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The Africa Climate Resilient Investment Facility

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Online Course

The Africa Climate Resilient Investment Facility

Call for applications

Announcement in Brief

Course Type : Online Course

Programme Area : Climate Resilient Investment in Sub-Saharan Africa:
Training package 1:
AFRI-RES, climate resilience & climate modelling

Date : 25th April to 27th May 2022

Duration : 4 Weeks

Language : English

Application Deadline : 19th April 2022

The United Nations Economic Commission for Africa, the African Union Commission, the African Development Bank and its Partners strongly encourage and support the participation of suitably qualified female in its capacity development and training programme.

Programme Rationale

Africa has huge investment deficits to close in critical sectors, including energy, agriculture, water, transport, cities, and ecosystems. These sectors are central Africa's economic development but are also very sensitive climate change impacts, which are already costing African countries on average 5 percent of GDP per year. Intra-seasonal and longer timescale variations of rainfall, temperature trends and climate extremes, together with the growing demand for food and energy, put additional pressures on Africa's production systems and natural resources management.
The Paris Agreement, based on voluntary national commitments to reduce emissions, aims at keeping global temperature increase below 2 degrees Celsius above pre-industrial level and to pursue efforts to limit the temperature increase to 1.5 °C by reducing global emissions by 45 percent by 2030, reaching carbon neutrality by 2050. While this objective is possible with stringent measures by all countries, global commitments, especially by many developed countries, at COP26 in the Glasgow Climate Pact, fall far short of the emission reductions needed to meet the goal of the Paris Agreement. It is therefore very important that the substantial investments needed to close Africa's development gaps are made in ways that build resilience to climate change.

The Africa Climate Resilient Investment (AFRI-RES) is a joint initiative of the Economic Commission for Africa (ECA), the World Bank, African Union Commission (AUC), and the African Development Bank (AfDB) and with initial funding support from the Nordic Development Fund (NDF). AFRI-RES aims to strengthen the capacity of African institutions (including national governments, river basin organizations, regional economic communities, power pools, and others) and the private sector to plan, design, and implement investments in selected sectors so as to increase their resilience to climate variability and change to ensure delivery of services and return on investment in the present and future climate. AFRI-RES is implemented under four key components, namely:

- Project-level technical assistance
- Outreach, dissemination and training
- Guidelines, standards, and good practice notes for climate-resilient infrastructure investment
- Climate knowledge and data portal.

A first of its kind climate resilience training programme for Africa.

The AFRI-RES Capacity Strengthening Programme for the Integration of Climate Resilience in Investments in Critical Sectors in Africa, under the component on outreach, dissemination and training, is an all-inclusive legacy training programme on integration of climate resilience in investments in key sectors. It aims at enhancing the understanding of public and private sector decision-makers on the risks of climate variability and change on the performance of infrastructure investments. The capacity strengthening programme will be supported by the real-life experiences accumulated through the activities carried out under the project-level component of AFRI-RES.

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Furthermore, the programme will rollout trainings on the use and application of some of the products and tools developed under other components of AFRI-RES, including the resilience attributes, the resilience booster platform, and the climate resilience guidelines (including the climate resilience guidelines for hydropower developed in collaboration with the International Hydropower Association). The training comes at an appropriate moment as the continent rolls out huge investments in key climate sensitive sectors while at the same time having to focus more on adaptation to build resilience and also contribute to global mitigation actions to meet the goals of the Paris Agreement.

This training program is composed of series of training packages as follow:

- Training package 1: Introduction to AFRI-RES, Climate resilience & climate modelling
- Training package 2: Transport, water, energy, agriculture, ecosystems and cities
- Training package 3: Finance and communication

Details of training packages is attached at annex I.

The current announcement is for Training Package 1 (Introduction to AFRI-RES, climate resilience and climate modeling). It is composed of two modules as follow: The first module on introduction and climate resilient overall objective is to introduces the nature of uncertainty; the nature of climate change and variability; and decision making under uncertainty, climate resilient investment framework used as the foundation of this course; the second module introduces to the global climate system; uncertainty in climate projections; and processing and selecting GCM outputs for impact modeling.

Specific Objectives

Module 1: Introduction to AFRI-RES and climate resilience

Introduction

- *Lecture 1*: Overview: The nature of uncertainty from probabilistic to Deep Uncertainty

The Nature of Climate Change and Variability

- *Lecture 2*: Introduction to risk, resilience, and complex systems
- *Lecture 3:* Resilience in the face of climate variability and change
- *Lecture 4:* Risk, Resilience and Robustness in Decision making in Planning and Design
- *Lecture 5:* Understanding and use of AFRI-RES Resilience Attributes and the Resilience Booster Tool
- *Lecture 6:* Decision-making in the context of climate change uncertainty

