THE ABU DHABI DIALOGUES

PROCEEDINGS OF
THE NATIONAL DIALOGUE
ON
HIMALAYAN WATER RESOURCES

FINAL REPORT

Kathmandu, Nepal
16 May 2008

Ministry of Water Resources
Jalsrot Vikas Sanstha (JVS), Nepal
and
Nepal Water Conservation Foundation

Acknowledgement

The dialogue program on “Himalayan Water Resources” was organized to support the vision set forth by the Abu Dhabi Group, and to contribute in identifying key issues to be discussed in the forthcoming Abu Dhabi Dialogue in climate change and water resources. The program was organized by the Ministry of Water Resources (MoWR), Government of Nepal, Jalsrot Vikas Sanstha (JVS), Kathmandu, and Nepal Water Conservation Foundation (NWCF), Lalitpur.

On behalf of the organizers, JVS acknowledges the World Bank, Nepal Country Office, for providing both technical and financial support for the program, without which, this task has not been possible. Special thanks to Dr. Shyam S. Ranjitkar for his unflinching help to organize the program.

Mr. David Grey, Senior Water Advisor, World Bank, Ms. Claudia Sadoff, Lead Economist, World Bank, Dr. Madan L. Shrestha, Academician, Nepal Academy of Science and Technology, Mr. Ajaya Dixit, Director, Nepal Water Conservation Foundation, Mr. Surya Nath Upadhyay and Mr. Som Nath Poudel, Jalsrot Vikas Sanstha, owe our special thanks for their valuable presentations.

Mr. Anil Chitrakar from the World Bank, Nepal Country Office and Mr. Ajaya Dixit, Director, Nepal Water Conservation Foundation deserve our sincere thanks for their efforts in moderating the entire session of the dialogue program. Special thanks to Mr. Anil Pokharel from Nepal Water Conservation Foundation and Dr. Dibya Ratna Kansakar, Department of Irrigation, for their efforts as rapporteurs.

JVS recognizes the efforts of Mr. Sanjaya Dhungel from Water and Energy Commission Secretariat, and Dr. Dibya Ratna Kansakar, Department of Irrigation, for preparing the proceeding of the dialogue program.

Last but not the least, JVS extends sincere thanks to all the participants for their active participation and contribution in the program.

Jalsrot Vikas Sanstha (JVS), Nepal
Kathmandu, Nepal
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1 Background

Water is an important but limited resource in the world. There is a severe demand pressure on the limited freshwater supplies due to population growth, urbanization and economic activities. This resulted withdrawal of freshwater from rivers, lakes and underground reservoirs in an exponential manner which leads to conflicts among stakeholders for use of the water resources. The effects of climate change have also imposed serious threats in management of the water. Water resources have thus both the social and economic implications and it requires multisectoral involvement. Broadly, the conflicts arising for sustainable use of the resources need to be addressed with an effective communication, cooperation and coordination. Establishment of upstream-downstream linkages and addressing the trans-boundary implications in a positive manner are also the challenges for effective and efficient management of water resources. These challenges call for solutions. Negotiations, trade-offs, and compromises are the major instruments involved in the process.

In order to address and derive an acceptable solution, seven countries Afghanistan, Bangladesh, Bhutan, China, India, Nepal and Pakistan joined together in Abu Dhabi and formed "Abu Dhabi Group". The group aimed at building non-formal consultative process and identified a common vision "cooperative and knowledge-based partnership of states fairly managing and developing the Himalayan River Systems to bring economic prosperity, peace and social harmony and environmental sustainability from the source to the sea" for future.

In support to help achieve the vision set forth by the dialogue, Nepal organized a country workshop to identify key issues to be discussed in the third dialogue program to be held in near future. The Ministry of Water Resources (MOWR), Jalsrot Vikas Sanstha (JVS) and Nepal Water Conservation Foundation (NWCF) jointly organized a program on "Himalayan Water Resources" on 16 May 2008. The World Bank, Nepal Country Office provided assistance to conduct this event. This program aims to identify the regional issues on effects of climate change as well as water resources and poverty alleviation.

Mr Sanjaya Dhungel, Master of Ceremony

2 Objectives

The objectives of the dialogue were to:

- Sketch the region's physical and social vulnerabilities with the aim of enabling livelihood diversification and support poverty alleviation initiatives through management of water,
- Identify challenges of climate change impacts on the regional hydrological systems including data and scientific gaps,
- Discuss emerging constraints in the development, use, allocation and management of Himalayan Water Systems to achieve above objectives, and
- Identify pathways of cooperation among different actors within and among countries to promote knowledge based partnership.

