

Hydrology for the Environment, Life and Policy(HELP)

Global HELP and AP-HELP Perspectives

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WHAT IS HELP?

- **HELP is acronym for the Hydrology for Environment, Life and Policy which is a cross-cutting program under the International Hydrology Program (IHP) of UNESCO.**
- **The HELP programme was initiated by the international hydrological research community and adopted by UNESCO and WMO in 1999.**
- **HELP is designed to develop scientific research in the application of integrated water resources management (IWRM) through a global network of catchments to improve the links between hydrology and the needs of society.**



HELP

Hydrology for the Environment, Life and Policy

To deliver social, economic and environmental benefit to stakeholders through sustainable and appropriate use of water by directing hydrological science towards improved integrated catchment management basins

<http://www.unesco.org/water/ihp/help>

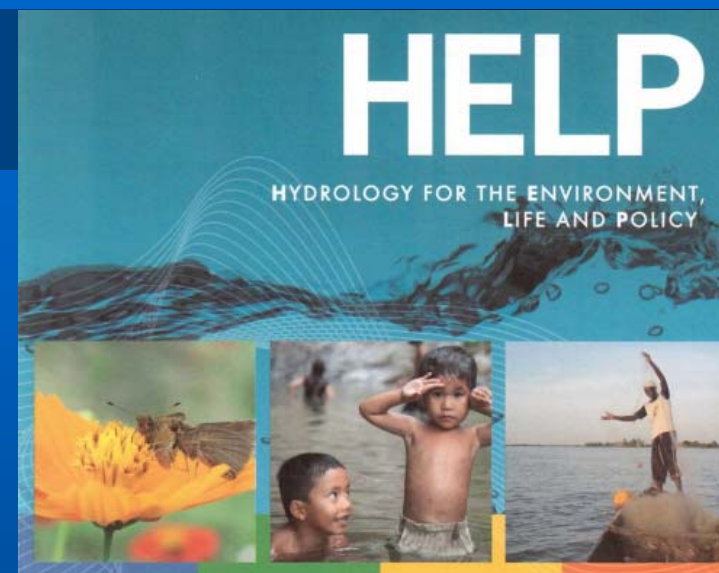
Real people

Real catchments

Real answers

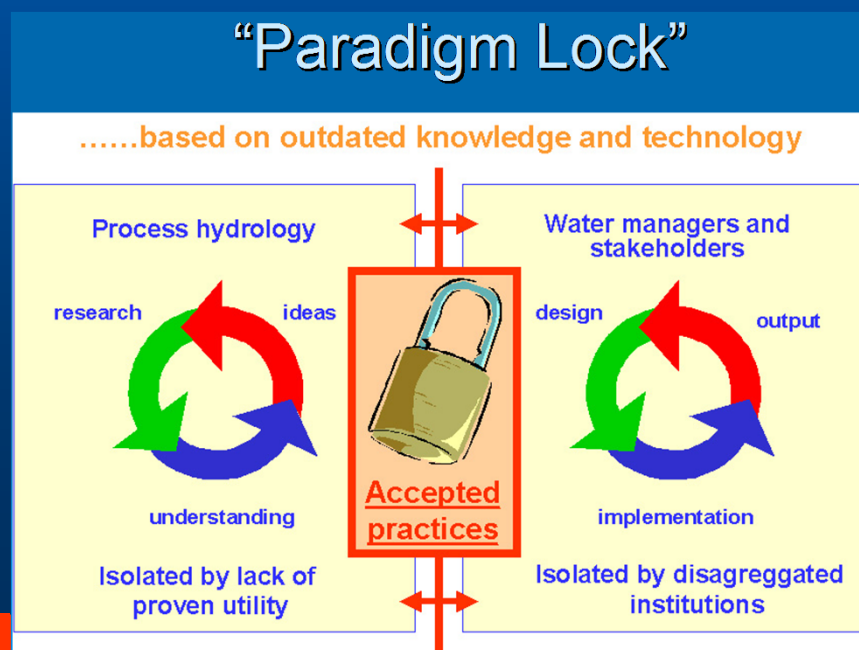
- **HELP is contributing to beneficial water management and policy, with the objective of meeting human needs and increasing societal benefit through appropriate use of water and sustainable development.**
- **HELP is a programme of research, focusing on hydrological processes, and of implementation that is conducted in co-operation with a wide range of stakeholders within hydrological basins spread over different regions of the world.**





- **HELP is field-oriented and is based upon existing and emerging science, bringing together global and local expertise and engaging in scientific capacity building in hydrology and related physical and social sciences, including management and policy. The emphasis on “field-oriented” means that HELP can integrate and build upon the various syntheses and innovative “upstream” thinking of the working groups and national contributions arising from the themes of IHP-VII and IHP-VIII by incorporating and testing such outputs in a field setting.**

