

WORKSHOP ON ISLANDS AND COASTAL BR DURING THE 4TH WORLD CONGRESS ON  
BIOSPHERE RESERVES  
&  
6<sup>TH</sup> MEETING OF THE GLOBAL NETWORK OF ISLAND AND COASTAL BIOSPHERE RESERVES

# Science-Policy Interfacing and Capacity Development- The ENGAGE approach

*Ecosystem Based Approach for Sustainable Management and Governance of Coastal  
and Marine Ecosystems (ENGAGE)*

**Nidhi Nagabhatla**

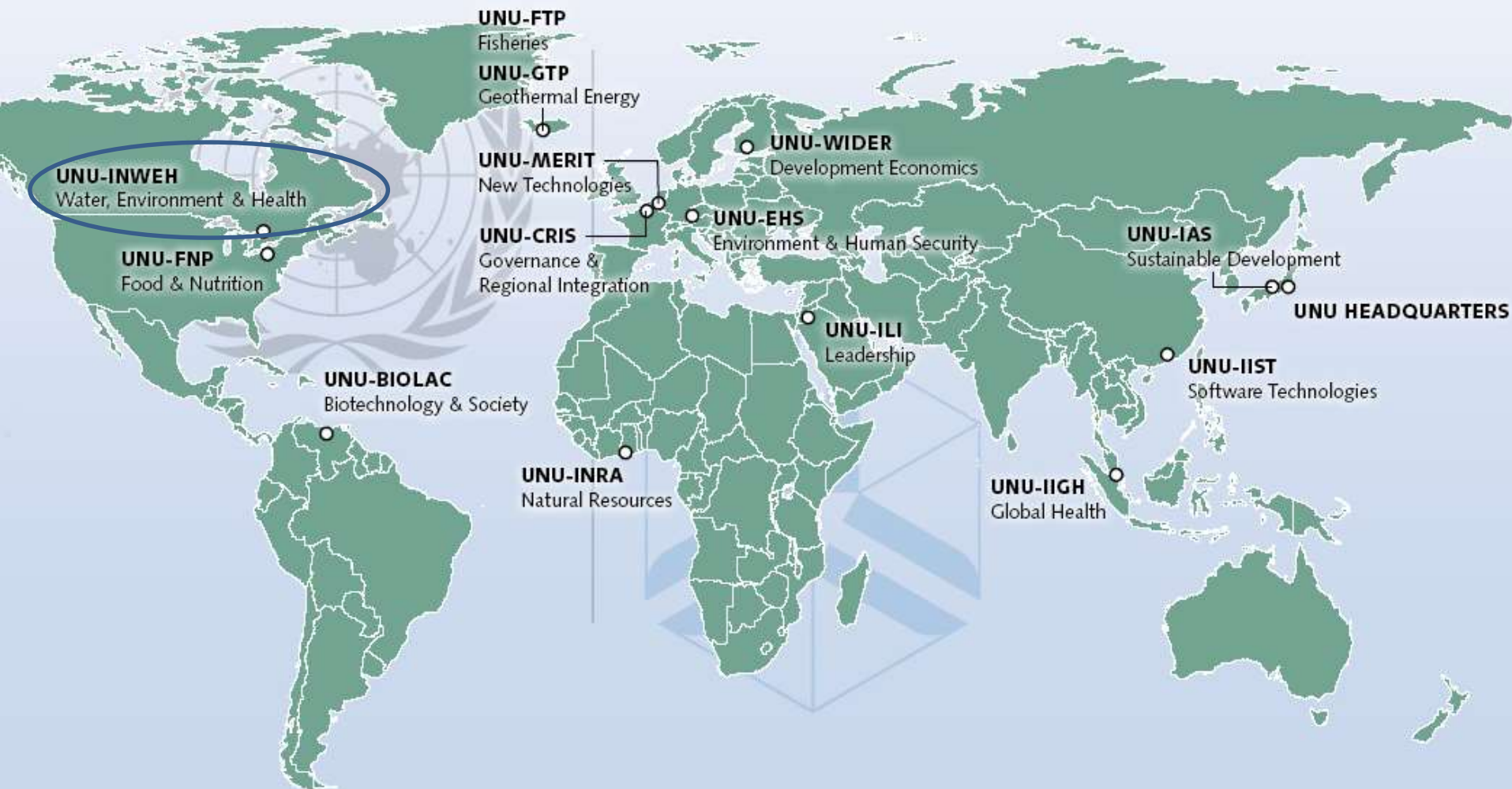
*United Nations University - Institute for Water Environment and Health.*



