

UNU-ISP Capacity Development Activities

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Capacity Development

- Objective:
 - Sustainable Development under global change
- Goal
 - Develop local capacity and expertise to address change
- Audience
 - Developers of methodology, Implementors and Policy makers
- Need based learning
- Strategies to upscale efficiently

Sustainability Challenge

- Compartmentalized knowledge generation is efficient but also lead to crisis situations
- Gains in one sector can affects other sectors adversely
 - Plastics--> waste
 - Low cost Energy for development --> Climate Change
- We need a holistic approach to problem solving by integrating knowledge and methods from different disciplines.
 - *Sustainability Science*
- Sustainable Science seeks a complimentary truth 'science' to support 'Sustainability' of earth system
- It requires not only 'truth' but also use of knowledge as well as consequence of knowledge application in a holistic sense
- *Sustainability requires integration*



Research to Implementation: Capacity Development needs

- Enabling flow from **research** to **implementation** in developing countries
- Involvement of a range of disciplines
- Target groups:
 - **Higher education: Customizing global knowledge (establishing networks)**
 - Professionals: Rapidly train a large number
 - Policy makers: Key messages

Role of Higher Education in Adapting to Climate Change 2009 June

- **Multidisciplinary approach**
- **Holistic View, Towards Sustainability**
- **25 Universities in AP**

Australian National University
Bangladesh University of Engineering and Technology
Tsinghua University
Chinese Academy of Forestry
Indian Institute of Technology Delhi
Indian Institute of Technology Kharagpur
Gadjah Mada University (UGM)
Keio University
Kyoto University
The University of Tokyo
Ibaraki University
Waseda University
Ritsumeikan Asia Pacific University

Integrated Research System for Sustainability Science
National University of Malaysia (UKM)
Tribhuvan University
University of Engineering and Technology Lahore (UET)
University of the Philippines
Yeungnam University
Seoul National University
Nanyang Technological University
University of Peradeniya
Asian Institute of Technology
Chulalongkorn University
Viet Nam National University



Interactions between climate change, biodiversity and desertification

Impact of climate change on biodiversity

Climate change could alter distribution of species and their habitats and lead to migration of plants and animals if there are corridors

Role of biodiversity in climate change mitigation and adaptation

Forest and biodiversity sequester carbon and affect local climate
Biodiversity ensures ecosystem resilience to climate change

Impact of Climate change on desertification

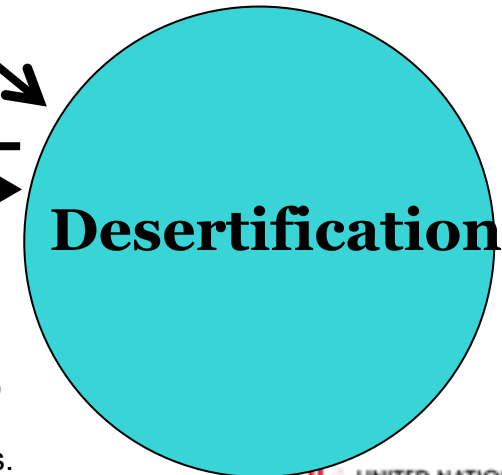
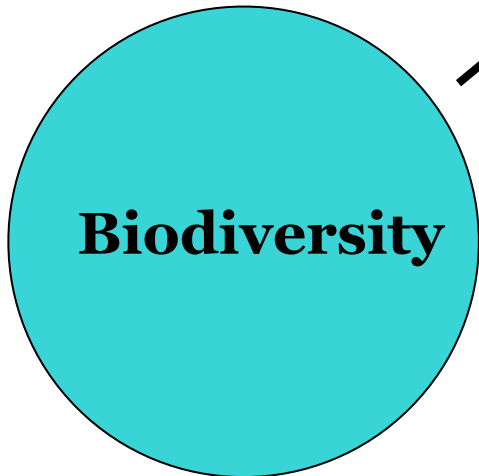
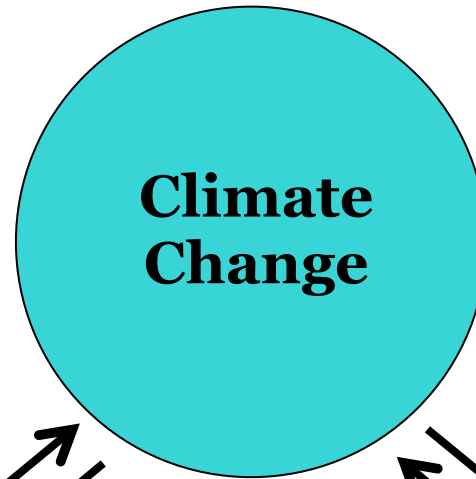
Rising temperature increases evapotranspiration and causes drought