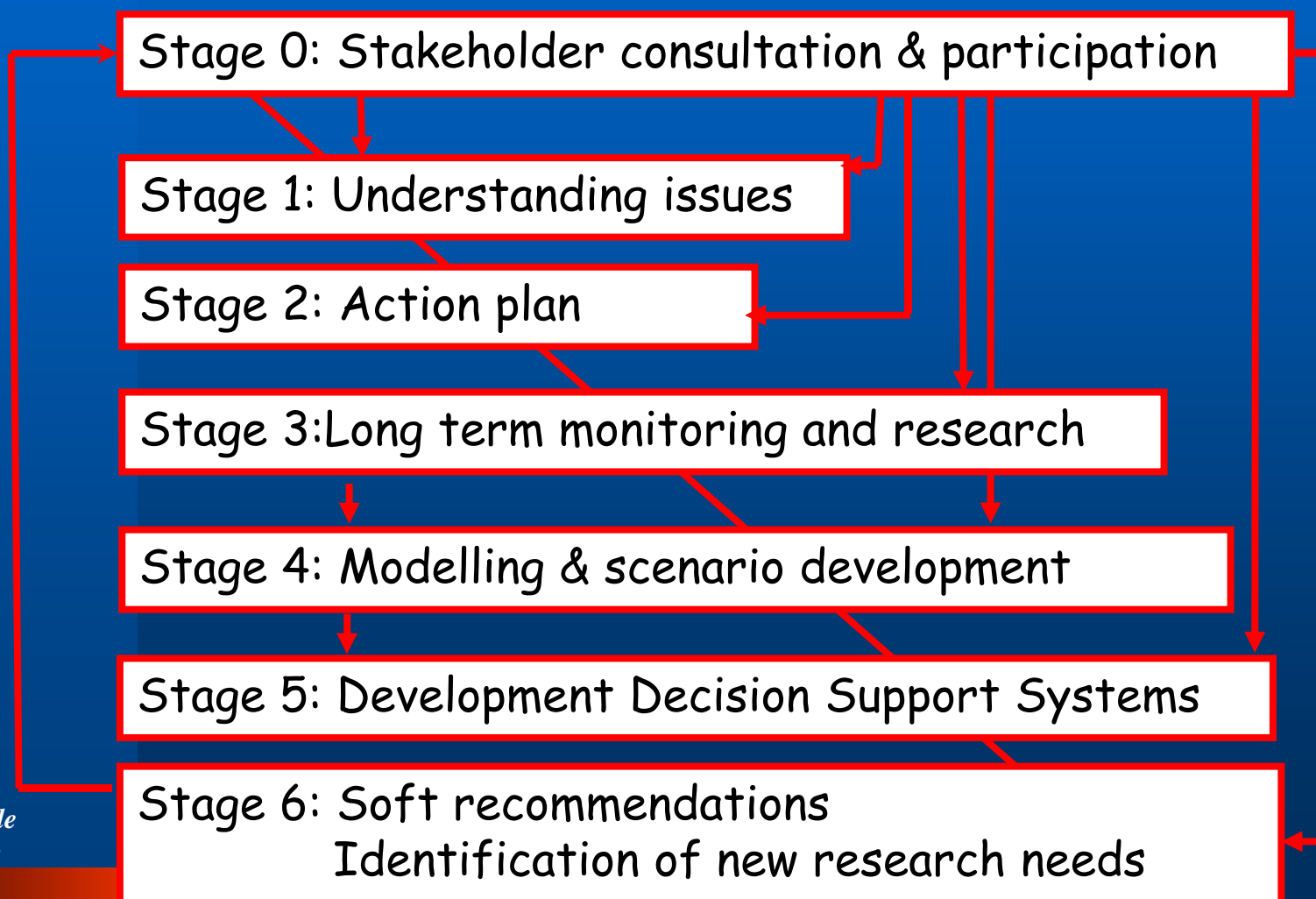
"Paradigm Lock" has come about because the two main groups of scientists and stakeholders have become isolated: scientists by the lack of proven utility of their findings and stakeholders by legal and professional precedence and disaggregated institutions. HELP is trying to unlock this paradigm lock.



- **HELP** is encouraging a dual *trans-disciplinary as well as an interdisciplinary approach* because it allows a holistic solution which involves a *participatory process that takes into account the stakeholder concerns and knowledge*.
- a *Holistic approach (e.g., ecological problems require holistic solutions)*, that takes into account **the whole problem**, in identifying and assessing environmental processes (**Mata-Lima, 2007**).