**15 March 2016, MAB Congress Lima, Peru**

Who we are and what's our  
mandate

# United Nations University Global Network



# Overview of UNU-INWEH: *The UN's Think Tank on Water*

## *Our Vision*

UNU-INWEH strives to ensure a world free of water problems where sustainable human development and environmental health and security are assured for all

- Created: 1996
- The water “academy” of UNU, supported by Canadian Government and hosted by McMaster University
- Serving as the ***UN Think Tank for Water***
- A **capacity-development and water-science agency**, helped to address the Millennium Development Goals for water ( 2000-2015 ) and now the post 2015 development agenda ( The Sustainable Development Goals )

## Two Programme Areas

- Water & Human Development
- Water and Ecosystems



# Strategic Focus of UNU-INWEH

- Focuses on **capacity building** in key research areas
- Brings fresh thinking to water-related projects
- Expands ongoing research initiatives
- Strengthen UNU–research institutions partnerships
- Supports international research



**WLC**  
UN Water Learning Centre

**Water Learning Centre  
RE-LAUNCH!**

**Welcome to the new home for the  
UN Water Learning Centre!**

**Featuring:**

- Comprehensive programme information
- Course improvements/updates
- New courses on Water-Health & Climate Change\*
- Scholarships/Grants\*

*Use the top menu to explore the website*  
*\*under development*

Welcome to United Nations University's Water Learning Centre!

# Lima Declaration

Join effort to

Build new ( continue... ) **partnerships** between MAB and ....

Agenda: Training and Capacity Building

**Partnerships**

**Cooperation**

**Capacity Development**

# Partnership for Capacity Development on *Ecosystem Based Approach for Sustainable Management and Governance of Mangrove Ecosystems* (2004-2014)



UNESCO-MAB



UNITED NATIONS  
UNIVERSITY

**UNU-INWEH**

Institute for Water,  
Environment and Health



# ***Ecosystem Based Approach for Sustainable Management and Governance of Coastal and Marine Ecosystems (ENGAGE)***

- Climate change impacts
- Mangroves role in climate change
- Role of mangroves in carbon cycle
- Carbon accounting in mangroves
- Tools and methods for increasing the resilience of these ecosystems to global change
- Vulnerability and risk reduction strategies
- Mitigation and adaptation measures
- Field demonstration of carbon sampling methods

## Overview, Future Goals, and Closing

- Conventions (RAMSAR, UNESCO, CBD, UNFCCC)
- Climate change frameworks and plans
- Policies for mangrove management and needs for policy reforms
- Overview of mangrove management and needs for policy reforms

Theoretical and Practical section of the capacity building program emphasize on the ecosystems based approach to management of mangrove ecosystem (wise use vis-à-vis conservation)



UNITED NATIONS  
UNIVERSITY  
**UNU-INWEH**  
Institute for Integrated Water Management