Decreasing precipitation leads to drought

Impact of desertification on climate

Desertification causes loss of vegetation and so carbon sink into carbon source

Dust storms increase aerosols with cooling effect



UNCECAR

**Climate and Ecosystems
Change Adaptation Research**

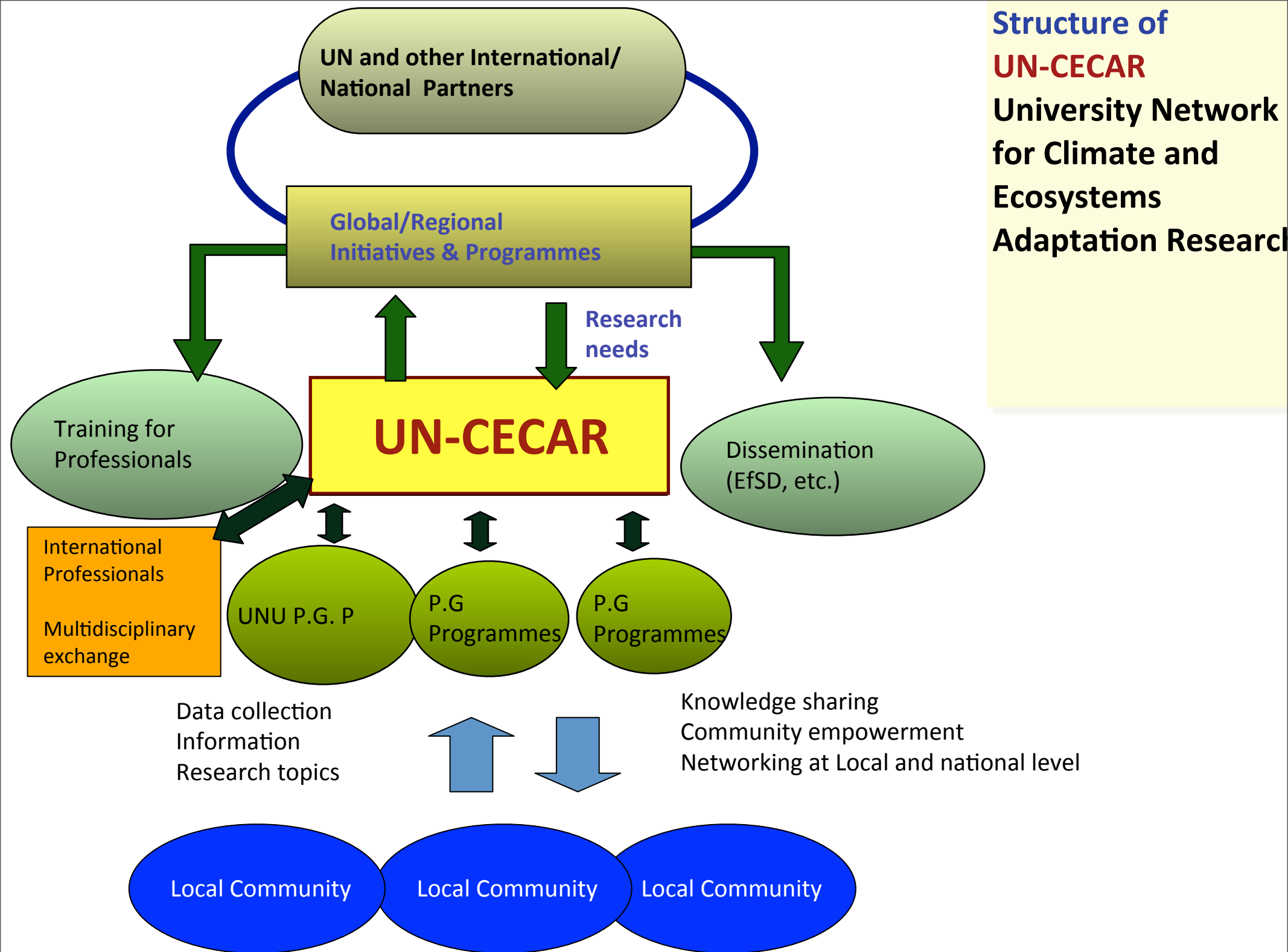
Impact of desertification on biodiversity

Desertification degrades habitats for biodiversity and leads to loss of biodiversity