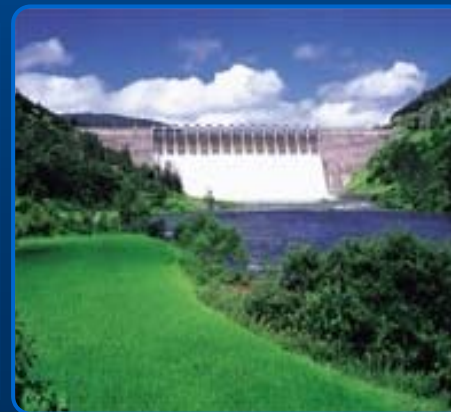
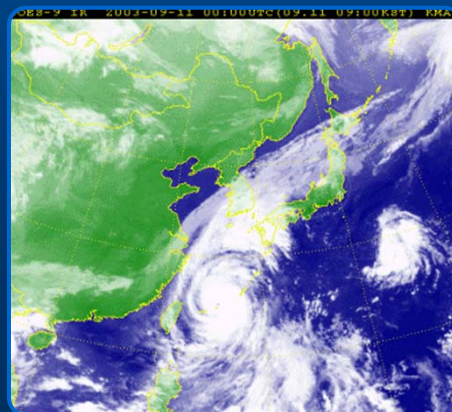
Mata-Lima, H. 2007. Comments on ‘connectivity between landscapes and riverscapes—a unifying theme in integrating hydrology and ecology in catchment science?’ by D Tetzlaff, C Soulsby, PJ Bacon, AF Youngson, C Gibbins, and IA Malcolm. *Hydrological Processes* 21, 2403–2404.

Breaking the vicious cycle in integrated project management



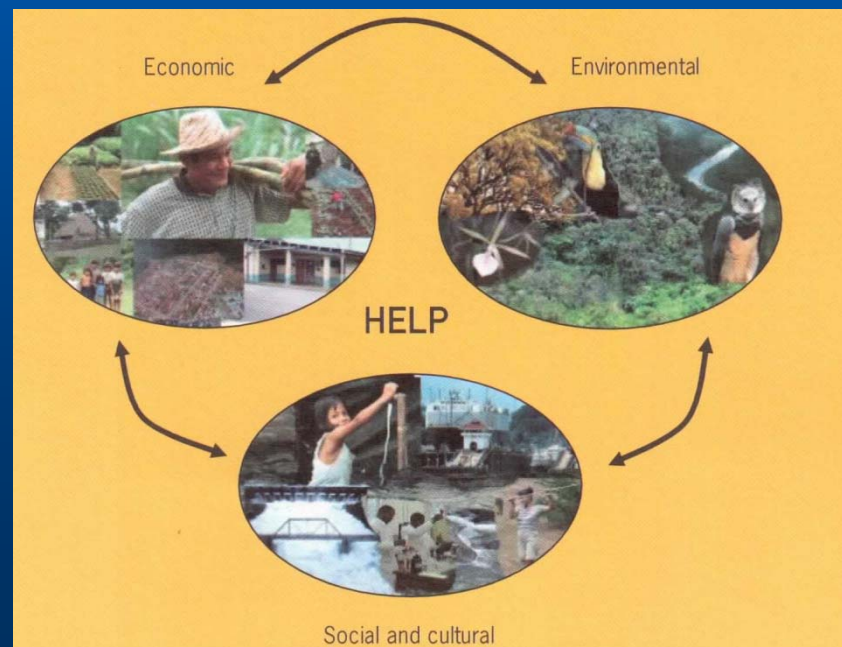
The HELP Process

- A Comprehensive assessment of what we know now (physical, socio-economic, legal, cultural baseline information). Iteration between stakeholders and scientists to determine research plan.
- Implementation of research in collaboration between scientists, managers and stakeholders.



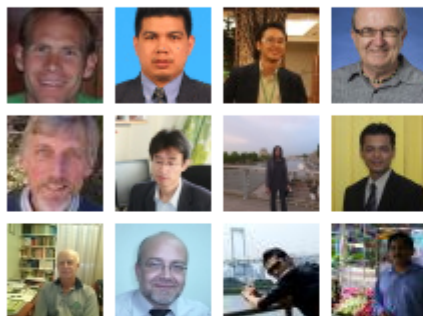
GLOBAL HELP ACTIVITIES

- The central strategy of Global-HELP is to put in place a global network of catchments and presently 91 basins in 67 countries have been established, dealing with a large number of different research topics in hydrology and water resources.



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Hydrology for the Environment, Life and Policy

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HELP is a cross cutting and transdisciplinary initiative of the United Nations Educational, Scientific and Cultural Organization (UNESCO) led by the International Hydrological Programme (IHP).

HELP is creating a new approach to integrated catchment management through the creation of a framework for water law and policy experts, water resource managers and water scientists to work together on water-related problems. [Read more...](#)

The International HELP Network



**Kumho River Basin is an important contributor
to the global HELP agenda**

Click on the red dots on the map to see the HELP Basins

Shahbaz Khan

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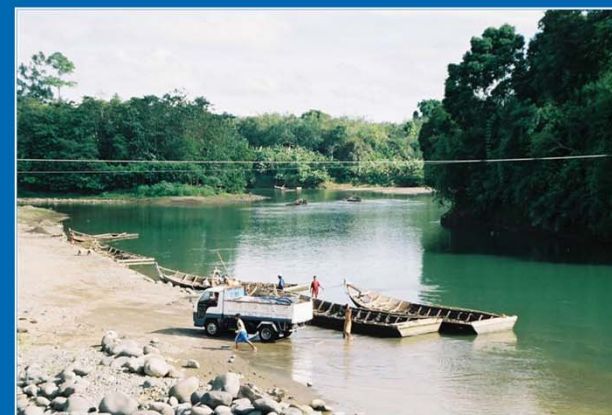


