Workshop on Building Resilience to Climate Change Risk and Vulnerability to Meet Water Security Challenges, Langkawi, Malaysia 10-11 July 2017

HELP and IWRM challenges in Nepal

Jagat K. Bhusal
Chairperson, Electricity Tariff Fixation Commission, Nepal
Presentation

➢ A brief on the HELP basin of Nepal - Upper Kaligandaki basin.
➢ A brief on Water Resources Strategy (WRS-2002) and National Water Plan (NWP-2005)
➢ A list of WRM National Stakeholders of Nepal
➢ A brief on Challenges on IWRM in Nepal
➢ A brief on current scenarios on the new draft of WRM policy in the changed administrative system in Nepal
➢ Conclusion
Initiated in 1999 by UNESCO, HELP activities address to a wide range of interrelated issues:

- Water and climate,
- Water and environment,
- Water quality and human health,
- Water and food;
- Water and conflict.

Basins presented by academia institutions/NGOs present a challenge in terms of the continuity of actions proposed and consequently its sustainability. The need to establish mechanisms of collaboration/cooperation with existing official institutions (e.g., local and/or regional governments, IHP National Committees) is recognized by the project sponsors and early actions will need to address this.

**Recommended Focal Areas Linked with IHP-VII**

The Upper Kaligandaki Basin has strong potential to contributing to three of five IHP Themes.

- Theme 1: Global Changes Impacts
- Theme 3: Ecohydrology
- Theme 5: Water Education

Dear Mr. Jagat Kumar Bhusal,

I highly appreciate your proposal to the UNESCO’s Hydrology for the Environment, Life and Policy (HELP) initiative. The HELP Basins Evaluation Committee (EC) met in Guayaquil, Ecuador (26-20 Jan, 2009), to assess the third round of HELP basin proposals. Based on the recommendations of the EC, it is my great pleasure to accept Upper Kaligandaki River Basin as part of the third phase (2008-2013) of IHP HELP Network. Specific comments of the HELP evaluation committee are attached as Annex-1. Generic feedback on the overall submissions is also attached.

During this phase, HELP is being organized along the focal areas linked with IHP-VII themes. You are welcome to participate in focal areas of interest suggested by the EC or to suggest alternative activities aligned with IHP-VII.

Thank you for your interest and participation in the HELP network to jointly address Water Resources Management.

Yours Sincerely,

[Signature]

Professor Dr. Shahbaz Khan
Chief, Sustainable Water Resources Development and Management Section
Help Basin of Nepal

Trans-Himalayan Region, lying behind Dhaulagiri (8,137 masl) & Annapurna (8091 masl)

Alpine cold, dry, arid climate, rain-shadow, windy valley, Average annual precipitation 275 mm.
HELP Initiative in Upper Kaligandaki basin of Nepal

a. Assessment on
- climate change, climate variability and water availability,
- water sharing/distribution and conflict,
- livelihood, farming system, food & health situation, energy sources,
- water induced disasters and vulnerability,
- water governances - formal and informal institutions,
- adaptation to changing environments

b. With stakeholder consultation:
- Formal institutions: district offices like Agriculture, Horticulture, Drinking water, Irrigation, Education, ACAP, DDC and; some VDCs and,
- Traditional and informal institution like “Mukhiya”, and a few Key informants.

Studies on the impacts of climate change on hydrological regime, local livelihoods and sediment transport in the main river basin.
Water is lifeline

Pasture land

Major issues: Climate change, stress on traditional livelihood system.

Major ecosystem services: Water, Soil, Rangeland, Herbs, Unique landscape & Culture

For organic manure from bush leaves

Livestock farming

Solid water storage
Land utilization

Photo 6: Tsai village
Photo 7: Mud roof houses

Water induced disaster risk

Photo 23: Structural measures of river bank protection.

Photo 24: Tiri village - an old debris fan formed by a tributary stream.

Neither forested nor hard rocks: Land covered by loose materials.