Role of biodiversity in combating desertification

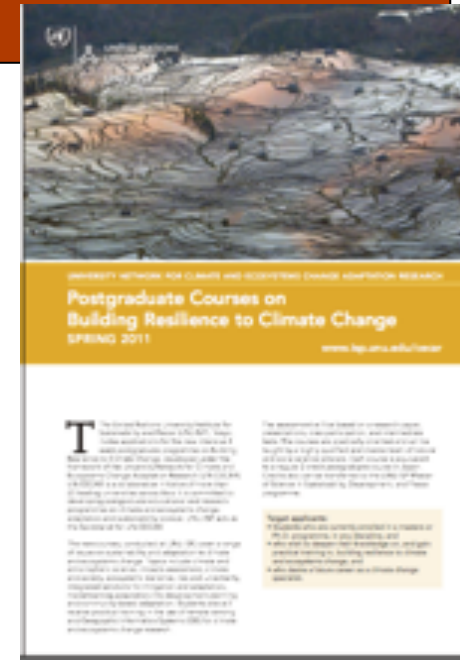
Loss of drought-resistant biodiversity reduces resilience of ecosystem to droughts.
Vegetation protects soil from erosion and stabilizes slopes from landslides.

**Structure of
UN-CECAR
University Network
for Climate and
Ecosystems
Adaptation Research**



Actions

- Joint actions by UN-CECAR
 - Joint Research Project Development (2 themes)
 - Rapid Onset Changes; Floods, Cyclones
 - Slow Onset Changes; Land degradation, Bio-diversity loss
 - Curriculum Development
 - **BUILDING RESILIENCE TO CLIMATE CHANGE**
 - Science and impacts
 - Vulnerabilities and adaptation
 - **RENEWABLE ENERGY**
 - Technology and Policy
 - Needs Assessment (4 countries)
 - Training Programs :
Downscaling: Approaches and Applications



Needs Based Training

- Growing need for customized training
- Modular design helps to make different development paths.
- Example: BRCC curriculum development
 - **Science of Climate and Ecosystems Change;**
 - **Adaptation and Mitigation;**
 - **Impacts and Vulnerabilities**
 - Each thematic area has 3 categorization
 - Core
 - Specialized
 - Cross Cutting
 - 18 outlines course --> selected modules to develop 2 overview courses



UN-CECAR Postgraduate Courses: Building Resilience to Climate Change (1 & II)



- Science, Impacts and Vulnerability - I (nat. science)
- Approaches to adaptation - II (social science)



- Taught by partner university faculty and international experts.
- Students nominated by member uni, credits are transferred.
- Open to all, no tuition fee for member inst. often local support provided

- Held in 2010, 2011 and 2012
- Average class size 33

Scaling up efficiently

Challenges:

- Reaching a large audience but maintain interaction
- Reducing costs in the face of global economic slowdown

Building resilience to climate change (old courses) will be offered as online/conference courses with partner institutes.

DVD of presentations and lectures are being prepared for 35 lectures

Renewable energy (new courses) are planned to be offered as interactive classes in February-March 2013.

August 22-28 workshop is organized in Indonesia to finalize content.

University Network for Climate and Ecosystems Change Adaptation Research

Postgraduate Courses on Renewable Energy

SPRING 2013

<http://cecar.unu.edu>



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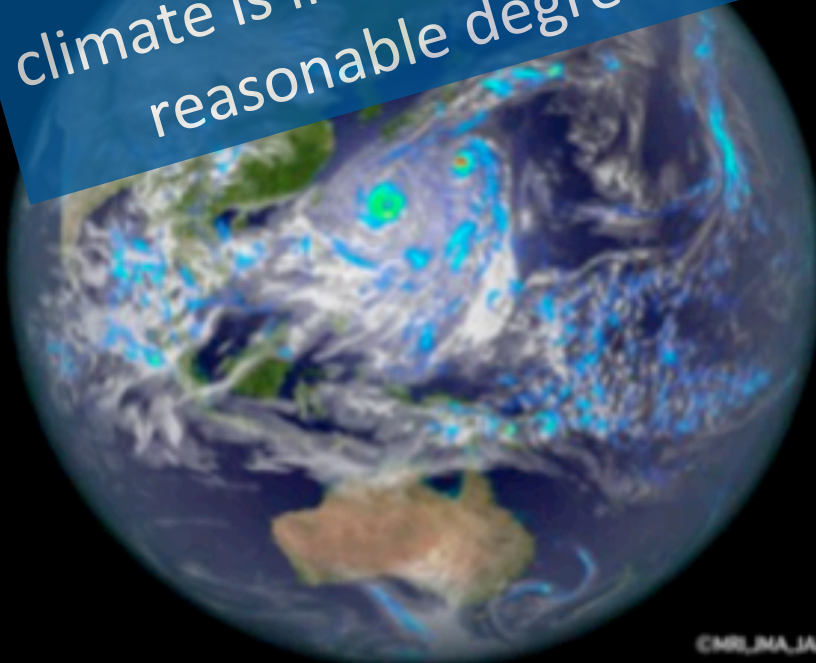
Institute for Environment and Peace