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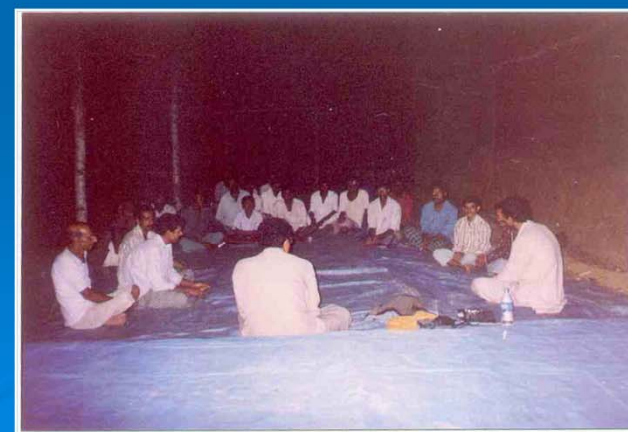
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What makes HELP unique?

- Only international programme that is a catchment based activity which is interfacing scientific research with stakeholders needs.
- Includes scientists, stakeholders, policy-makers, lawyers.
- Provides options as against imposing solutions.
- Providing/testing/implementing and improving solutions.
- Sharing experiences across a global network of basins.



(Davao HELP Basin)

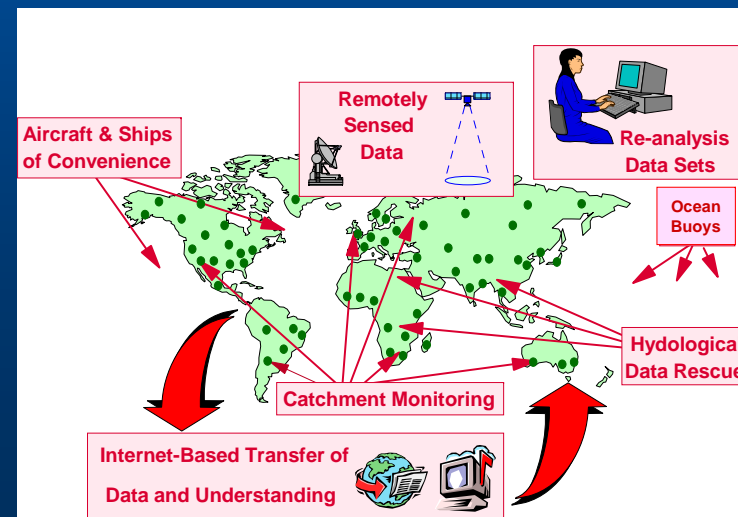


(Meeting in Kodgiball village, Western Ghats, India)

International HELP River Basins (Some Active Examples)

- North America : Lake Champlain, Washita Basin, Willamette Basin
- Central and Southern America : Rio San Pedro Basin(Mexico),
Reventazon-Parisimina River Basin(Costa Rica)
Sao Francisco Verdadero Basin(Brazil)
- Europe : Guadiana Basin(Portugal), Motala Strom(Sweden),
Glowa Danube Basin, Mesta-Nestos River Basin(Bulgaria-Greece)
- Asia : Tarim Basin(China), Indus Basin(Pakistan), Murray-Darling Basin(Australia)
Langat Basin(Malaysia), Davao Basin(Philippines),
Brahmani-Baitarani Basin(India)

HELP actions through a global network of hydrological catchments for hydrological monitoring and data rescue



HELP, Water Security and IWRM

- The HELP initiative asks the question: how can hydrological research learn from and contribute to improving peoples livelihoods by improving water security and protecting the environment? HELP aims to address key water resources security issues in the field and to integrate them with policy and management needs. The new approach uses real catchments with real water related problems as the environment within which hydrological scientists, water resources managers and water law and policy experts can work together.



- **HELP classifies basins in a ladder of achievement, encouraging progression from the lower rungs to the level of a Demonstration basin:**

A Demonstration basin shows best practice in HELP and IWRM and serves as a model or demonstration basin for other basins.

An Operational basin is implementing the HELP philosophy in an integrated manner and is involved with stakeholders in basin management.

An Evolving basin has well-developed plans conforming to the HELP philosophy which are beginning to be implemented.

A Proposed basin requires further work to develop plans and activities in an integrated way that supports the HELP philosophy.

An Associated HELP Activity contributes important information, expertise and services to the HELP programme, either in a particular basin, in a region, or globally, but does not engage in the actual management process of a specific basin.

