

Concept Note
Regional workshop:
Building Resilience to Climate Change Risk and Vulnerability to Meet Water
Security Challenges
10 - 11 July 2017, Malaysia

Background information

Climate change is likely to increase water demand while diminishing water supplies. With climate change, variability will be affected, i.e. increases in rainfall variability and air temperature, resulting in more frequent hydrologic extremes, such as high-intensity storms, flooding, and drought events. Water supply will thus be affected, and the competition for water will be even more amplified given other factors such as the increasing population. As highlighted by the IPCC Fifth Assessment Report (IPCC, 2014), impacts from recent climate-related extremes, such as heat waves, droughts, in fact reveal significant vulnerability and exposure of some ecosystems and many human systems to current climate variability.

In Asia, water availability in the region are different depending on climatic condition. In addition, there is variability of supply through time as a result both of seasonal variation and inter-annual variation. According to the IPCC Fifth AR¹, climate change is projected to increase drought-related water and food shortage in Asia as one of the key regional risks, due to risks to the physical systems including rivers, lakes, floods and/or drought. The magnitude of variability and the timing and duration of periods of high and low supply will become more unpredictable with climate change, which further intensify challenges of managing limited water resources.

In this regards, there is need for an improved understanding of the hydrological cycle and of the impacts of climate change. The best available scientific knowledge need to be transferred more actively to decision makers for an improved management of water resources, both water quality and quantity. UNESCO's International Hydrological Programme (IHP), facilitates and provides, data, tools, methodologies and policy advises to member states through flagship programme such as IFI, IDI, IWRM, FRIEND, HELP and Ecohydrology. Those tools and policy advises help promote the coordinat development and management of water, land and related resources and ecohydrology for an integrated understanding of biological and hydrological processes at a catchment scale, are helpful for promoting systemic approach to ensure water security.

Within the framework of the Eight Phase of the IHP-VIII "Water Security: responses to local, regional and global challenges", the regional workshop on "**Building Resilience to Climate Change Risk and Vulnerability to Meet Water Security Challenges**" will bring together experts working in the field of

¹ IPCC, 2014. *Climate Change 2014 Synthesis Report: Summary for Policymakers*.

water to share knowledge and best practices for an improved water security in Asia **Pacific and Africa**. The workshop is jointly organized by the UNESCO International Hydrological Programme (IHP) and the UNESCO Jakarta Regional Science Bureau for Asia and the Pacific as part of the projects “Addressing Water Security: Climate Impacts and Adaptation Responses in Africa, Asia and Latin America and Caribbean” and “Upscaling water security to meet local, regional, and global challenges”.

The workshop is supported by Malaysia-UNESCO Cooperation Programme (MUCP) MFIT and the UNESCO/Flanders Fund-in-Trust for the support of UNESCO's activities in the field of Science (FUST).

The workshop is implemented in partnership with *River Engineering And Urban Drainage Research Centre* (REDAC) Universiti Sains Malaysia.

Workshop details

The workshop will take place from 10 to 11 July 2017 in Langkawi, Malaysia.

The workshop aims to bring together around 35 participants, including policy makers, UNESCO Natural Sciences Category 2 centre and institutes in Asia Pacific and Africa, UNESCO Chair in Water Resources, Authorities in HELP river basin in Asia Pacific and Africa, IHP Malaysia local partners, as well as experts, universities, and other stakeholders

Scope of the workshop

The overall objective of the workshop is to improve understanding on the climate change impact on water resources and water-related disasters, and in this regards upscale existing local approaches in IWRM for water security in order to strengthen regional cooperation. The workshop will share best practices on climate risk management through lessons learn from case studies, including disaster risk reduction and climate vulnerability assessment in the Asia and the Pacific region, and improve the science-policy dialogue and develop a set of recommendations for an improved water security in the countries.

Expected outcomes

- Best practices from case studies compiled and shared;
- Knowledge improved and awareness raised on climate risk assessment on water resources, water-related disasters, and tools and best practices for upscaling water security in the region;
- Set of recommendation for policy action developed.

