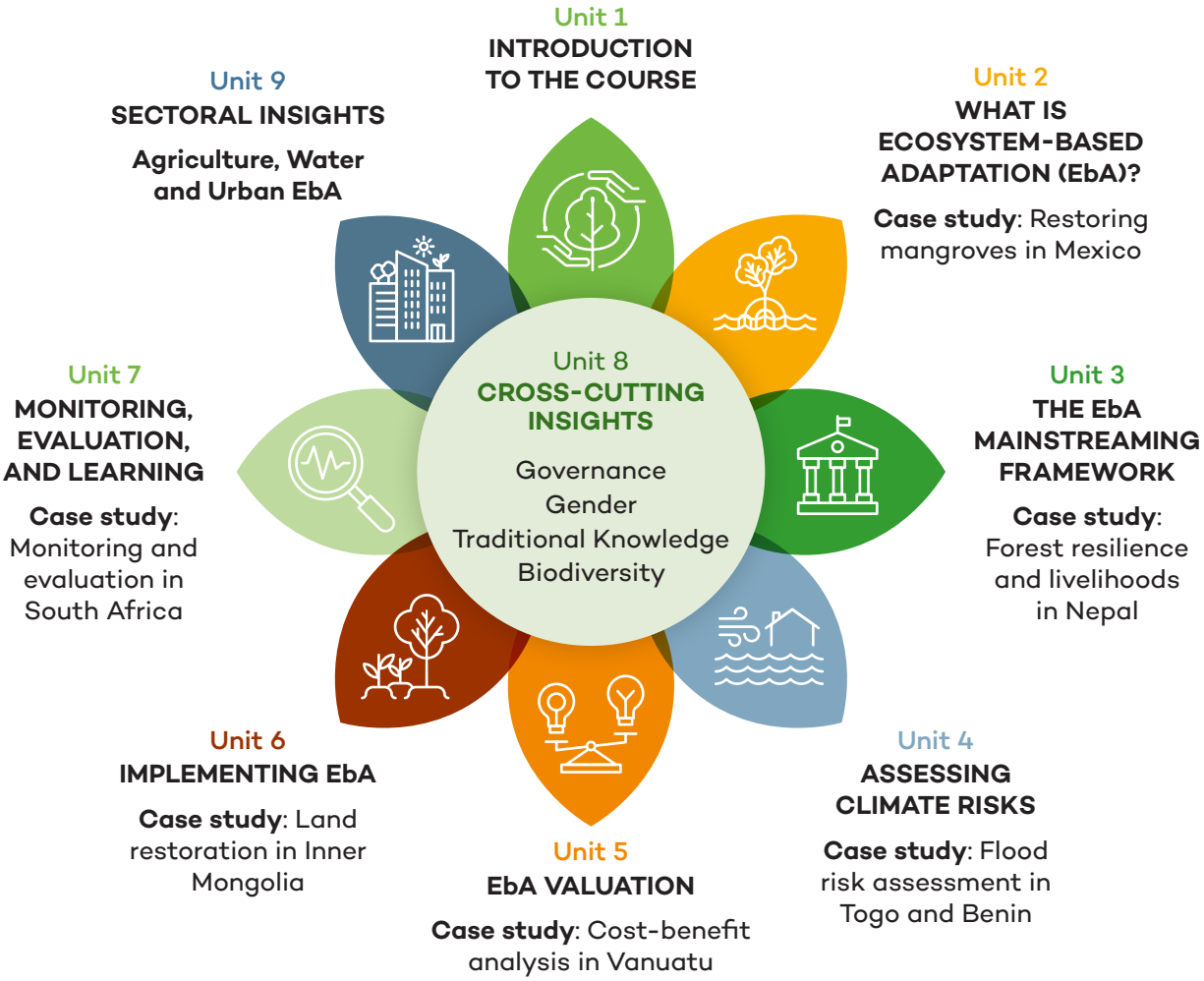
The course targets decision-makers in public and private organisations; professionals who may not be familiar with EbA but who work in a related field (development, infrastructure, agriculture, integrated water resources management); civil society organisations; actors at community, national, and global scales; early-career EbA professionals, current students, and university faculty; and EbA practitioners from both the Global North and Global South.

As the course provides a certain level of technical detail, interest in in-depth learning about planning and implementing EbA measures is a key requirement.

Course Format

This self-paced E-Learning course consists of nine units comprised of video lectures, case studies, quizzes, and handouts. The course takes approximately 16-18 hours to complete, at the convenience of the learner. Units 2–7 each has a quiz to assess the achievement of the respective unit's learning objectives. Handouts that summarise the unit's content and contain additional resources on the topics discussed are also provided with each unit. It should be noted that the material from the handouts is meant for further exploration and will not be on the quiz at the end of each unit.

The course is currently offered in English and will be available in French in Fall 2022.



UNIT 1 – INTRODUCTION TO THE COURSE

The first unit provides a brief introduction to the course, including why the material is relevant to course participants and their work.

UNIT 2 – WHAT IS ECOSYSTEM-BASED ADAPTATION (EbA)?

The second unit begins with an overview of common terms and concepts used in the EbA realm, such as ecosystem services, climate change, and nature-based solutions. Participants are then introduced to the concept of EbA and its basic elements. To distinguish EbA from similar approaches and enhance participants' understanding, EbA is placed in the context of sustainable development. Unit 2 concludes with a case study on the National Institute of Ecology and Climate Change and the Mexican Institute of Water Technology's joint project on climate adaptation in coastal wetlands in the Gulf of Mexico.

