

WEPA Dialogue in Nepal Meeting Memo

1. Question and Answer in Technical Session

Technical Session in the morning

“Japanese Experiences Derived from having Overcome Water Pollution” by Mr. Nobuo Yoshida, Director, Water Environment Division, Ministry of the Environment Japan

- Dr. Bishnu Bhandari of ICIMOD asked what incentives are given to the public to promote the Basic Environment Law and also what role the public sector is expected to have in promotion of the law. Mr. Seki of MOEJ answered that the Environment Basic Law includes no incentive mechanisms but shows the direction of environment protection. He also mentioned that the role of public sector is defined in this Law.
- Mr. Gautam Rajikarnikar asked how best to evaluate the achievement of water environmental goals. (This question is not answered in the meeting due to time constraints.)

“Japanese Urbanization and Domestic Wastewater Management” by Mr. Takatoshi Wako, Deputy Director, Water Environment Division, Ministry of the Environment Japan

- Mr. Gautam Rajikarnikar of WECS asked what the initial cost of *Johkaso* (private sewage treatment system) in Japan was. Professor Okada explained that the initial cost of *Johkaso* was about JPY1million for seven people but has now become JPY5- 800,000 . He also mentioned that local governments provide subsidy to the users of *Johkaso* for its installation.

Technical Session in the afternoon

“Impact of Climate Change on Water Resources of Nepal and Role of WECS” by Mr. Gautam Rajkarnikar, Chief, Koshi River Management Cell, WECS, Nepal

- Mr. Seki asked how to address the impact of climate change in Nepal, especially adaptation methodology. Mr. Gautam said that recently the Nepal government has endorsed National Adaptation Programme of Action (NAPA) and from the climate change perspective, water resources are one of the main priorities sectors identified by NAPA. Current actions for conservation of water sources - one is Siwalik range in the southern belt and one for the Bagmati River - have been already initiated.
- Professor Suzuki raised a question on management of WECS. He wondered how WECS manage or coordinate many different ministries/organisations related to water and energy to implement policies introduced by WECS. Mr. Gautam admitted that composition of WECS is certainly large and all concerned ministries related to water and energy are its members. They have at least one or two annual meetings of all members to discuss serious water-related issues and policies in the country. Apart from that, all other activities are conducted by WECS office.

“NRCS and its Interventions in WATSAN and Drinking Water Quality Improvement” Mr. Umesh Dhakal, Executive Director, Nepal Red Cross Society (NRCS)

- Two Nepalese participants asked to Mr. Umesh about 1) any cases of arsenic contamination in Mid Hills in addition to Terai, 2) how to dispose of the sediment (or sludge) used in arsenic removal filter as those sediment contain high amount of arsenic. Dr. Roshan answered on behalf of Mr. Umesh and explained that the arsenic problem is confined to the Terai region (southern plain) and has not been found in Mid Hills except in some natural hot springs and deep aquifer in Kathmandu. In Terai, arsenic has also been found in shallow aquifers and is mainly released from natural geology. On the second question about the risk of disposal of sediment (sludge) inside arsenic removal filter, Dr. Roshan replied that from research it has been found that arsenic is not usually released back from the sediments, but it is recommended that users dispose of those sediments in cattle manure. Mr. Umesh additionally commented that they also used to put the used filter into plastic bags and dispose of it safely.
- Dr. Bandari mentioned a recent finding of a professor of UC-Davis who states that arsenic can grow bacterium instead of Phosphorus. If the finding is true, it changes our basic understanding on arsenic. He asked Dr. Umesh's view on this finding. There was no specific response to this question. (There were no specific answers to this question.)