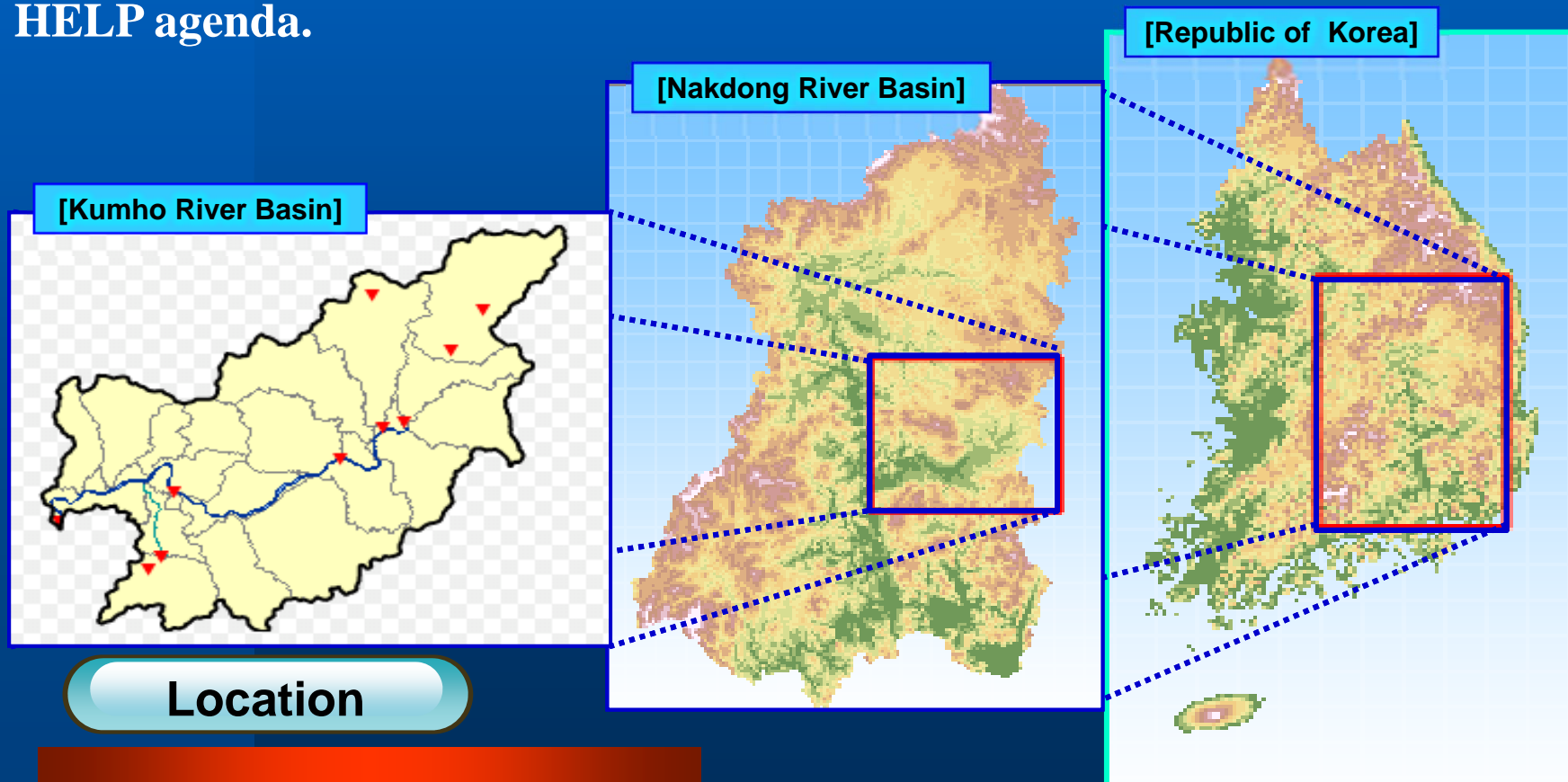
● **The following table gives examples of water security skills being developed in HELP basins.**

Water Security Issue	Examples in HELP	Water Security Issue	Examples in HELP
Policy	<ul style="list-style-type: none"> • Recommending policy based on HELP experience in river basin • Testing new policies in pilot basin 	Communication	<ul style="list-style-type: none"> • Communication with politicians on the aims, relevance and progress of research • High profile media coverage of HELP programme • Awareness programme for local stakeholders
Legislation	<ul style="list-style-type: none"> • Proposing national or local legislation needed to implement IWRM • Implementing new legislation using a HELP basin as pilot 	Management	<ul style="list-style-type: none"> • Demonstration of best practice in project management • Clear link between applied research and meeting local needs • Regular monitoring and evaluation reports to stakeholders
Institutions	<ul style="list-style-type: none"> • Bringing together several ministries in partnership to oversee basin research • Bringing together universities, research institutions and NGOs 	Capacity building	<ul style="list-style-type: none"> • Capacity building through learning by doing for local staff • Training for local staff
Stakeholders	<ul style="list-style-type: none"> • Consulting stakeholders on their needs for water related research and application • Stakeholder participation in prioritising research goals • Stakeholder participation in monitoring and evaluating HELP project results 	Integration	<ul style="list-style-type: none"> • Introducing a wider range of disciplines in research topics and team members • Integrating local, national and international staff in project teams