Gully erosion by repeated snow deposit and snow melts

Cave formation by wind erosion

Braided river course

Photo 2: Main river course within the basin

Cold season: 0°C to 15°C

Tmax = 0.0193 yr^-1 15.078
Tmin = 0.004 yr^-1 12.374

Year (1975 to 2011)

Sediment [M/year]

Sed = 0.0232 yr^-1 44.426

Linear (Suspended sediment load, M):

Decrease in flows from October
Study findings:

• Traditional agro-pastoralism is still a major source of livelihood.
• Highland (livestock/ grazing) pasture productivity is decreasing because of spatial and temporal variation in snowfall / precipitation. (decreasing trend in snowfall & increasing trend as liquid precipitation).
• Scarsing waters and climate change is impacting agro-pastoralism in the region.
• Trends of increasing rainfall intensities have added threats to mud roof houses and have been adding potential risks of water induced disasters (loose & fragile topography).
• Some settlements (like Samsung & Dhey. ) are at the junction of migration due to drying water sources used for domestic purposes.
• Low moisture holding capacity of soils demand more irrigation water.
• In conclusion, water, environment and livelihood are interlinked and needed intervention through IWRM.
Based on basic information through HELP activities in basin, an additional 3yr research program “Adaptive governance of mountain ecosystem services for poverty alleviation enabled by environmental virtual observatories (Mountain-EVO)” . Program was carried out (2014 to 2017)

(Mountain-EVO Case studies
Nepal - Upper Kaligandaki
Kyrgyzstan - Naryn Basin
Peru – Jequelepeque
Ethiopia - Tana Lake -

Citizen Science : Research for Society, with Society
The implementation of environmental participatory monitoring (PM):
- enabled communities to understand the use & management of local water resources.
- helped to develop a sense of ownership of environmental information and data.
- supported to improve scarce water utilization in agriculture and domestic uses.

Impacts of participatory research:
- Developed ownership and increased the confidence in the research activities and in the implementation of the research outputs by communities and government stakeholders.
- Communities have committed to take responsibility of the installed instruments,
- district development committee has ensured management, sustainability and data utilization and;
- district irrigation office provided support to improve the diversion weir and canals, and has committed to invest further to construct water storage ponds. (Stakeholder participation strengthened)
Philosophy of IWRM - Water treated from a holistic perspective, both in its natural state and in balancing the competing demands on it (e.g. domestic, agriculture, hydropower, industrial, cultural and environmental. . ..)

**Water Resources Strategy (WRS)-2002**
- Principle of Integrated Water Resources Management
- Approved in 2002 (2002 – 2027: 25 Years)
- Goal “Living Condition of Nepali People significantly improved in a sustainable manner”

