



# UNESCO Water Family Water Education for SDG 6 Challenge

Shahbaz Khan  
Director UNESCO Regional Science Bureau

Pathway towards Improved Water Education Curricula  
27-28 November 2017, Penang Malaysia



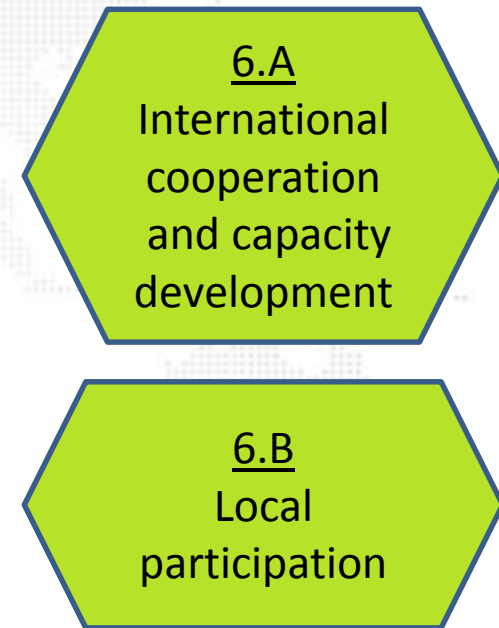


United Nations  
Educational, Scientific and  
Cultural Organization

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



## Means of Implementation



# Current UNESCO Water Actions

## UNESCO's Intergovernmental Scientific Cooperative Programme in Hydrology and Water Resources since 1975

UNESCO INTERNATIONAL HYDROLOGICAL PROGRAMME EIGHT PHASE (2014-2021)  
UNESCO-IHP-VIII: "WATER SECURITY Responses to Local, Regional, and Global Challenges"



- Risk management as adaptation to global changes
- Understanding coupled human and natural processes
- Benefiting from global and local earth observation systems
- Addressing uncertainty and improving its communication
- Improving the scientific basis to extreme hydrological events



# Key Areas of Concern SDGs in AP

- Limited knowledge of climate shift of agro-ecological zones
- Misinformed decisions resulting in unsatisfactory project output
- Inadequate resources (human, financial and material)
- Economic crisis and limited donor support
- Conflicting needs of funding agencies and communities
- Lack of communities involvement in regional projects, need to involve the main decision-makers at appropriate levels
- Poor timing of mitigation measures leading to lack of commitment
- Need for sensitivity to work patterns, religious rites and festivals in communities

# Adaptive Management Challenge

- Take on board shifting agro-climate zones for analysis of extremes, design and implementation of strategies.
- Integrated Flood and Drought vulnerability assessment and mitigation measures using multiple criteria (meteorological, hydrological and agro management principles). For example multiple criteria can have variables such as:
  - Meteorological – rainfall, temperature, wind speed, sunshine etc.
  - Soils - depth, type, available water content
  - Surface water use - percent irrigated area, surface water supplies
  - Ground water – ground water availability/utilization
  - Crop – cropping pattern changes, geo-spatial land use, crop condition, anomalies of crop condition.
  - Socio-economic – population of weaker sections, size class of farm holdings
- Management options to build on the IWRM Spiral Approach or Water-Food-Energy Paradigm



# Malaysia UNESCO Cooperation Program Projects

## 1. South-South Cooperation for Enhancing Science, Engineering and Technology Standards in Asia and the Pacific and Africa

**Objective: (brief):** The project is to harness science, engineering and technology as a way to equip individuals and communities with the knowledge, skills and attitudes to live, work and act within the framework of sustainable development.

**Partners:** Ministry of Education Malaysia, International Science, Technology and Innovation Centre (ISTIC), Institution of Engineers Malaysia (IEM), the Federation of Engineering Institutions of Asia and the Pacific (FEIAP), Universiti Teknologi Malaysia (UTM) and other universities.