Outcome Indicators

# TOT model

>250 participants from nearly 20 countries

- University of Dar Es Salaam, Tanzania
- Vietnam National University, Vietnam
- Airlangga University, Indonesia
- University of Ruhuna, Sri Lanka
- University of Kelaniya, Sri Lanka
- Chulalongkorn University, Thailand
- Jadavpur University, India
- Noakhali Science & Technology University, Bangladesh
- Khulna University, Bangladesh
- University of Sciences, Vietnam
- Hue University of Sciences, Vietnam
- University of Sri Lanka, Sri Lanka
- University of Kalyani, India
- Anna University, India
- Alagappa University, India
- Jawaharlal Nehru University, India
- University of Delhi, India
- University of Dhaka, Bangladesh
- Shivaji University, India
- University of Malaya, Malaysia
- University of National Sciences, Vietnam
- Sriwijaya University, Indonesia
- University of Karachi, Pakistan
- Hue University, Vietnam
- Andhra University, India
- Vietnam Forestry University, Vietnam
- University of Nairobi, Kenya
- M.S. University, India
- Mahidol University, Thailand
- University of Jaffna, Sri Lanka
- University of Jatujak, Thailand
- Hajee Mohamed Danesh Science & Technology University, Bangladesh
- Hanoi National University of Education, Vietnam
- Oafemi anolowl University, Nigeria
- Prince of Songkla University, Thailand
- University of Chittagang, Bangladesh
- University of Philippines, Philippines
- Western Philippines University, Philippines.
- Jawaharlal Nehru University, India
- Vivekanandha College, India
- Pondicherry University, India
- Hoa Lu University, Vietnam
- Jamia Hamdard University, India
- Ravenshaw University, India
- Jassore Science and Technology University Bangladesh
- Ocean University National Institute of Fisheries and Nautical Engineering, Sri Lanka
- Universitas Samawa, Indonesia
- Forest College and Research Institute, Tamil Nadu Agricultural University, India
- University of Baroda, India
- University of Chittagong, Bangladesh
- Ateneo de Manila University, Philippines
- Mangrove Ecosystem Research Centre, Vietnam
- Noakhaki Science and Technology University, Bangladesh
- University of Yangon, Myanmar
- University of Peradeniya, Sri Lanka
- Walailak University, Thailand
- Chirala Engineering College, India

# Assisting in building regional partnerships

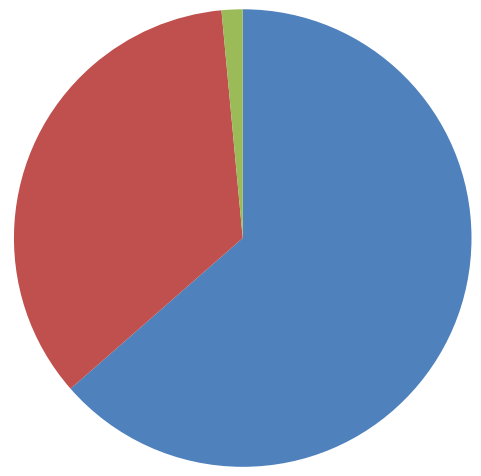
1. National Institute of Oceanography, India
2. Southeast Asian Fisheries Centre , Philippines
3. Gujarat Ecological Education and Research Foundation, India
4. National Aquatic Resources Research Development Agency, Sri Lanka
5. Western Institute of Technology, Philippines
6. Asian Institute of Technology, Thailand
7. Indian Council for Agriculture Research, India
8. Red Sea Protected Area council, Egypt
9. Maritime Institute of Malaysia
10. Gujarat Institute of Desert Ecology, India
11. Space Application Centre, India
12. Agarkar Research Institute, India
13. Indonesian Institute of Science, Indonesia
14. Mangrove Ecosystem Research Division, Vietnam
15. Marine and Coastal Resources & Development Centre, Thailand
16. Centre for Coastal & Marine Research, India

*Outcome Indicators*

**In some instance, participants nominated by the government agencies have undertaken effort to initiative joint regional initiatives post this experience**

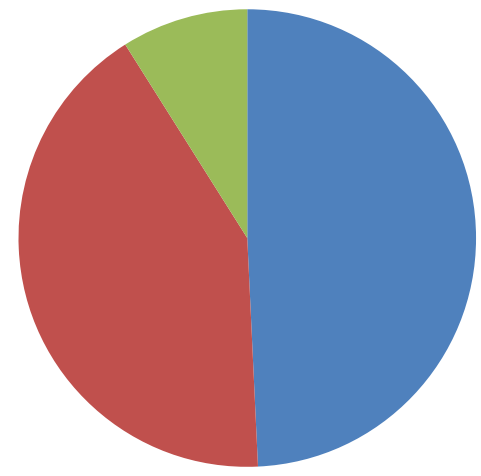
# Engaging the generation next ...