“Eco-Approach to Manage Wastewater” Dr. Roshan Shrestha, Regional Technical Advisor of South Asia, UN Habitat, Nepal

- Professor Okada pointed out that Dr. Roshan mentioned the needs of cost effective wastewater treatment technology such as *Johkaso* in his presentation but *Johkaso* was not always a cost-effective option. Water-saving is a priority criterion in the area he is living and therefore *Johkaso* is not a suitable treatment technology because it needs plenty of water. Dr. Roshan agreed with Dr. Okada about cost-effectiveness of *Johkaso* and he also pointed out the need to manage urban wastewater even with some additional cost, especially for those who can afford and are using flush toilet. Talking about *Johkaso*, it could potentially replace the existing septic tank system in urban areas which is not so efficient in operation, a system which causes pollution of aquifers and has problems of sludge removal. He also gave an example of *Johkaso* prototype being used in Thailand, which he thinks could be assembled in Nepal with some modifications at affordable cost using local resources.

“Wetlands in the Eyes of a Wetland Expert” Dr. Bishnu Bhandari, wetland specialist, ICIMOD

- Dr. Suman asked whether the appearance and disappearance of wetlands in the Himalayas that we are hearing about, is due to natural phenomenon or climate change impact. Dr. Bishnu Bandari said that the impact of climate change in the Himalayan region is a black box due to insufficient hydrological data in this region. So the changes observed could be due to climatic, environmental or human-related factors. Until now it has not been scientifically proven that these are the impacts of climate change. However, local people still think that it is due to climate change and some studies have also shown that there are some changes in temperature, and he also thinks that climate change could have some role for the changes that have been seen.
- Professor Okada asked about the definition of “wetland” in Dr. Bandari's presentation because the term “wetland” seemed to be used differently from ordinary definition of the term. Dr. Bandari answered that initially wetlands are only regarded as closed water bodies or marshes but its meaning is gradually expanding and now it also includes river basin. He gave a broader meaning to the word than the ordinary usage considering the functions of wetland and also considering the definition given by Ramsar.

“Groundwater Depletion in Kathmandu Valley: Need for Management” Mr. Hari Prasad Dhakal, Kathmandu Valley Water Supply Management Board (KVWSMB)

- A Nepalese participant asked Mr. Hari about the current situation of implementation of groundwater policy in Kathmandu Valley. Mr. Hari answered that the policy is not fully implemented yet, but groundwater use has started to be controlled due to the introduction of licensing systems. Groundwater licences have been issued to 23 users, and they will issue license to other users in due course.
- Professor Suzuki asked Mr. Hari to explain how groundwater is used in the whole picture of water balance in Kathmandu Valley. In addition, he recommended that prevention of arsenic contamination of groundwater due to artificial reason should be addressed first, rather than the treatment of contaminated groundwater for drinking purpose. Mr. Hari answered that it is difficult to control current groundwater demand in Kathmandu Valley because people tend to use groundwater mainly due to the fact that no other sufficient alternative water sources exist. Melamchi Water Supply project is now being implemented and this is expected to satisfy water demands. However, the water from Melamchi is going to be expensive so people still find groundwater as a cheap alternative, and therefore they started a plan to license groundwater use. He also mentioned that all possible measures to prevent groundwater contamination caused by ammonia and high iron content have been taken. Looking at the water balance study, currently they only know about the demand side, not the whole picture such as contribution of rainfall for groundwater recharge. Mr. Gautam added that there has been a study about water balance in Kathmandu Valley and the result showed that the valley has already fallen in water deficit.