Workshop program

The workshop will include two main sections:

- A technical session to share and improve knowledge on the impacts of climate change on water resources and water related disasters and on how the Hydrology for the Environment, Life and Policy (HELP) and Ecohydrology can be used as practical tools for delivering IWRM in order to manage those issues. The discussion will cover a broad range of case studies, including how to tackle water extremes and scarcity in the Asian regions. The presentations will show case

Integrated Water Resource Management (IWRM) and Ecohydrology approaches from selected HELP river basin. The presentations will also cover case studies from IHP's flagship initiative such as International Flood Initiative (IFI), International Drought Initiative (IDI), Water and Development Information for Arid Lands (G-WADI-Asia), which will cover flood and drought early warning systems and Glacier Lake Outburst Floods (GLOFs) and droughts early warning in Asia.

- A policy dialogue session to raise awareness at science-policy level and how to best translate the scientific knowledge into action, in contribution to our path towards a sustainable future.

The workshop is organized under 5 sessions:

Session 1: Delivering IWRM through Modular Education and Water Planning

Session 2: Addressing challenges for Delivering IWRM

Session 3: Drought and flood risk and management: vulnerability; monitoring, prediction and early warning; integrated drought and flood management

Session 4: IWRM and Water Security linked with Agenda 2030

Session 5: Climate Risk Assessment and Early Warning

Coordination and information

UNESCO Office Jakarta

- Prof. Shahbaz Khan, Director and Representative UNESCO Regional Science Bureau for Asia and the Pacific (s.khan@unesco.org)
- Trita Katriana, National Project Officer (t.katriana@unesco.org)
- Riffa Santi, Administrative Assistant (r.santi@unesco.org)

IHP Secretariat

- Anil Mishra, Programme Specialist (a.mishra@unesco.org)
- Koen Verbist, Project Officer, Water Security Project (k.verbist@unesco.org)

Universiti Sains Malaysia

- Prof. Dr. Nor Azazi Zakaria, Director of River Engineering and Urban Drainage Research Centre/REDAC (redac01@usm.my)

Annex I- Tentative Programme

10 July 2017

Time	Activity
08:30-09:00	Registration Day 1
09:00-09:30	<p>Opening session</p> <ul style="list-style-type: none"> Prof. Dr. Shahbaz Khan, Director, Regional Bureau for Science, Asia and the Pacific Region, UNESCO Office Jakarta Prof. Dr. Nor Azazi Zakaria, Director of River Engineering and Urban Drainage Research Centre (REDAC), Universiti Sains Malaysia Dato' Ir. Haji Nor Hisham, on behalf of Malaysian IHP National Committee Ms. Roslinda Binti Mat Musa, Malaysian National Commission for UNESCO
09:30-10:00	<p>Keynote presentation:</p> <ul style="list-style-type: none"> Addressing Water Security: Climate Impacts and Adaptation Responses in Africa, Asia and Latin America and Caribbean – Anil Mishra, Koen Verbist and Abou Amani, IHP Secretariat (online presentation) Upscaling Water Security to meet local, regional and global challenges: project results – Prof Dr Shahbaz Khan, UNESCO Office Jakarta <p>Q&A</p>
10:00 - 10:30	Coffee Break & Photo Session
	Chair: tbc
10:30 - 12:00	<p>Session 1: Delivering IWRM through Modular Education and Water Planning</p> <ul style="list-style-type: none"> Water Management Curricula using Ecohydrology and Integrated Water Resource Management (IWRM)- Ir. Rohani Ahmad, HTC KL How Can Water Footprint Contribute to Climate Change Adaptation Strategy? - Assoc. Prof. Dr. Zainura binti Zainon Noor, Centre for Environment Sustainability and Water Security (IPASA) IWRM and water planning in Langat HELP River Basin, by Dr Rahmah Elfithri, LESTARI UKM IWRM and water planning in Gurara River Basin - Engr. Abdul-Qadir Dauda Aliyu, National Water Resources Institute (NWRI), Nigeria <p>Q&A</p>
12:00 – 13:00	Lunch
13:00 - 14:30	<p>Session 2: Addressing Challenges for Delivering IWRM</p> <ul style="list-style-type: none"> Optimizing water-energy nexus for sustainable development – Dr Aftab Ahmad, Murray Darling Basin Authority Water Resource Management in Arid and Semi Arid Regions of Pakistan - Dr. Asma Younas, UNESCO Chair on Knowledge Systems for IWRM, COMSATS Pakistan Emerging ecohydrology approaches in Malaysia and future challenges – Dr Norlida binti Mohd Dom, HTC KL HELP and IWRM challenges in Nepal - Dr Jagat Kumar Bushal, Electricity Tariff Fixation Commission Nepal <p>Q&A</p>
14.30 – 15.30	<p>Session 3: Drought and flood risk and management: vulnerability; monitoring, prediction and early warning; integrated drought and flood management</p> <ul style="list-style-type: none"> Floods – Dr. Tetsuya Ikeda, ICHARM/ IFI secretariat