Percentage of Participants from Age Groups (2004-2010)



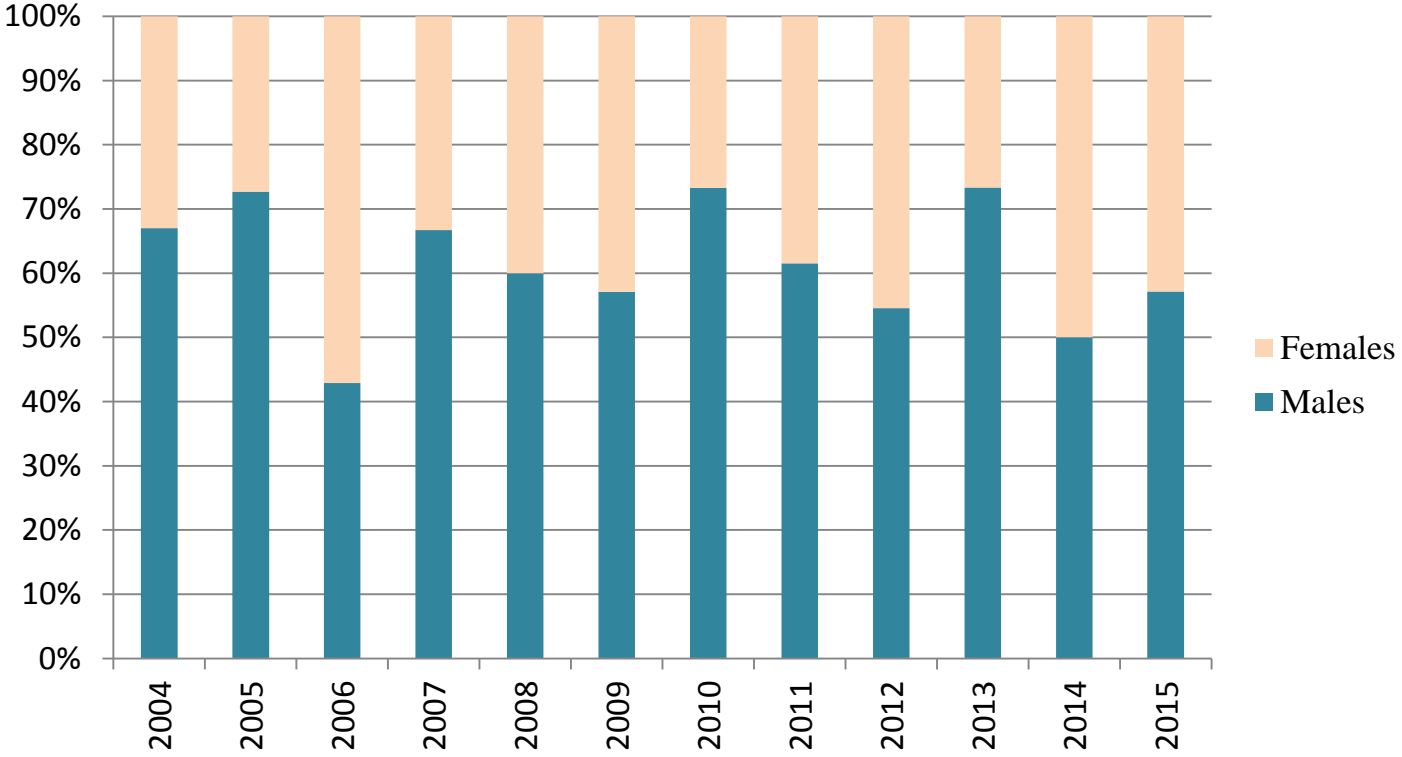
Percentage of Participants from Age Groups (2011-2015)

- 20-30
- 31-40
- 41-50



Evaluating the age demographic shows how the program's knowledge diffusion strategy targets to steer change by investing in young professionals. Comparatively, the percentage of participants aged 20 to 30 has been greater in both previous and recent years..

# Gender Balance- Decadal Analysis



Gender balance in candidacy for the International Course on Biodiversity in Mangrove Ecosystems. Percentage of women who participate average between 50-60%.