3 Agenda

The one-day long program was divided into three parts - (a) opening of the program, (b) setting the stage and (c) discussion. The agenda is presented in Annex 1.

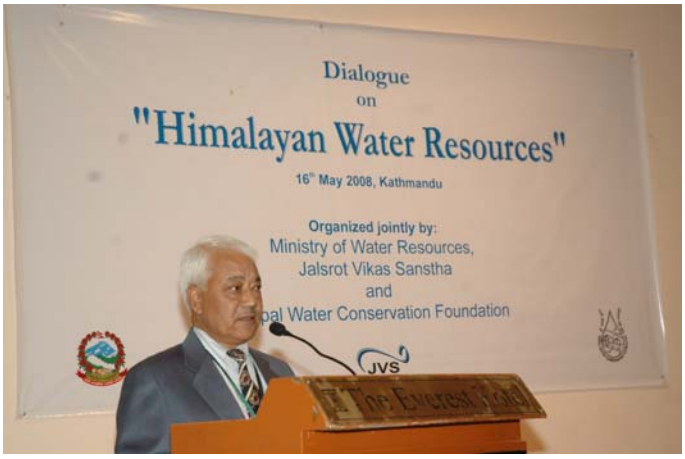
3.1 Participants

A total of 92 participants attended the program. The participants were from Government, Non Government, Civil Society, Political Parties, Media persons and donor agencies. The list of participants and their contact addressed are presented in Annex 2.

Participants in Discussion

3.2 Opening of the Program

The workshop began with the welcome and briefing of the objectives by Mr. Iswer Raj Onta, Chairman, JVS. On behalf of the organizers, Mr. Onta welcomed the participants in the program.

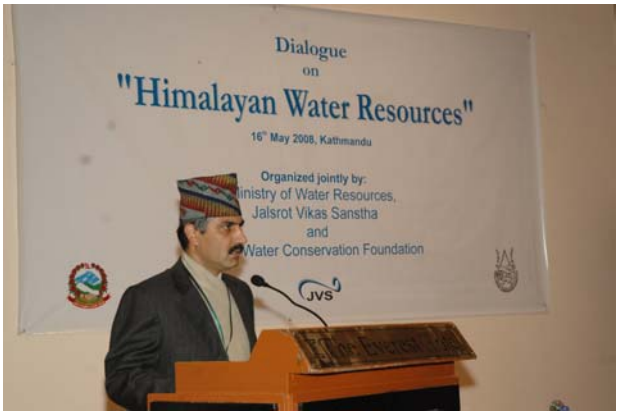


Mr. Iswer Raj Onta, Chairperson - JVS

He explained the formation of Abu Dhabi group and briefed the aim of the program that is to identify issues on climate change effects, water resources and poverty alleviation and institutional linkages which have regional dimensions . He expressed his confidence that the participants will share their experience and expertise and contribute to address the objective set forth and make the program successful.

Mr. Shanker Prasad Koirala, Secretary, MOWR, addressing the program, highlighted the need of the water resources for aquatic ecosystem, human life and welfare. He expressed concern over the climate change effects, deteriorating water quality and environmental degradation that are causing negative impact in sustainable use of the resources. He suggested a need for an effective management of water resources to address complexities involved there in before getting too late.

Different countries have realized these complexities and initiated to design and implement plan and program based on integrated water resources management principles. Different components such as, management of water at the basin level, improvement and expansion of delivery services particularly to the poor, water conservation and efficiency improvement, promotion of regional cooperation for mutual benefit of shared water resources between countries and information sharing have been considered in this process.



Mr. S. P. Koirala, Secretary, MoWR

Mr. Koirala touching briefly on the water resources of Nepal suggested to manage the resources from upstream towards downstream so that optimum benefits can be achieved. An efficient and effective management of the upstream sources will bring desired benefits to the downstream locations including Nepal and other countries in the region. Nepal has prepared the Water Resources Strategy and National Water Plan for the sustainable development of the country's water resources. National Planning

Commission of Government of Nepal has prepared the three years interim plan in water resources sector for the year 2008 – 2010 following the principles and activities defined by the Strategy and National Water Plan. Request has been made for collaborative and concerted efforts from the countries in the region and also to the development agencies for this effort.

Concluding his address, Mr. Koirala wished a success and full support to this program.