2. Discussion Session: Question and Comments for WEPA activity

- Emphasising the importance of indigenous knowledge of water management, Dr. Bandari of ICIMOD expressed his expectation to WEPA for assistance in dissemination of indigenous knowledge. He also asked about the possibility of implementing action research in Nepal funded by WEPA. The WEPA secretariat said that a questionnaire survey would be conducted in all WEPA countries in this year focusing on domestic wastewater management and climate change and water environment. The secretariat also pointed out that when some cities suitable for further investigation would be found through the questionnaire study, WEPA might conduct case studies in the selected cities in the next year.
- Mr. Gautam said that case studies for issues on water environment are highly recommended in Kathmandu valley. Nepal is one of the hot spots of climate change impact, so he also mentioned that further case studies are necessary on climate change in Nepal. The WEPA secretariat mentioned that climate change is a priority of WEPA in the second phase and asked all participants to cooperate in the perception survey on issues of climate change and water environment that would be conducted after this meeting. Prof. Okada added that climate change has been identified as a serious issue by all WEPA member countries so WEPA is now concentrating on it.
- Dr. Roshan asked about the decision-making mechanism in WEPA and ways to establish partnership with different stakeholders. The WEPA secretariat answered that WEPA activities are usually discussed and approved at the WEPA annual meeting which is attended by representatives of WEPA partner countries. WEPA does not have any mechanisms so far in the second phase, but

WEPA will consider partnership development with different stakeholders in WEPA countries through WEPA focal points or direct communication with the WEPA Secretariat.

- Dr. Bandari mentioned the importance of projects related to the climate change impacts on water resources in Nepal and suggested that facts about environment impacts due to climate change should be shared amongst WEPA countries.
- Dr. Bandari asked WECS how they would support or contribute to WEPA activities. Ishwor P Singh, the Joint Secretary of WECS explained the roles of WECS in Nepal (e.g. development of strategies/umbrella policies and coordination of relevant organisations) and emphasised that WECS is a suitable organisation in Nepal to contribute to WEPA. WECS expected to become a water resource centre as it has now developed a hydrological database with the support of the World Bank. By connecting with the WEPA database, he thinks the database will be upgraded and will help to address common challenges such as conflicts over water in nine major basins of Nepal. He also mentioned that WECS would coordinate the interests of different stakeholders in Nepal with WEPA. Information on wastewater treatment technologies suitable for local and remote areas such as *Johkaso* would be very valuable for Nepal. He also pointed out that not only technical knowledge such as wastewater treatment, but information on water-related legislation would be helpful for Nepal to consider how to develop and implement water-related laws and regulations.
- Responding to the comments above, Dr. Okada told that WEPA database has already included information on *Johkaso*, but it is necessary to add more information on the cost issue raised in the discussion, as well as legislative framework.

3. Closing Remarks

Concluding remarks from Mr. Seki

On behalf of the Japanese delegation Mr. Seki gave his views at the closing of the meeting. First he understood through this dialogue that Nepal faces a wide range of water environmental challenges from surface and groundwater quality, to water resources and climate change impacts. Nepal Government agencies and private sectors are making every effort to address these challenges. Secondly, the Japanese delegation introduced to our Nepali friends to Japan's experiences and WEPA activities and he was sure that there was now understanding on the importance and relevance of WEPA activities to help find out the solutions to water environment problems in Nepal. Thirdly, he stated that the dialogue meeting was very successful and he was confident that Nepal is and will be actively involved in WEPA activities and receive relevant information and experiences from WEPA member countries. Finally he extended his sincere gratitude to the Nepal Government for its contribution to this important meeting.

Closing remarks from Dr. Ravi S. Aryal, Joint Secretary of WECS

Dr. Aryal expressed his appreciation to both the Japanese speakers and Nepali participants for attending the dialogue and exchanging valuable information on the water environment. He mentioned that the meeting was very useful to learn about the overall scenario of water environment issues in Nepal. It also identified the urgent need to address those issues, mainly on surface- and ground-water issues. This dialogue is the first attempt in Nepal to discuss water environmental issues. WECS is the official government organisation responsible for the planning of energy and water related policies and strategies

with involvement of 11 ministries and works following the National Water Plan 2005 of Nepal. WECS has already started two pilot projects for the management of two river basins, Indrawati RB and Mount Everest area (Dudhkoshi RB), based on the principle of IWRM. WECS hoped to be a good partner and it is ready to work on water environment issues with WEPA. It is expected that it can bring other local partners together to address the water environment challenges. Finally, he thanked the Japanese delegation and all participants for joining the dialogue and with that, he ended the meeting.