# Mapping gaps and addressing needs....

^ 2016 Course Brochure

2ND INTERNATIONAL TRAINING COURSE ON

## MANGROVE ECOSYSTEMS IN THE WESTERN INDIAN OCEAN REGION

COMMUNITY BASED RESTORATION, ADAPTATION, MANAGEMENT AND GOVERNANCE APPROACHES FOR MANGROVE ECOSYSTEMS IN THE WIO REGION

Center of Marine Sciences, Moana, University of Nairobi

### 17-28TH MAY 2016



Photo Credit: Robin Hanson, Nature Seychelles



# Online Post-Graduate Mangroves Course

## Login

Username

Password

Remember username

[Create new account](#)  
[Lost password?](#)



## Introduction to MANGROVES

### Mangroves Curriculum

Along tropical coastlines, mangroves are vital for healthy ecosystems. The significance of these habitats, in the last few decades they have been cleared, often in the interest of economic growth. Fortunately, there is now increasing global appreciation for the remarkable mangroves.

In an effort to bring awareness to the importance of Mangroves, we have currently six units within the Mangrove Curriculum.

The topics of the Mangrove Curriculum can be seen below.

Click **Enter** to begin your learning. You can take just one or all



#### Unit 1: Introduction to Mangroves

This unit introduces you to Mangroves and how they are vital for a healthy ecosystem. You will also learn about global distribution and bio-geographic patterns.

2 hours

[Enter >](#)



#### Unit 2: Ecosystem Structure & Function

This unit discusses the remarkable forest ecosystem that are the home to a diverse array of species.

1 hour 20 minutes

[Enter >](#)



#### Unit 3: Floral Diversity

Mangroves diversity directly benefits human well-being. In this Unit you will learn the difference between true mangroves and mangrove associates and why mangrove associated flora is important.

55 minutes

[Enter >](#)



#### Unit 4: Faunal Biodiversity

This unit is an ebook PDF that discusses the different faunal groups and provides a guide on how to identify them.

15 minutes

[Enter >](#)



#### Unit 5: Coming Soon!

Coming soon!



#### Unit 6: Mangroves and Climate Change

This unit explores the implications of climate change for mangrove ecosystems, the role of mangroves in mitigating climate change effects and strategies to help manage mangroves into the future.

2 hours

[Enter >](#)

Launching soon ...



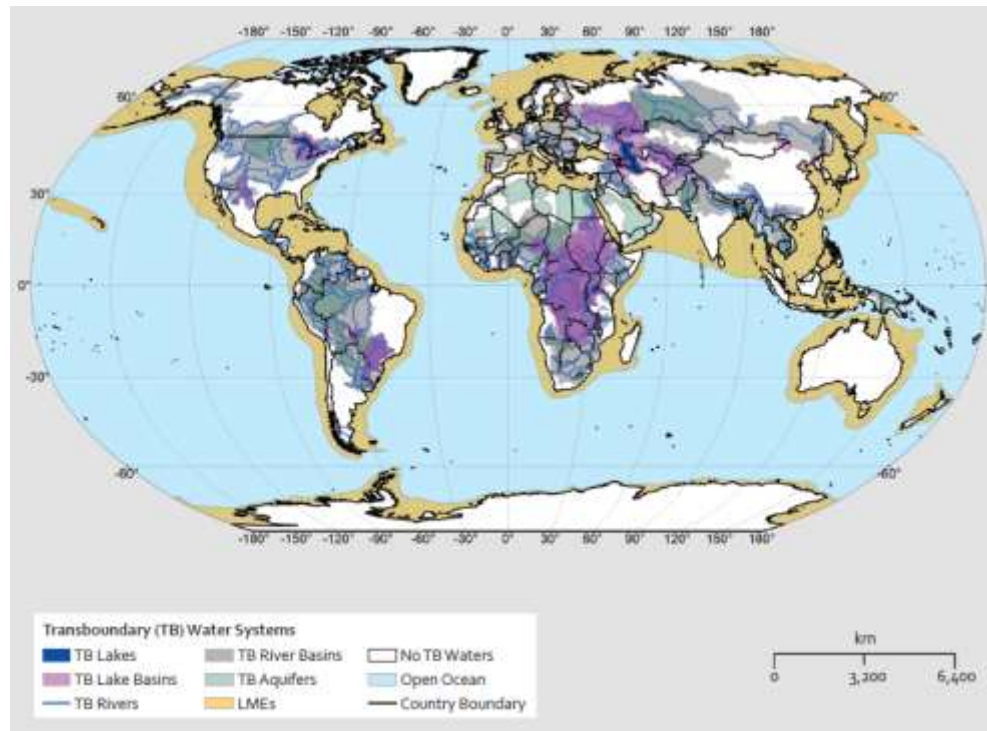
**MAPLE (Learning Alliance for Mangrove  
Ecosystem Protection)**