**National Water Plan-2005**
- Approved in 2005
- Mechanism/implementation processes to be adopted are:
  - Integration
  - Coordination
  - Decentralization
  - Equity
  - Good Governance
- Aim “Poverty alleviation and economic growth with sustainable development of water resources Management”
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<th>Proposed Changes</th>
<th>Actions to Strengthen</th>
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| 1 WEC/WECS (integrated water resources management – policy, strategy, coordination and monitoring) | Elevate status and mandate it as central planning / coordinating agency for water resources | - Advice/approval from WEC should be a mandatory requirement for water sector component of the Five Year Plan  
- Establish a permanent WEC Board |
| 2 NWRDC (policy and international water treaties) | None | - None |
| 3 National Planning Commission (Member Water) | None | - WECS to liaise closely with NPC |
| 4 Kathmandu Valley Water Authority (integrated water resources management – planning, coordination and regulation of water use) | Newly established under the MOPP&W | - Transfer of staff to KVWA  
- Mandate approved to coordinate water related planning and management |
| 5 DWSS (rural water supply and sanitation – planning and implementation of projects) | None. It remains lead agency to coordination rural water supply and sanitation programmes | - Continue to reorient staff to facilitate community participation and ownership of schemes  
- Improved coordination of implementation programmes |
| 6 National Drinking Water Quality Regulatory Board (water supply and sewerage – licensing and regulation) | Restructure existing Tariff Commission into a full regulatory body for domestic water supply | - Strengthen mandate to regulate domestic water use, quality, effluents, tariffs, and private operators  
- Increased staffing and facilities (laboratory) |
<p>| 7 NWSC (urban water supply and sewerage – planning, implementation and operation). | Declining role as urban water supply schemes are transferred to municipalities and/or private operators | - None |</p>
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| 8 DOI (irrigation – planning, implementation and operation) | Re-orientate and transfer of flood control mandate to other departments | - Continue to reorient staff to facilitate community participation and ownership of schemes  
- Focus on multipurpose project planning and implementation.  
- Focus on conjunctive use of surface and groundwater resources to achieve year round irrigation status |
| 9 Groundwater Regulation Authority (groundwater – investigation, monitoring and regulation) | Convert the existing Groundwater Development Board to a regulating Authority to monitor, regulate and investigate groundwater potential | - Increase capability of staff to license and monitor groundwater use, including water quality  
- Increase capability of staff to investigate and maintain a scientific database of groundwater aquifers |
| 10 NEA (hydropower and electricity – planning, implementation and operation) | Restructure NEA to operate more efficiently and in a compatible manner with private operators | - Corporatization of NEA's operating units |
| 11 Rural Electrification Office/Board (electricity development for rural areas) | Separate unit from NEA | - Improve management capabilities |
| 12 Electricity Regulatory Board (electricity regulation and tariff regulation) | Restructuring existing Tariff Commission into a full regulatory body for power sector | - Strengthen mandate to license and regulate generation, transmission, distribution and tariffs  
- Increased staffing and skills |
| 13 MOPE (environment policy, approvals and regulation) | No institutional changes | - Adoption of sectoral guidelines proposed by sub-sector agencies  
- Increased capacity to appraise EIAs, SEAs, Environmental Management Plans (EMPs), Rehabilitation Action Plans (RAPs), and compliance reports |
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| **14** DSCWM (watershed management) | No changes but designate as lead agency to protect and enhance watersheds | - Strengthen mandate to control and protect watersheds  
- Increased funding of programmes to enhance watersheds |
| **15** DWNP (aquatic ecosystems management) | No changes but designate as lead agency to protect aquatic ecosystems | - Strengthen mandate to control and protect aquatic ecosystems  
- Increased funding of programmes to enhance wetlands and aquatic ecosystems |
| **16** DWIDP (water-induced disasters investigation, research and planning) | Expanded mandate as lead agency for all water-related disasters | - Strengthen mandate to coordinate disaster prevention and mitigation measures  
- Transfer flood control responsibilities and staff from DOI  
- Increased funding for development programmes |
| **17** DHM (information and warning systems) | Himalayan Climate Change Study Center will also be established. | - Strengthen mandate to provide information and warning systems  
- Increased staffing, facilities and budget |
| **18** DWRCs (licensing of water use and conflict resolution) | Provide mandate for local planning and approvals | - Strengthen mandate to license and resolve water use disputes  
- Increased staffing and budget |
| **19** DOED (promotion and licensing of private sector hydropower) | Restructure to focus on licensing, promotion and studies | - Ongoing capacity building for private sector hydropower promotion |
More than 19 institutions including eight ministries manage water resources and related activities in Nepal. Several related acts & policies as below.

**Water Resources Act-2049** prioritize water used as
i) Drinking & domestic use,
ii) Irrigation,
iii) Agricultural uses (animal husbandry),
iv) Hydropower,
v) Cottage industries, Industrial enterprises, Mining,
vi) Navigation,
vii) Recreational use and, others

Some other legal documents are,
1. Electricity Act-2049,
2. Water resource regulations Acts-2050,
3. Irrigation policy-2049,
4. Hydropower development policy-2049,
5. Nepal water users group (WUGs)
6. Water supply sector policy-2055;
7. Drinking water regulation-2055,
8. Aquatic Animal Protection Act (1961)
15. Regulation on water users

In spite of all existing acts, regulation and policies, there are challenges for the coordinated management of water, land, and related resources to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.
Challenges in Nepal (summarized based on views published by various experts /researchers)

1: The incorporation of IWRM principles into national water policy and water resources strategy documents was a good starting point to promote IWRM application. But while implementing, dialogues among the main stakeholders and understanding on perceptions of IWRM could not be synchronized with cross-sectorial and cross-ministerial coordination in the respective policies formulation sufficiently.