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Module 2: Climate modelling

Introduction

- *Lecture 1*: Overview: The global climate system: a review

Uncertainty in Climate Projections

- *Lecture 2*: The impact of increasing greenhouse gas concentrations on the climate system
- *Lecture 3:* How do we know the future? A primer on climate models and downscaling

From GCMs to Impact Models

- *Lecture 4*: Climate data and information sources – a review
- *Lecture 5:* Navigating climate risk - Dealing with (information) uncertainty
- *Lecture 6:* Horses for Courses -- Choosing the Appropriate Climate Projection for Impact Modeling

Skills to be Imparted

At the end of the course, participants will :

- Understand what climate change and what it is not
- Understand the AFRI-RES programme and what climate resilience entails
- Understand the basic principles of decision-making under uncertainty
- Understand how tools apply to climate resilient investment
- Understand the global climate system
- Understand General Circulation Models and their uncertainty
- Understand emissions and climate scenarios and their uncertainty

Pedagogical Approach & Mode of Delivery

The course will be delivered through the IDEP e-learning platform for one month including one week for the final evaluation. The course will be moderated asynchronously on a weekly basis and participants are required to participate in the weekly on-line discussions. The lessons are designed in a way that learners are also able to self-assess their understanding through practical exercises which will be in the form of case studies that will support active learning. Additional resources such as bibliographies, web links and optional readings are provided for participants who wish to deepen their knowledge of the course topic.

The course will be delivered in English. The course is structured to run over a period of four weeks. The following fifth week will be dedicated to the final evaluation. The pedagogical team will include a Course Director, a team of moderators and Resource persons with first-hand knowledge of the historical and contemporary issues on digitalisation vs agricultural production in Africa.

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They also come with strong comparative insights from other regions of the world. In line with the IDEP pedagogical philosophy, the presentation of the course modules will combine a knowledge-building component with experience-sharing among participants.

Certificate of Completion

A Certificate of Completion will be issued by IDEP & TCND to all participants who successfully complete the course-related self-assessments presented for each module. The credits gained upon successful completion will be recognised by participating universities, particularly the University of Colorado.

Target Audience

The target participants are as follows:

Policy makers, legislators, media professionals, civil society, and technical experts interested in understanding climate change, climate resilience and decision making under uncertain climate futures.

Participants must have a Bachelor's degree in their respective fields and show experience or requirement to work in the area of climate change and development at the legislative, policy, media, community or other relevant spheres.

Acceptance to the Course

Until the registration deadline, participants are accepted to the course on a rolling basis and subject to availability of slots. Please refer to the section above to see priority target groups. Applications must be completed exclusively on IDEP online application platform at https://idep-applications.uneca.org/

Technical Requirements

Access to internet is an essential condition for participation. The following specifications, as a minimum in terms of hardware and software, are required to take this e-Learning course, please consult your Network Administrator or Systems person to ensure that you have the following:

- Platform: Windows 95, 98, 2000, NT, ME, XP or superior; Mac OS 9 or Mac OS X; Linux
- Hardware: 64 MB of RAM, 1 GB of free disk space
- Software:
  - Adobe Acrobat Reader
  - Adobe Flash Player
  - Microsoft Ofifce (Windows or Mac) or Open Ofifce
  - Browser: Google chrome, Firefox 36 or higher or Internet Explorer 7 or higher

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- Modem: 56 K
- Note that JavaScript, Cookies and Pop-ups must be enabled

Importants Dates

- Deadline for applications and nominations: 19th April 2022

- Course Period: 25th April to 27th May 2022

Contact Information

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Annex 1. Proposed List of Lectures for AFRI-RES Training Program on Climate Resilient Investment

MODULE/UNIT	N°	LECTURE TITLE/UNECA LEAD
TRAINING PACKAGE 1		
Introduction		
Introduction	1	The AFRI-RES program and contemporary context
	2	General concepts and terms
Climate Resilience		
Introduction	1	Overview: The nature of uncertainty from probabilistic to Deep Uncertainty
1. The Nature of Climate Change and Variability	2	The nature of uncertainty in projecting Future Climate, and implications for national development planning
	3	Natural Climate Variability and Non Stationarity
2. Decision Making under Uncertainty	4	Risk, Resilience and Robustness in Decision making in Planning and Design
	5	Understanding and use of AFRI-RES Resilience Attributes and the Resilience Booster Tool
	6	Overview and Case studies of Designing for Climate Resilience
Climate Modeling		
Introduction	1	Overview: The Global Climate System and the impact of Green House Gases
1. Uncertainty in Climate Projections	2	Uncertainty in Future GHG Emissions: Energy & Climate Policy, Population, Economic Growth, and Technological Change
	3	Uncertainty in Modelling the Future Climate: From Global to Local projections
2. From GCMs to Impact Models	4	Survey of Downscaling GCM projections
	5	Downscaled Products for Africa: CMIP5 and CMIP6
	6	Review: Horses for Courses -- Choosing the Appropriate Climate Projection for Impact Modeling
TRAINING PACKAGE 2		
Transport		
Introduction	1	Overview: The Changing Impact of Climate in Transportation Systems from Baseline Perspectives to Future Challenges
1. Impact of Climate	2	Understanding the impacts of climate on the design and operation of surface, air, and coastal transportation systems
	3	The impacts of climate on the operational performance and lifespan degradation of transportation systems
	4	Introduction to modeling climate change impacts on the performance and lifespan of transportation system components
2. Incorporating Resilience and Adaptation in Design	5	Analysis tools for economic and financial assessments of transportation systems under climate change
	6	Maintenance and rehabilitation-based approaches to climate