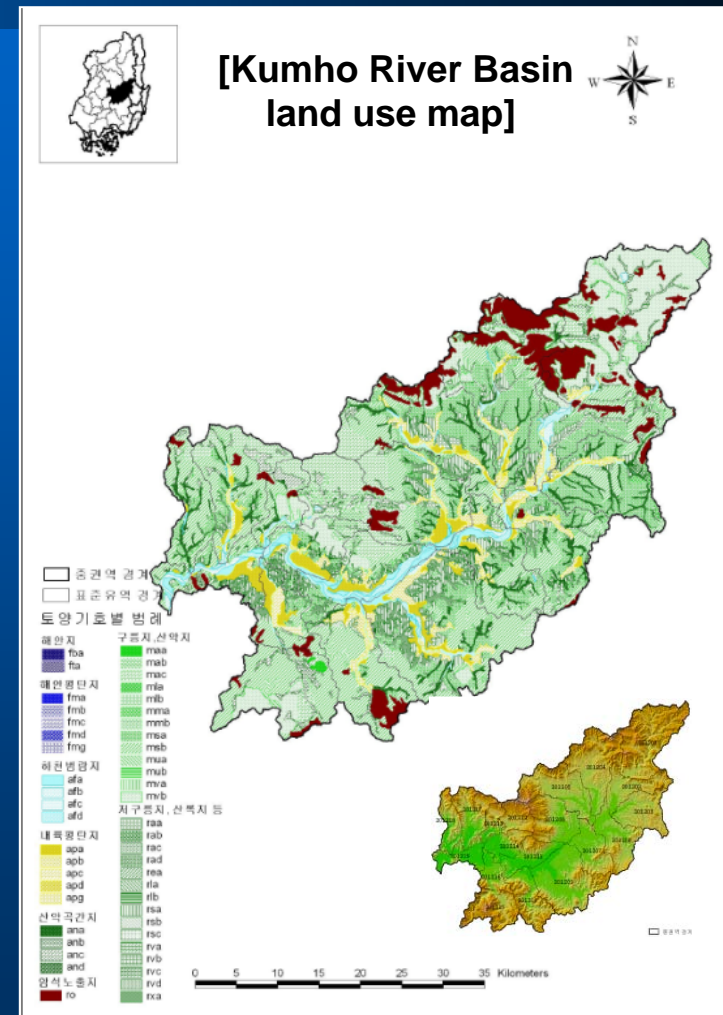
AP-HELP AND KOREAN HELP RIVER BASIN

Korea HELP River Basin – Kumho River Basin

- The Kumho River Basin in Korea is one of active basins within the Asia-Pacific HELP(AP-HELP) basins and is an important contributor to the global HELP agenda.

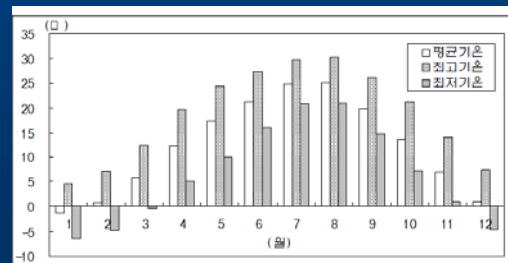
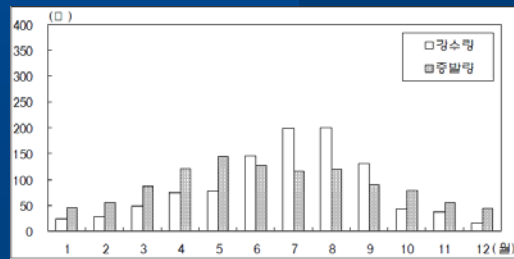


- Basin area: 209,242 km²
- Stream length: 119 km
- Elevation: 15~1,188 EL.m
- Geology
 - Alluvial Soil, Lithosol, Plutonic rock
- Population
 - Total population : 2,003,657 (Daegu : 1,634,169, Gyeongsan : 227,352, Youngcheon : 111,137)
- principal land use : forest, arable land and urban area mostly in Daegu city
- Tributaries
 - Shin-cheon : area 17,997 km²
 - Shinryung-cheon : area 34,344 km²
 - Omok-cheon : area 18,507 km²