4 Setting the Stage for Abu Dhabi Dialogue

There were five presentations in the program. The summary of the presentations are given below:

i. Title: Himalayan Water Resources
The Abu Dhabi Dialogue

By: Mr. David Grey, Senior Water Advisor, World Bank

Mr. David Grey outlined his presentation under three broad headings.

The first outlined the challenges of transboundary water: Conflict of cooperation? He indicated the possible conflict and even war in future for fresh water by quoting the then Secretary General of UN, Kofi Annan, March 2001. He pointed the all Asian region are under water stress and the availability of freshwater is decreasing. The flow trend of rivers in south varies to the extremes with flood, drought etc. There exists a vast water resources originating from Himalayas to the sea. The countries of south Asia particularly Nepal, India, Bhutan, Bangladesh and China are bestowed by three river systems namely the Ganges, Brahmaputra and Meghna. These transboundary river systems need to be harnessed to the benefit of all the people living in the basin area.

Mr. David Grey, World Bank

The second heading "The River of the Greater Himalayas: a white spot" pointed that nine major river basin comprises "water tower" of Asia originating from greater Himalayan region. These "water tower" are depleting due to the increase in rate of temperature. He explained that there exists an information gap as the numbers of hydro-meteorological stations were limited in numbers and locations.

Mr. Grey outlining "the Abu Dhabi Dialogue: common problems with common solutions?" suggested for a common solution of regional cooperation on data collection, knowledge gathering, exchange, analysis and exploration of shared response to address the common challenges.

The slides of the presentation are given in Annex 3.

ii. Title: Climate Change and its Effect in Himalayan Water Resources

By: Dr. Madan L. Shrestha, Academician, Nepal Academy of Science and Technology

Dr. Madan L. Shrestha indicated that human activities are responsible in emitting CO_2, N_2O and CH_4 that enhance green house effects. The climate change effects the overall natural systems with an increase in temperature, run-off, enlargement and retreat of glacial lakes, warming of rivers and lakes effecting thermal structure and water quality, increase in ground stability in permafrost regions and rock avalanches in mountain regions.

Dr. M. L. Shrestha, Academician, NAST

He further illustrated the temperature and precipitation change as well as discharge of snow-fed rivers of Nepal with time series data.

The data revealed that in Nepal more frequent warm days and fewer cold days have been experienced over past thirty-five (1971-2006) years. In the past forty-five years (1961-2006), the rainfall events have been irregular and number of extreme rainfall events (>=100mm) are increasing. The time series data on the discharge of three snow fed rivers Dudh Kosi, Kaligandaki and Tamur shows an erratic behavior with varying extremes. Dr. Shrestha mentioned that establishment of "Himalayan Climate Research Center" as per the National Water Plan 2005 is a positive step to deal the issues of climate change in a coordinated manner. Concluding the presentation Dr. Shrestha suggested to strengthen the hydrological and meteorological network as well as regional collaboration in monitoring and research activities.

The slides of the presentation are given in Annex 4.

iii. Title: Learning To Live With Winds of Change: Adapting to Climate Change Impacts

By: Mr. Ajaya Dixit, Director, Nepal Water Conservation Foundation

Mr. Ajaya Dixit, outlined the existing scenario of hydro-ecological diversities in Himalayan Ganges System and their effects on agricultural livelihoods and inadequate access of the poor to the basic services. He also pointed at the information gap in Himalayan region in the IPCC report. Mr. Dixit further explained the impacts of erratic climate in rainfall, flood, drought, agriculture, etc. According to Mr. Dixit these negative impacts need to be addressed by shifting strategies to well adapted system where people, environment and other features they value are "doing well".

The adaptation is broadly defined into two categories, planned adaptation where the intervention is made by government and donors; autonomous adaptation where the "action" of the population is in response of threat and opportunities. These two categories need a fusion to establish enabling adaptation systems to live with the winds of change. For the fusion, an effective communication, mobility, allocation of resources and multiple applications of skill and capacities are essential.

The slides of the presentation are given in Annex 5.

Mr. Ajaya Dixit, Director, NWCF

iv. Title: Cooperation on Water Resources

By: Mr. Surya Nath Upadhyay and Som Nath Poudel, Jalsrot Vikas Sanstha

Mr. Surya Nath Upadhayay briefed on the five sub-basins of Ganges flowing through Nepal, namely Ghagra, Gandak, Bhuri Gandaki, Mahananda and Kosi or Sapta Kosi. He explained the features of five basins that includes catchment areas, water availability, existing use, future water requirement and proposed storage schemes. He highlighted the benefits and impacts of regulated flow. The impacts mentioned are pollution, siltation, bio-diversity loss, water logging and health problem.