MODULE/UNIT	Nº	LECTURE TITLE/UNECA LEAD
		resilience
	7	Design-based approaches to climate resilience from initial design to life-cycle analysis
3. Synthesis	8	Review: Impacts of Climate in Transportation Systems through Analysis and Modeling
Water		
Introduction	1	Overview: The Changing Impact of Climate in on natural and managed water system
1. Impact of Climate	2	Understanding and Modeling the impacts of climate on natural hydrologic systems
	3	Understanding and modeling the impacts of climate on water demand
	4	Modeling the Supply/Demand Balance of the manage system
2. Incorporating Resilience and Adaptation in Design	5	Tools for Modeling climate Change and Variablity in the Water System
	6	Approaches to incorporating climate resilience into the planning and management of water resource systems
	7	Design-based approaches to climate resilience for water projects
3. Synthesis	8	Review: Impacts of Climate in Water Systems through Analysis and Modeling
Energy		
Introduction	1	Overview: The Impact of Climate on the Energy System
1. Impact of Climate	2	Understanding and Modeling the impacts of climate on energy systems
	3	Understanding and modeling the impacts of climate change on hydropower
	4	Understanding and modeling the impacts of climate on energy demand
2. Incorporating Resilience and Adaptation in Design	5	Tools for modeling climate change and variability in the energy system
	6	Introduction to the IHA and World Bank Hydropower Guidelines
	7	Design-based approaches to climate resilience for energy projects
3. Synthesis	8	Review: Impacts of Climate on Energy Systems through Analysis and Modeling
Agriculture		
Introduction	1	Overview: The Impact of Climate on the Agricultural System
1. Impact of Climate	2	Understanding and modeling the impacts of climate on rainfed agricultural systems
	3	Understanding and modeling the impacts of climate on irrigated agricultural systems
	4	Understanding and Modeling the impacts of climate on livestock and fresh aquaculture
2. Incorporating Resilience and Adaptation in Design	5	Tools for Modeling climate Change and Variability on Agricultural Systems
	6	Approaches to Climate Smart Agriculture
	7	Design-based approaches to climate resilience for agricultural systems

MODULE/UNIT	Nº	LECTURE TITLE/UNECA LEAD
3. Synthesis	8	Review: Impacts of Climate on Agricultural Systems through Analysis and Modeling
Ecosystems		
Introduction	1	Overview: The Impact of Climate on the Ecosystems
1. Impact of Climate	2	Understanding and modeling the impacts of climate on terrestrial and wetland ecosystems
	3	Understanding and modeling the impacts of climate on rivers, lakes, and coastal ecosystems
	4	Understanding and modeling the impacts of climate on ecosystem Services
2. Incorporating Resilience and Adaptation in Design	5	Tools for assessments of ecosystems status under climate change
	6	Tools for economic and financial assessments of ecosystems programs, policies and projects under climate change
	7	Design-based approaches to climate resilience ecosystem protection & restoration projects
3. Synthesis	8	Review: Impacts of Climate in EcoSystems through Analysis and Modeling
Cities		
Introduction	1	Overview: The Impact of Climate on the Urban Systems Ecosystems
1. Impact of Climate	2	Understanding and Modeling the impacts of Temperature Changes in Urban Systems
	3	Understanding and Modeling the impacts of Precipitation Changes in Urban Systems
	4	Understanding and Modeling the impacts of climate changes on the linked Urban Systems
2. Incorporating Resilience and Adaptation in Design	5	Tools for economic and financial assessments of Public and Private Urban systems under climate change
	6	Maintenance and rehabilitation-based approaches to climate resilience
	7	Design-based approaches to climate resilience from initial design to life-cycle analysis
3. Synthesis	8	Review: Impacts of Climate in Urban Systems through Analysis and Modeling
TRAINING PACKAGE 3		
Finance		
1. Financing Risky Investment in the Public and Private Sectors	1	Climate Finance Focused on Adaptation and Climate Resilience
	2	Public Sector and Development Partners
	3	Private Sector, Public-Private Partnerships, and Alternative Sources
Communication		
1. Communication of Risk to Decision Maker	1	A Primer on Risk and the element of Climate Risk
	2	Understanding Risk Aversion and how it impacts public policy and finance relate to climate
	3	Risk from Probabilities to Actions