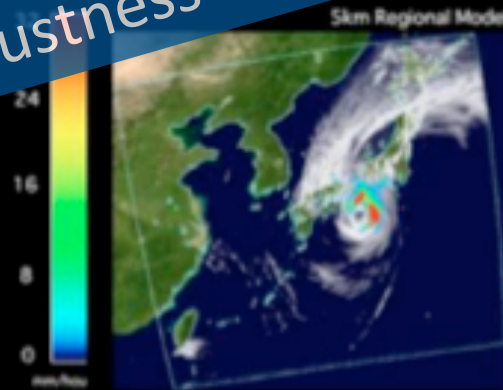
University Network
for Climate and Ecosystems Change Adaptation Research

The key issue to resolve in Adapting to
Climate Change is assessing what future
climate is likely to be at local scale with a
reasonable degree of robustness

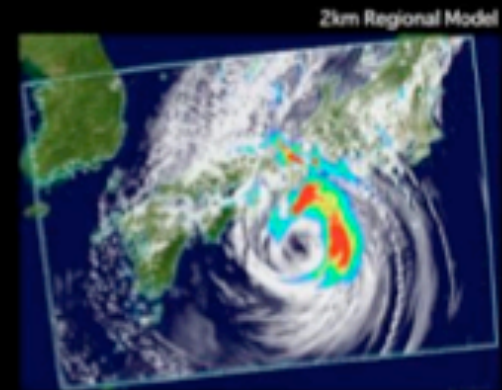
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CMR, IMA, JAMSTEC, MEX

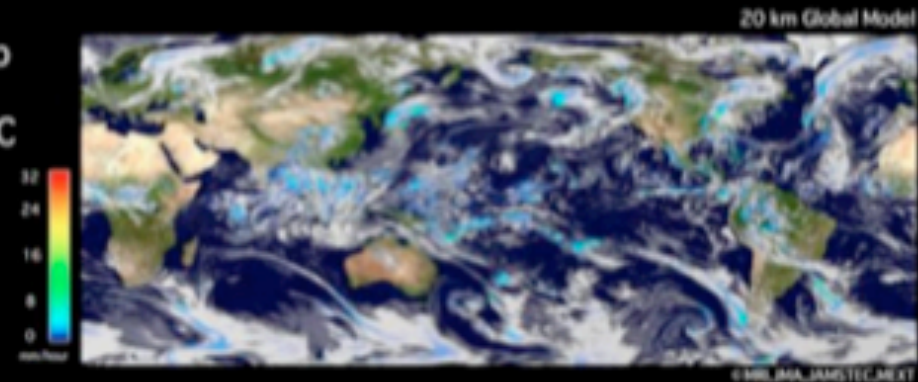


5km Regional Model



2km Regional Model

17 Sep
208X
21 UTC



20 km Global Model

CMR, IMA, JAMSTEC, MEX

University Network for Climate and Ecosystems Change Adaptation Research

Training Programme on Climate Change Downscaling Approaches and Applications

9-14 November 2011

09-22 November, 2012, Bangkok, Thailand

Training and links to international programmes

- The training program consist of climate change projection downscaling
 - NCAR and MRI (dynamic) and Statistical approaches (5 days)
 - Application to **risk assessment, flood magnitudes and rice production (5 days)**
- **Developed with National Center for Atmospheric Research (NCAR), USA, Meteorological Research Institute (MRI), Japan, the University of Tokyo, Japan, Institute for Hydrology and Meteorology, Viet Nam, Indian Institute of Technology (Delhi and Karagphur), India, Asian Institute of Technology, Thailand, Nippon Koei Co. Ltd., Japan, Institute for Social and Environmental Transitions, ISET, UK, and the United Nations University, Institute for Sustainability and Peace, Japan**
- Support of MOE Japan, in support of capacity development programs of Asia Pacific Adaptation Network (APAN)
- Next training in November, in Thailand is supported by the Asia Pacific Network (APN) for global change research.



Observations

- Post graduate sector can be the engine for rapid dissemination and customization of useful global knowledge, especially in the developing countries
- There is a great demand and potential to update knowledge dissemination and research through University higher education networks.
- **Financing these efforts remain the main challenge.** There should be a link between development funding and capacity development. It should engage the higher education sector, support national programs going beyond narrow project based approaches.

Thank You