Mr. Surya N. Upadhyay, Secretary General - JVS

Explaining the India's "Interlinking of River" concept, Mr. Upadhyay opined the merits and demerits of the concept. The merits identified are surplus water diversion to North-western India for irrigation and water supply and demerits are flow deficit at Farakka, disputes among co-riparian, change in dynamic equilibrium of Himalayan landscape and ecological disaster.

Mr. Upadhyay discussed on the Kosi, Gandaki and Integrated Mahakali agreements and lesson learned from those agreements. The lessons pointed out are the need of sharing benefits of water, preference for Nepal's water requirement and water and energy is the compensation for the land made available.

The presentation also listed the history of regional cooperation in water sector in Nepal starting from 1779 to 1996. In the regional perspective, the focus of India, Nepal and Bangladesh in water use aspects were also highlighted.
The slides of the presentation are given in Annex 6.

v. Title: Cooperation and Benefit Sharing on International Rivers

By: Ms. Claudia Sadoff, Lead Economist, World Bank

The presentation Ms. Claudia Sadoff raised four fundamental questions on cooperation. In response to the first question "Why cooperate", countries with similar agenda are bound to cooperate when it is in their interest to do so.
In the second question, regarding benefits of cooperation, four types of rivers each giving benefits are identified. The corner stone of cooperation in management of river basin an uncontroversial starting point is suggested. The benefits of cooperation in "ecological river" are improved ecosystem sustainability, conservation and water quality. The "economic river" provides multiple benefits such as hydropower, irrigation, drinking and sanitation. This help to improve productivity, quality of human and aquatic life, flood and drought management. The third "Political River" identifies the opportunities of policy shift to cooperation and development from dispute, food and energy self sufficiency to security and even reduce conflict risk and military expenditure. Finally, the fourth "Catalytic river" provides both direct and indirect benefits in integration of regional infrastructure, markets and trades.
The third question "What is cooperation" is answered by stating that cooperation is not "all or nothing" and cooperation efforts has to be established at different levels. Continuum of cooperation calls for information sharing, adaptation of national plans to capture regional gains and joint efforts. However, it is cautioned that "over cooperation" may not be better and as such there is a need to shift/adapt in response to development.

Ms Claudia Sadoff, World Bank

In order to address the fourth question "What is benefit sharing and how is it done", Ms. Sadoff defined the sharing of benefits which focuses on benefits of water use/non-use rather than dividing the water itself. The benefit sharing mechanism calls for basin-wide planning to identify "optimal" plans in consideration of both sustainability and equity.
The slides of the presentation are given in Annex 7.

5 Discussion

After setting the stage with the structured presentations, the floor was opened for discussion. The participants took part in the discussion actively and put forth their views from various aspects and also offered their suggestions for the forthcoming Abu Dhabi Dialogue. There was a general consensus among all the participants that the Himalayan Rivers bear enormous importance in the well being of the people of Nepal as well as those living in the northern Indian subcontinent.

Mr. Anand Pokhrel – Parliamentarian UML

Therefore, cooperation at regional and bilateral levels is important particularly in the case of Himalayan Rivers, because a large human population depends on these rivers and most of them are poor. The issues raised and the themes discussed for presenting in the forthcoming Abu Dhabi Dialogue are summarized under the following broad headings:

A. Knowledge Gap and Information Sharing

i. Climate change is now a globally recognized phenomenon, but there is very little specific knowledge on its effects on Himalayan Rivers. Researches on such a phenomenon with global effects require scientific data from a large geographical area. They need to be carried out at a regional scale. The Himalayas remained a large 'blank spot' in the IPCC AR4 Report, due to lack of scientific data. Therefore, in the Abu Dhabi Dialogue, Nepal should seek cooperation for regional endeavor in scientific research on this little understood problem in the Himalayan region.

ii. There is a dearth of scientific data on Himalayan Rivers in the first place. Even those limited data are not shared between countries. Cooperation within and between nations can be achieved on sharing the river water or the benefits from river water, only when the concerned parties are fully aware of the available pie to cut into, which is the available water in a river in this case. Hydrological data defines the size of the 'pie' i.e. water, available to cut into, and this is the starting point for any mutually agreeable and sustainable treaty between countries.

iii. Scientists have predicted that the contribution of snow and ice melt to lean period flow in Ganges will be reduced to 30% in 50 years from now. This will further necessitate cooperation in studying the Himalayan Rivers at a regional scale.

iv. The effects of climate change on the existing non-storage type water resources projects in Nepal needs to be studied, and appropriate strategies needs to be developed to mitigate the adverse impacts on the existing infrastructures and in the future projects.

v. The effects of climate change on water induced disaster and food production is not known. Without properly understanding the effects on these and other important sectors, mitigation nor adaptation to climate change will not be possible.