Interests of sectoral ministries and international donors are also reflected in the water resources policies formulation and implementation, which further added complication for bureaucratic reforms to implement IWRM successfully.
2: The formulation of new institutions like integrated river management committees at local and connecting them with the wider decision-making systems in water resources management is a pertinent challenge to ensure informed, inclusive and accountable decision making. Because of absence of elected local representatives, the prevailing budgetary power remained at sectoral ministry’s representatives, largely at the district level and at division level, which dominated the decisions on selection and implementation, the notion of which reflected to the institutional barriers to effective, inclusive and accountable decision making in water resource management.

WECS could not performed its mandate for cross-sectoral coordination as envisioned in WRS and NWP. Absence of a strong coordinating agency at the national level could be one the reason.
3: For meaningful water resources management, it is essential to understand key stakeholders’ perceptions of IWRM. How various sectorial ministries perceive the very idea of IWRM and benefit from its application, and the way donor organizations themselves do sectionalize to operate and disburse funding, was found crucial. Pilot projects initiated mostly with donor’s funded, illustrated the notion of institutional barriers and highly contested political arenas for IWRM implementation because, the main stakeholders & the most powerful actors role could not be supportive.

4: Deriving from the views on institutional barriers, implementation of IWRM is linked with issue of bureaucratic reform. Institutional set-up and capacity building as demanded by IWRM policy has not been materialized yet. However, at present context, IWRM assumes that sectorial ministries come up with the right institutional set-up and mechanisms of implementation; and to which donors are also concerned about.
Necessity of efficient water use management is further increased to manage scarsing waters due to climate changes. Climate change issue is an added advantage to motivate to implement IWRM.

The new Constitution of Nepal -2015, has considered water as the primary natural resource of the country and has divided its sharing and responsibility among the center, province and local entity. Existing IWRM policies need to accommodate the constitutional spirit. Rights to water resources is not clearly defined (only says major natural resources belong to the state gov.). The constitutional Commission (National Natural Resources and Fiscal Com) will face challenges to manage conflicts between local, province and federal governments in coming years.
WRM Policy reformulation in Nepal (in progress)

A national water resources policy to utilize water resources in integration by maximizing its social, economic and environmental value for the well-developed Nepal; is being reformed under the leadership of Water and Energy Commission Secretariat and is waiting for finalizing and government approval.

- Has considered evidences and scientific data (water availability situations) as well past experiences.
- Emphasizes on transparent and statutory arrangements for water sharing among various uses & users.
- Considers benefits from multiple uses of water resources. with respect to space, time and changing circumstances.
- Provides directives and guidance for building the legal and institutional structures in order to implement the constitutional provisions of all levels of state organs.
- Stakeholder participation and gender equality guaranteed.
- Directs in maintaining water quality standard, preventing water pollution; minimizing losses by water induced disasters and drought.

Preparation of River Basin Plans through IWRM principles for major river basins considering all aspects of water uses, environmental and social in the process.
Conclusion

Issues of water rights and environmental considerations were underemphasized in the existing water resource policy. Nepal lacked legally a strong agency to deal with IWRM and to enforce its implementation. Preparation of river basin plans through IWRM principles are in the process for major river basins with consideration of all aspects of water uses including economic, social, environmental and conservation values.

Trans-boundary issues on water resources of Nepal are not addressed in IWRM philosophy. So issues are to addressed with IWRM principles included at regional basin level, also for trans-boundary river basins.
THANKS