UNIT 3 – THE EbA MAINSTREAMING FRAMEWORK

The third unit introduces participants to the concept of mainstreaming and presents a framework for developing and mainstreaming an EbA project. Participants are guided through the conceptualisation process of an EbA project and learn about the necessary components to include. Five cross-cutting topics of EbA (climate justice, governance, gender, Traditional Knowledge [TK] and Indigenous and local knowledge [ILK], and communications) are highlighted, and some of these topics are further explored in Unit 8. The unit ends with a case study on the Hariyo Ban Project, focusing on forest resilience and livelihoods in Nepal.

UNIT 4 – ASSESSING CLIMATE RISKS

The fourth unit guides participants through the process of preparing a climate risk assessment, including the development of a climate change impact chain, identification of risk components, and determination of suitable indicators. It then explains how climate risk assessments can help to identify potential EbA actions. Unit 4 ends with a case study on flood risk assessment and EbA in the Lower Mono River Basin in Togo and Benin.

UNIT 5 – EbA VALUATION

The fifth unit focuses on the valuation process of EbA. It discusses three elements of value regarding EbA: benefits, costs, and impacts. The unit also explains how valuation fits into the EbA mainstreaming framework and highlights its ability to prioritise EbA actions. The unit concludes with a case study on cost–benefit analysis conducted by Griffith University to prioritise proposed EbA actions on Tanna Island, Vanuatu.

UNIT 6 – IMPLEMENTING EbA

The sixth unit translates theory to practice and focuses on the implementation of EbA. It begins with a walk-through of the stakeholder analysis process, including identifying key actors and learning how to categorise them based on influence and interest. Next, participants are introduced to the importance of aligning EbA projects with relevant policies. Examples of EbA from different ecosystems and different sectors are then highlighted, along with funding mechanisms for EbA actions. The unit concludes with a case study on land restoration by design in Inner Mongolia, implemented by The Nature Conservancy.

UNIT 7 – MONITORING, EVALUATION, AND LEARNING

The seventh unit begins with an introduction to monitoring and evaluation (M&E) and its importance in EbA projects. Participants are then guided through a four-step process on how to design and implement M&E in EbA projects. The contribution of M&E to the sustainability of EbA actions is then discussed, as well as the potential to scale up EbA actions. A case study from Conservation South Africa on M&E practices is presented.

UNIT 8 – CROSS-CUTTING INSIGHTS

To complement the standard units of the online course, participants progress through insight units, which offer further information on specific topics. Four insight units on the cross-cutting themes of governance, gender, TK and ILK, and biodiversity are mandatory for course

completion. These four required units provide a deep dive into selected cross-cutting topics, which are touched on in Unit 3 but require a deeper understanding.

UNIT 9 – SECTORAL INSIGHTS

Participants also have the option to select sector-specific insight units from any combination of the following topics: EbA and agriculture; EbA and water; and urban EbA. These units are not mandatory for course completion.

Course Schedule

Unit Number	Topic
Unit 1	**Introduction to the Course**
Unit 2	**What is Ecosystem-based Adaptation (EbA)?**
2.1	Common terms and concepts
2.2	What is EbA?
2.3	Elements of EbA
2.4	Situating EbA in sustainable development
2.5	Case Study: Restoring mangroves, Mexico
Quiz	**Unit 2 Quiz**
Unit 3	**The EbA Mainstreaming Framework**
Part 1: Mainstreaming EbA	
3.1	Mainstreaming an EbA project
3.2	Conceptualising an EbA project
Part 2: Cross-cutting topics of EbA	
3.3	Climate justice
3.4	Governance
3.5	Gender
3.6	Traditional Knowledge (TK) and Indigenous and local knowledge (ILK)
3.7	Communications
3.8	Case Study: Forest resilience and livelihoods, Nepal
Quiz	**Unit 3 Quiz**

Unit Number	Topic
Unit 4	**Assessing Climate Risks**
4.1	Assessing climate risks
4.2	Climate change impact chains
4.3	Identifying and developing indicators
4.4	Identifying EbA options
4.5	Case Study: Flood risk assessment, Togo and Benin
Quiz	**Unit 4 Quiz**
Unit 5	**EbA Valuation**
5.1	What is EbA valuation?
5.2	Why is EbA valuation important?
5.3	Valuation in the EbA Mainstreaming Framework
5.4	Prioritising EbA options
5.5	Case Study: Cost-benefit analysis, Vanuatu
Quiz	**Unit 5 Quiz**
Unit 6	**From Theory to Practice: Implementing EbA**
6.1	Stakeholder analysis
6.2	Policy context review
6.3	EbA in action: Examples of EbA
6.4	Funding for EbA
6.5	Case Study: Land restoration, Inner Mongolia
Quiz	**Unit 6 Quiz**
Unit 7	**Tracking the Progress of EbA Implementation: Monitoring, Evaluation, and Learning**
7.1	What is monitoring and evaluation?
7.2	Developing a results framework
7.3	Identifying indicators, baselines, and targets
7.4	Operationalising monitoring and evaluation
7.5	Using and communicating results
7.6	Sustainability and scaling up EbA

Unit Number	Topic
7.7	Case Study: Monitoring and evaluation, South Africa
Quiz	**Unit 7 Quiz**
Unit 8	**Cross-cutting Insights**
8.1	EbA and Governance
8.2	EbA and Gender
8.3	EbA and Traditional Knowledge (TK) and Indigenous and local knowledge (ILK)
8.4	EbA and Biodiversity
Unit 9	**Sectoral Insights**
9.1	EbA and Agriculture
9.2	EbA and Water
9.3	Urban EbA