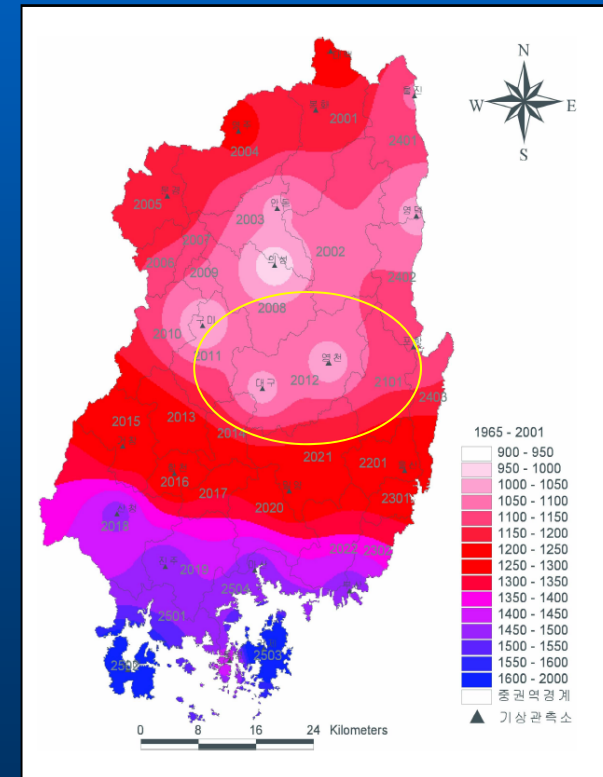


Hydrology

- Annual Precipitation: 700~1,400 mm
- Annual Water Resources
 - Groundwater pumping: 876 MCM
 - Reservoir storage: 948 MCM
 - Surface water: 6,165 MCM (Intake from Nakdong-river: 4,055 M m³)
- Water Use
 - Agricultural: 2,456 MCM
 - Domestic: 3,501MCM
 - Industrial: 6,59M m³

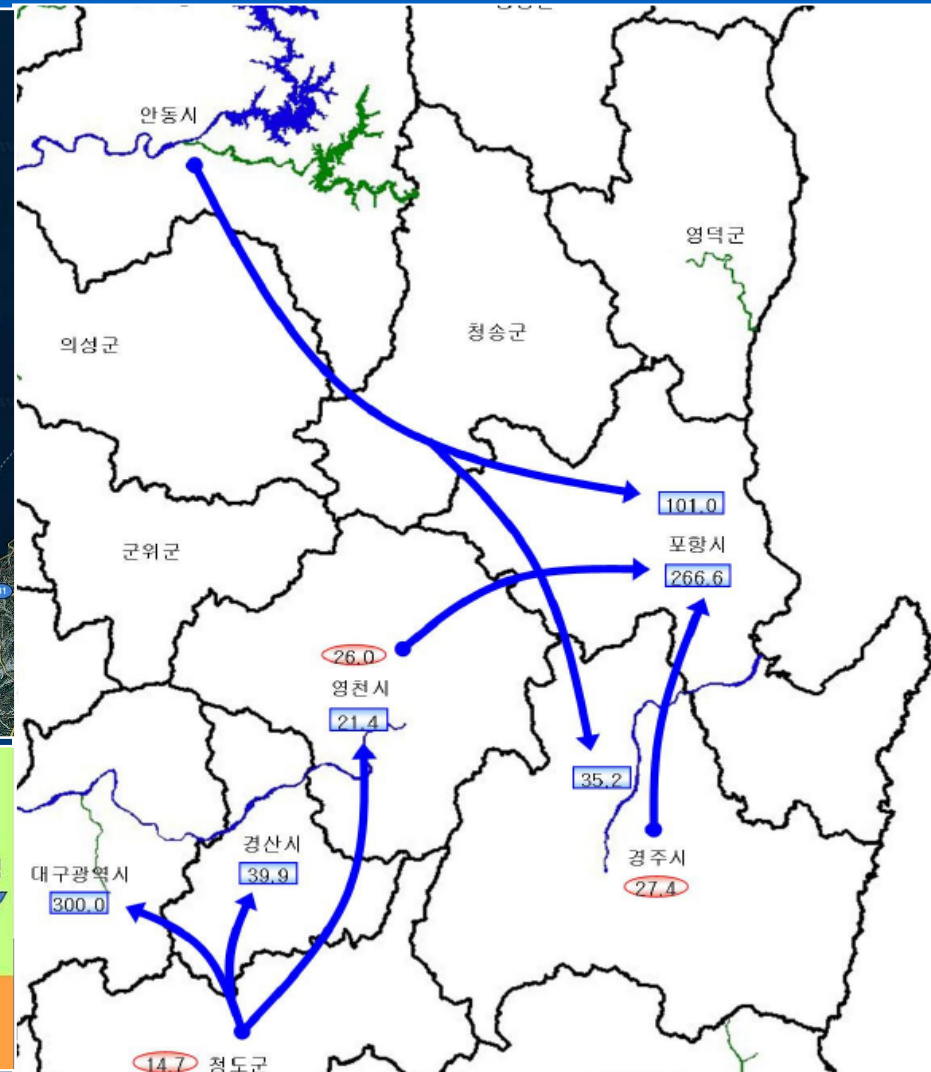
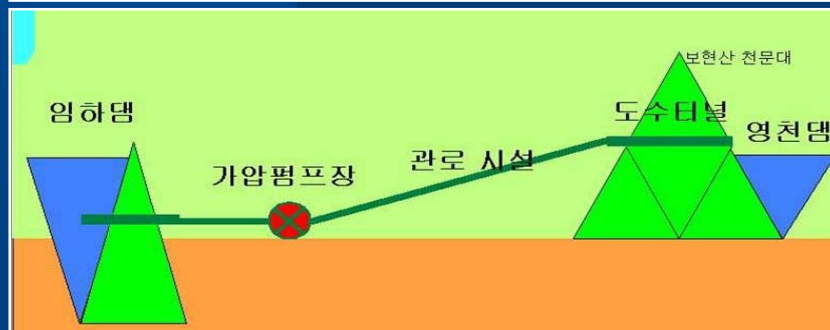
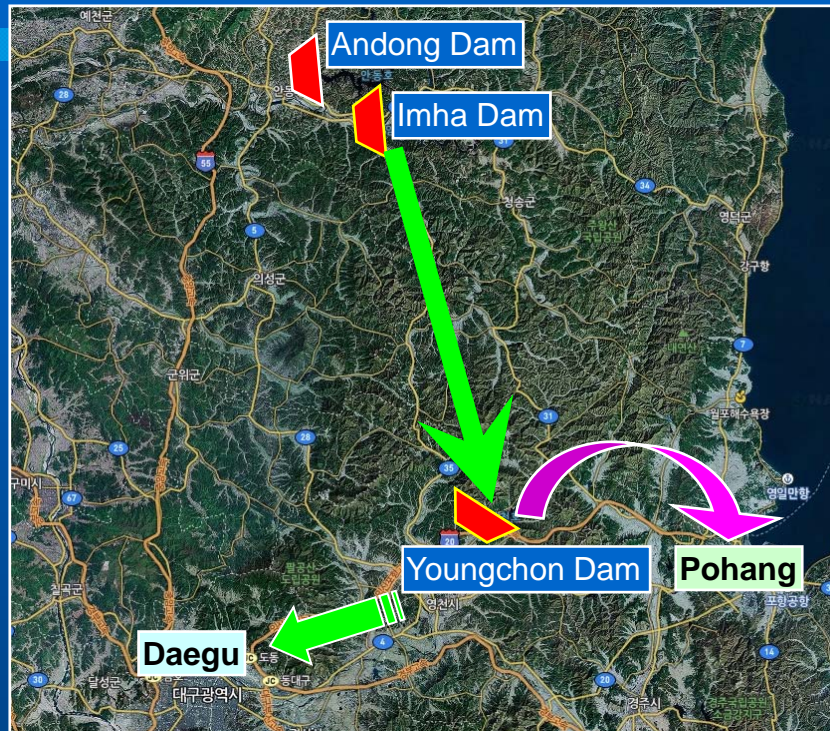