	<ul style="list-style-type: none"> - Flood Hazard Analysis in Malaysia – Dr. Mohd Sayuti Hassan, Centre for Global Sustainability Studies (CGSS), USM - Drought – Alireza Salamat, Regional Centre on Urban Water Management / IDI secretariat - Climate smart technologies to build community resilience under the intensive rainfall patterns in Pakistan - Ahmad Zeeshan Bhatti, PCRWR
15.30 – 16.00	Coffee break
16.00 - 17:00	<p style="text-align: center;">Panel discussion: UNESCO, Category II centers</p> <p style="text-align: center;">Synthesis of Day 1, key findings of the interventions, set of recommendations developed</p> <p style="text-align: center;"><i>moderated by: tbc</i></p>

11 July 2017

Time	Chair: tbc
08.30-09.00	Registration Day 2
09:00-10:30	<p>Session 4: IWRM and Water Security linked with Agenda 2030</p> <ul style="list-style-type: none"> - Challenges in addressing SDG 6 in Asia Pacific – Dr Olivia Castillo, Chairperson, Sustainable Development Solutions for Asia and the Pacific - Contribution of APCE in promoting ecohydrology for addressing SDG Goal 6 – Dr. Ignasius D Sutapa, Asia-Pacific Centre for Ecohydrology (APCE) - Lessons Learned and Challenges of Africa in Upscaling Water Security - Prof. Dr. Abdalla Abdelsalam Ahmed - Progressing the recommendations on IWRM & eco-hydrology in West Africa: implementation and challenges – Dr. Omogbemi Omolaju Yaya, UNESCO Category 2 Regional Centre for Integrated River Basin Management (RC-IRBM)
10:30-11:00	Coffee break
11:00-13:00	<p>Session 5: Climate Risk Assessment and Early Warning</p> <ul style="list-style-type: none"> - Managing Disasters in the Philippines – Mirasol G Domingo, Department of Science and Technology Regional Office XI, the Philippines - Flood Management in Namibia – Leonard Hango, Department of Water Affairs, Namibia - Irrigation Water Management in China for Improving Integrated Water Resource Management: Practices in Ganfu Plain Irrigation District as an Example – Prof. Yufeng Luo, Wuhan University
13:00-14:00	Lunch
14:30-16:00	<p>Session 6: Asia-Africa Science Policy Dialogue on Building Resilience to Climate Change Risk and Vulnerability to Meet Water Security Challenges</p> <p>Panel Session to develop recommendations: Policy Makers, Managers and Scientists from the region (Australia, Indonesia, Iran, Malaysia, Namibia, Nepal, Nigeria, Pakistan, Philippines, Sudan)</p> <p><i>moderated by Prof Dr Shahbaz Khan</i></p>