# Transboundary Ecosystems



# Transboundary Waters

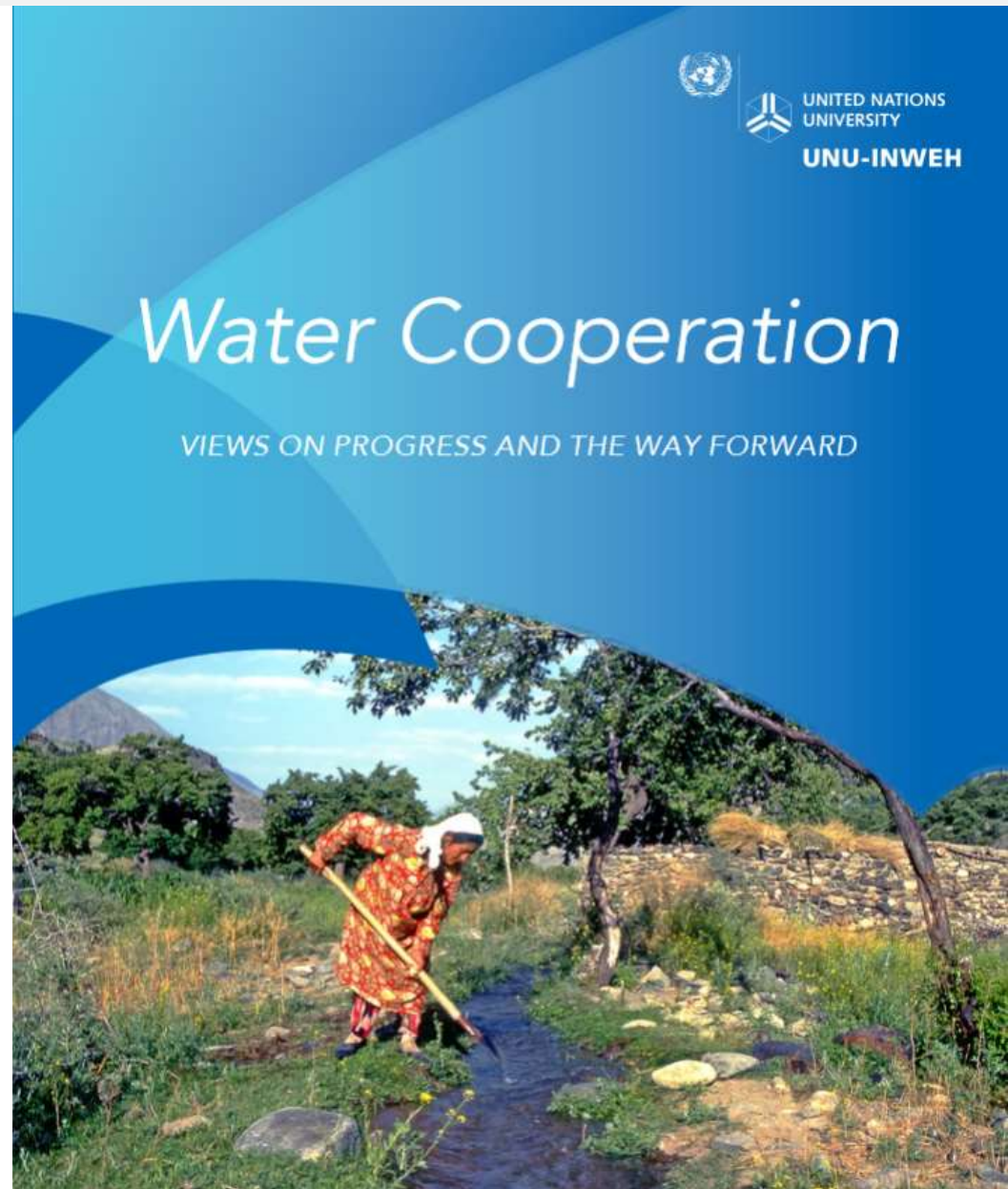
- Water that crosses political borders covers about half of the Earth's land surface (UN 2008; Image: UNEP)