[Monthly Average of Precipitation and Temperature at Youngchon]



[Raifall Chart (1965~2001)]

Water Issues



AP-HELP Linked with Kumho River Basin

- **Joint concrete activities are proposed to be established in the Asia-Pacific HELP(AP-HELP) linked with Kumho River Basin e.g.**
 - Action on the ground – e.g application of Ecohydrology Principles for improving water quality using the methods and approaches in the Putrajaya Lake in the Langat River Basin
 - New integrating science developing under HELP e.g. development of quantification of water and nutrient balance by linking with the modeling frameworks in the Murray Darling
 - Connecting environment, economy, social and cultural impacts through stakeholder mapping techniques
 - Institutional and legal lessons for successful HELP implementation using the examples of Integrated Water Resources Management examples from the basins in Australia
 - Indicators of HELP success through developing a baseline of hydrological and meteorological data baseline analysis for climate change
 - Implementing HELP in basins with limited resources and capacity e.g. by twining with the Davao River Basin in Philippines

- **Key themes and projects within the AP-HELP basins are as follows;**

- **Climate change impacts on water resources management strategy.**
- **Wetlands management (nutrient load, lake restoration, biodiversity).**
- **Participatory modeling and community involvement.**
- **Water quality and provision of Environmental Flows**
- **Implementation of the Integrated Water Resources Management for ensuring Water Security.**

Ipo Weir (The Han River)



● Key challenges proposed for AP-HELP are as follows;

- How do we develop criteria to better define “vulnerable” basins to global change (sensitivity to climatic variability and hydrological impacts of land use change)?
- How do we address upstream-downstream issues within IWRM from both, a technical management and policy perspective?
- How do we undertake the necessary scientific research where basin scientific infrastructure is lacking?
- **Forests & Water.** The impacts of forest conversion and afforestation-reforestation on high-low flows linked with environmental and human health (e.g. natural hazards and community water supply).
- How can we use the HELP approach to address national and transboundary basins policy issues connected with intra and inter basin conflicts connected with surface water and groundwater? (surface water-groundwater should not be treated as separate disciplines, they are connected!)
- How do we address scientific gaps within the Water and Food policy issue?

- *In conclusion,*

Common approaches across HELP river basins in the Asia-Pacific region can bring benefits of South-South cooperation and multilevel stakeholder engagement. In this regard the Kumho River Basin can have a major role in AP-HELP region through its role in the 7th World Water Forum.





United Nations
Educational, Scientific and
Cultural Organization



International
Hydrological
Programme

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FOR
YOUR ATTENTION!**



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