16:00-16:30	Coffee
16:30-17:30	Closing Ceremony

Annex II - Targeted participants

1. Dato' Ir. Haji Nor Hisham bin Mohd Ghazali, Malaysian IHP National Committee / Director, Department of Irrigation & Drainage Malaysia
2. Roslinda Binti Mat Musa, Programme Officer, Malaysian National Commission for UNESCO
3. Ir. Rohani Ahmad, Director, Humid Tropics Centre Kuala Lumpur / Department of Irrigation and Drainage
4. Dr Norlida binti Mohd. Dom, Deputy Director, Humid Tropics Centre Kuala Lumpur / Department of Irrigation and Drainage
5. Assoc. Prof. Dr. Zainura binti Zainon Noor, Centre for Environment Sustainability and Water Security (IPASA), Department of Hydraulics and Hydrology, Universiti Teknologi Malaysia
6. Dr. Rahmah Elfithri, Senior Lecturer/Research Fellow, Institute for Environment and Development (LESTARI)
7. Prof. Chan Ngai Weng, Water Watch Penang
8. Dr Aida Saad, River Engineering and Urban Drainage Research Centre (REDAC), USM
9. Marina Marican Bin Abdullah, DID, Langkawi, Kedah
10. Ahmad Zeeshan Bhatti, Deputy Director, Pakistan Council of Research in Water Resources
11. Dr Asma Younas, UNESCO Chair on Knowledge Systems for IWRM, COMSATS Institute of Information Technology, Pakistan
12. Mirasol Domingo, Department of Science and Technology Regional Office No. XI, the Philippines
13. Dr. Ignasius D. Sutapa, Executive Director, Asia Pacific Centre for Ecohydrology, Indonesia
14. Dr Aftab Ahmed, Murray Darling Basin Authority, Australia
15. Dr. Eng. Tetsuya Ikeda, Chief Researcher, International Flood Initiative Secretariat/ICHARM, Public Works Research Institute, Tsukuba, Japan
16. Alireza Salamat, Deputy Director, International Drought Initiative Secretariat/Regional Centre on Urban Water Management, Tehran, Iran
17. Engr. Abdul-Qadir Dauda Aliyu, National Water Resources Institute (NWRI), Kaduna, Nigeria
18. Dr. Omogbemi Omololu Yaya, UNESCO Category 2 Regional Centre for Integrated River Basin Management (RC-IRBM), Nigeria
19. Leonard Hango, Department of Water Affairs, Ministry of Agriculture, Water and Forestry, Namibia
20. Prof. Dr. Abdalla Abdelsalam Ahmed, UNESCO Professor, Sudan
21. Dr Jagat Kumar Bhusal, Electricity Tariff Fixation Commission, Nepal
22. Prof. Yufeng Luo, Wuhan University, China
23. Dr Olivia Castillo, Chairperson, Sustainable Development Solutions for Asia and the Pacific

UNESCO Office Jakarta team

24. Prof. Dr. Shahbaz Khan, Director and Representative UNESCO Regional Science Bureau for Asia and the Pacific
25. Trita Katriana, National Project Officer
26. Riffa Santi, Administrative Assistant

Universiti Sains Malaysia

27. Prof. Dr. Nor Azazi Zakaria, Director of River Engineering and Urban Drainage Research Centre/REDAC USM
28. Dr. Foo Keng Yuen, River Engineering and Urban Drainage Research Centre (REDAC), USM
29. Dr. Lee Lai Kuan, School of Industrial Technology (PPTI), USM
30. Dr. Mohd Sayuti Hassan, Centre for Global Sustainability Studies (CGSS), USM
31. Ms. Chow Yuh Nien, River Engineering and Urban Drainage Research Centre (REDAC), USM



32. Ms. Lim Kah Yee, River Engineering and Urban Drainage Research Centre (REDAC), USM
33. Mr Suhaizar Sulaiman, River Engineering and Urban Drainage Research Centre (REDAC), USM
34. Mr Khairul Azwan Razali, River Engineering and Urban Drainage Research Centre (REDAC), USM
35. Muhammad taufik Abdul rahman, River Engineering and Urban Drainage Research Centre (REDAC), USM