- This coverage increases when considering water that crosses subnational borders in the world's 27 federal countries: Canada, Russia, the US, Brazil, India, Australia and more

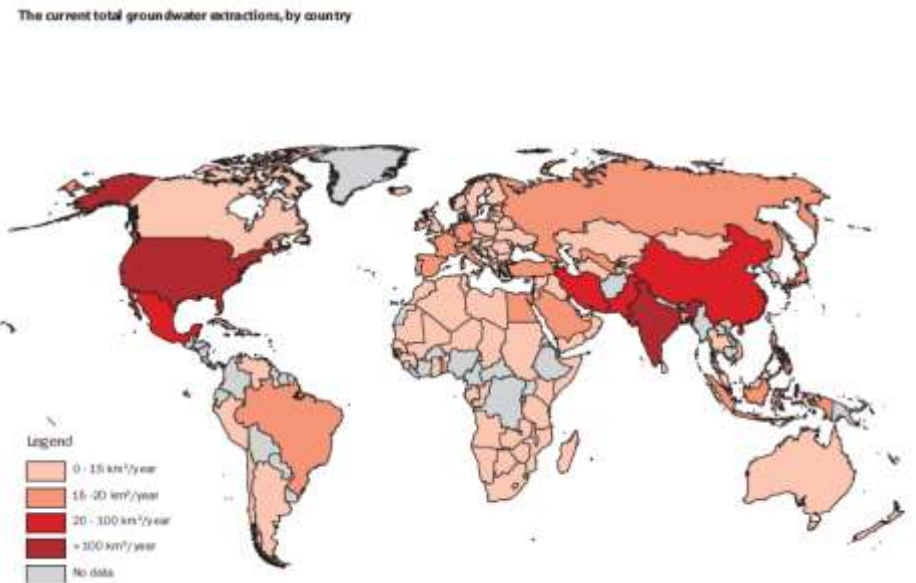
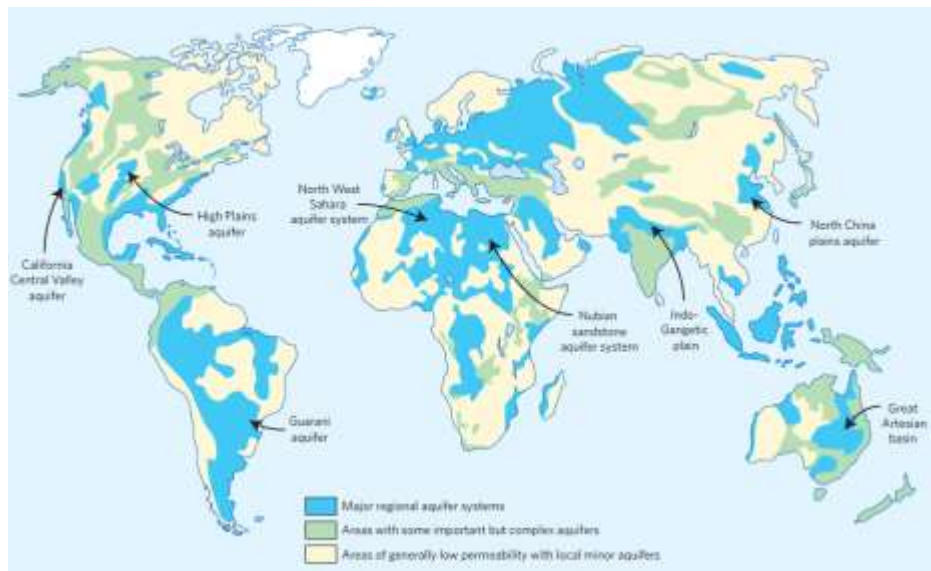
# Managing complexity at the global scale