B. Regional and/or Bilateral Cooperation

i. Cooperation at River Basin level is necessary for long lasting and mutually beneficial relationship between countries.

ii. Government of Nepal had sought for regional cooperation on its Himalayan Rivers in the 1950's itself. Later on, it had to resort to bilateral cooperation for developing its water resources. But, with the multiple nations as riparian, Nepal's experiences in the last five decades has again shown that the Himalayan Rivers demand regional cooperation. Threat from climate change is once again indicating the need for regional cooperation.

iii. Each party involved in any agreement on a river must honor all the provisions made in it, not in piece-meal. Setting example of total compliance of a treaty or agreement is necessary for further cooperation between the parties. This needs to be emphasized in the Abu Dhabi Dialogue.

iv. There are various models for regional or bilateral cooperation. Sharing of water is one of the models in practice in the world, and sharing of benefits is another. However, the methodology for calculating the benefits needs to be developed first. Again, such methodology/ies has to be agreeable to each party, for which, again, there is a need for sharing of information and scientific data. Nepal has a bad experience of calculating benefits unilaterally (the case of Karnali – Chisapani Project), which was not acceptable to the downstream country. So, the overarching question is who decides what the benefits are before there could be a dialogue on how and what to share?

v. Nepal needs to develop its own capacity also to review the past agreements, calculate the benefits and losses from those agreements (projects) based on knowledge-based assessment, and develop methodologies for calculating the benefits of water resource projects for future agreements. Water and Energy Commission is the appropriate institution of Government of Nepal for this type of activities.

vi. For further cooperation on Himalayan Rivers, future dialogues need to be started from the points of commonality among the parties concerned, rather than sticking to the points of differences.

C. Water Resource Utilization within Nepal

i. Meeting the domestic needs of Nepalese people is the first national priority in every river project. The principles of sharing of water or the benefits from the river water apply not only between countries, but also in a river basin area within a country. With the emerging changes in the political system in Nepal, this point needs stronger attention of all.

ii. Nepal needs to view its water resource development in two contexts; (i) national use, and (ii) international (riparian countries) use. Separate strategies, investment and development plans need to be applied in these two contexts.

iii. Reduction in storage of water in the form of snow and ice in the Himalayas is one of the most threatening impacts of climate change. This will reduce the lean period flows in the Himalayan Rivers. Therefore, sustained water augmentation for dry periods is one of the main challenges for the people living in this region. New strategies and planning for increased storage of water in other forms (lakes, ponds etc. in the mountain and hill regions) need to be developed at a river basin level.

iv. Lately, a number of stand-alone hydel projects have been agreed for development in Nepal with private sector companies. These projects will yield regulated water flow in the respective rivers. It is now urgent that Nepal planned to maximize the benefits from such regulated river flows.

v. Unilateral development of river projects by downstream countries causes adverse effects on the upstream areas. Such projects lead to conflicts and should be discouraged.

vi. Hard resilience measures, such as flood controlling engineering structures, are not adequate to protect the lives and property from water induced disaster, but soft resilience measures are also essential, particularly in the coming days when the effects of climate change will be more pronounced.

6 Conclusion

At the end of the program, Mr. Ajay M. Dixit summarized the whole day program by recognizing that the effects of climate change is going to be felt more by the people living in the Ganges-Brahmaputra-Meghna river basins. There is very little scientific data available on Himalayan rivers, and there is a lack of sharing of even such dismal database. Regional efforts are needed for expanding the database on Himalayan Rivers. Such regional efforts have the potential of becoming the harbinger of mutual understanding and trust that are necessary for regional cooperation on harnessing the rivers and protecting from water induced disasters the people living in the river basins of all the concerned nations. Each nation must define its national, regional, local or community and household level interests in its water resources, and share the water or its benefits on a sound knowledge based agreements. Tangible track records of compliances of past agreements foster mutual trust and confidence among the parties concerned, which are essential for further cooperation in future. There must be mutually agreed methodology for calculating the benefits of a river project in order that the benefits from it could be shared equitably.