## 2. Upscaling water security to meet local, regional, and global challenges

**Objective: (brief):** The project is aimed to provide solutions to the current global water challenges require upscaling of existing local approaches and knowledge of the interrelations between environment conditions and the state of waters. (demo site → Putrajaya)

**Partners:** Humid Tropics Center Kuala Lumpur (HTCKL), Institut Alam Sekitar dan Pembangunan (LESTARI), Universiti Kebangsaan Malaysia (UKM), Perbadanan Putrajaya, Malaysian Water Partnership (MyWP), UNESCO IHP National Committee, Malaysia



# Malaysia UNESCO Cooperation Program Projects

## 3. Science Harnessed for ASEAN Regional Policy – SHARP

**Objective: (brief):** This project aims to support demonstration and synthesis of environmental sustainability best practices to underpin sustainable development policies across the ASEAN Member States. It is aligned with the ASEAN-UNESCO Framework Agreement of Cooperation (FAC) and associated Indicative Joint Programme of Action (2014-2018) and UNESCO Regional Bureau's Science Support Strategy.

**Partners:** ASEAN Secretariat (Environment Division and Environment Division), HELP Davao Network (Philippines); Ministry of Education Malaysia, Institut Alam Sekitar dan Pembangunan (LESTARI), Universiti Kebangsaan Malaysia (UKM), International Science Technology and Innovation Centre for South-South Cooperation (ISTIC), Humid Tropics Centre, Kuala Lumpur (HTCKL), University of Technology Malaysia (UTM).

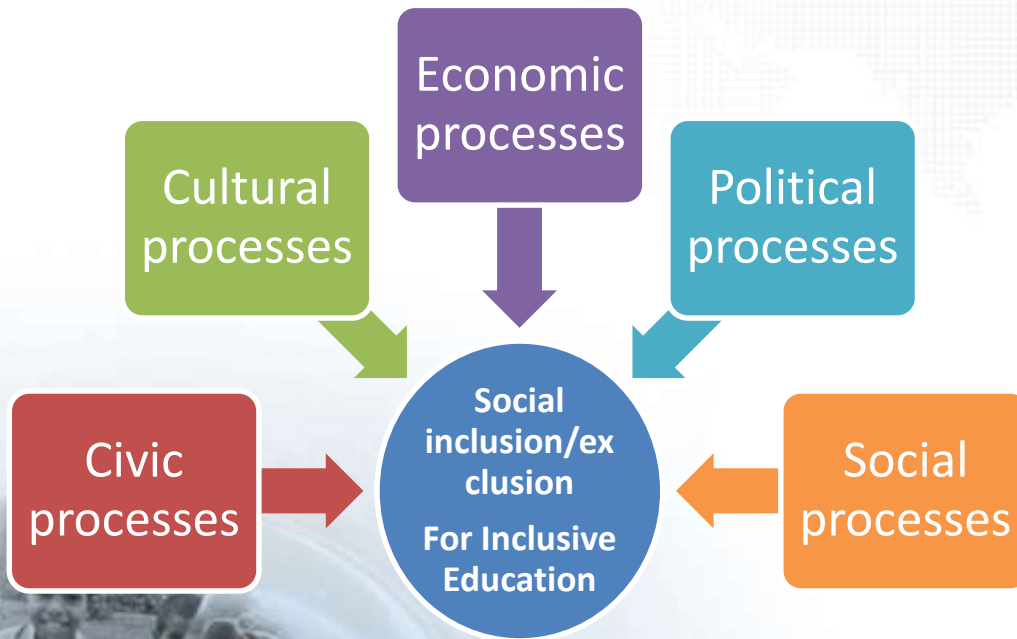






United Nations  
Educational, Scientific and  
Cultural Organization

# A Possible Framework for Inclusive Water Education



## Understanding Social Change for Better Water Education

- Transversal and overarching Education as a Human Right Continuum of interventions at the National Level
- Public sector innovation
- Integrated policy for gender sensitive evidence