**UN Water for Life Decade 2005-2015.**



# Demands on Transboundary Water

- Unsustainable water withdrawals, pollution and climate change are placing ecosystems under stress
- Example: 2 billion people depend on aquifers for drinking water. Many are transboundary and many are being used at unsustainable rates



Images: Major aquifer systems in the world (Taylor and Scanlon 2012); Aquifer extraction rates by country (ISARM 2009)

# Transboundary Water and UNESCO Biosphere Reserves



Concentrations in: Mexico and Central America, Europe, Eastern and South-Eastern Asia, Western Africa, Central Asia

Treaties between states on the use of shared water resources remain limited: only 130 of 276 international river basins (47%) and 1 of 608 international aquifers have a formal agreement in place

# What is needed?

- Population growth means demand is rising for water, food and energy – at the same time, climate change is affecting hydrological patterns (the ‘**Water-Food-Energy-Climate Nexus**’- World Economic Forum 2011)
- Need to manage **shared resources** sustainably
- Requires **cooperation and policy coordination**

## What has worked

- **Good governance** makes a difference: see the ongoing project to restore water flow to the Colorado River Delta (Mexico-US)
- Building cooperation through **joint research initiatives** and **frequent communication** has been successful: allows trust to grow



BR & the Caribbean Small Islands States

# GEF IWEco

## Integrating Water, Land and Ecosystem Management in Caribbean Small Island Developing States

- Commitments to sustainable Integrated Coastal Management (ICM) and Large Marine Ecosystem (LME) cooperation frameworks
- Integrated land and water management plans sustainable land management (SLM) and ecosystem management tools and methodologies developed tested and implemented

.....  
.....



Integrating Water, Land and Ecosystems Management  
In Caribbean Small Island Developing States

### Championing Innovative Solutions! Reducing Threats to Our Fragile Island Environments

The fragile and valuable fresh and coastal waters, lands and ecosystems of our beautiful Caribbean islands are under threat from human influences; a condition that will worsen under the pressures of climate change. We must continue to find ways to reduce the degradation of the natural environment on which we all rely for our very survival. The Global Environment Facility (GEF) has pledged continuing support to our Caribbean countries to address the problems we face and help better manage our precious natural resources. We all must be involved; from the grass-roots community level to the highest levels in government, from our farmers and fishers to our commercial and industrial sectors.

Finding **innovative solutions that work and are sustainable**, supported by appropriate policy and legislation, committed institutions and stakeholders to meet Caribbean and global targets on access to safe and reliable water supplies, improved sanitation and sustainable land management,

- ◆ **Water and wastewater resource management**
- ◆ **Protecting sensitive flora, fauna and ecosystems**
- ◆ **Sustainable land management**
- ◆ **Improved forest resource management**
- ◆ **Reducing risk to climate change**



# The SDG's



## Sustainable Development Goals

Goal 1. End poverty in all its forms everywhere

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3. Ensure healthy lives and promote well-being for all ages

Goal 4. Ensure inclusive and equitable quality education and promote life-long learning opportunities for all

Goal 5. Achieve gender equality and empower all women and girls

Goal 6. Ensure availability and sustainable management of water and sanitation for all

Goal 7. Ensure access to affordable, reliable, sustainable, and modern energy for all

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10. Reduce inequality within and among countries

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12. Ensure sustainable consumption and production patterns

Goal 13. Take urgent action to combat climate change and its impacts\* (UNFCCC).

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

Joining hands towards implementation of the SDG agenda

Other Mechanisms...

# The Enabling Factors- Beyond the usual

Public Private Partnerships (PPP)

*for compounding the development impact*



Strategic Collaborations: beyond the usual

CSR –Corporate Social Responsibility : Opening new avenues

Crowd Sourcing/funding : advancing opportunity for direct participation [ Citizen Science, Value Investment, ]

**Examples :**

Global Development Alliance (USAID) ; HSBC-WWF;

Promoting the culture of learning together



Thank You