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NEWS UPDATE

New Minister appointed to Ministry of Energy, Water Resources and Irrigation



As Prime Minister KP Sharma Oli extended members in Ministerial council on March 16th, 2018 (Chaitra 2nd, 2074), and after taking oath of office, Minister of Energy, Water Resources and Irrigation honourable Barsaman Pun took office on the same day. To welcome the newly appointed minister, a special program chaired by Director General (DG) Mr Saroj Pandit was organized at main hall of Department of Irrigation on March 20th, 2018. On the occasion, chief guest and honourable minister Mr. Pun expressed thanks to all the employees of the organization for the accomplished development activities. He also mentioned about the importance and need of irrigation infrastructures in the country to enhance agriculture production and creating favourable agriculture related activities and employment situation in the country. During his speech, honourable minister Pun also emphasized to speed up work and activities of the under constructing irrigation projects to achieve the target within time so that to meet the goal of economic growth of the country according to the plan.

During the program, special guest and Secretary of Ministry of Energy, Water Resources and Irrigation, Mr Anup Kumar Upadhyay expressed wishes of the successful tenure of new minister. The secretary also expressed that work and

activities will be smoothly continued and will take its speed under the leadership of new minister. In the beginning, Deputy Director General (DDG), Mr. Krishna Belbase, welcomed the new minister and the secretary of newly set Ministry of Energy, Water Resources and Irrigation. At the end, chairman and DG of DoI, Mr. Pandit expressed wishes of successes of irrigation development activities under the leadership of honourable new minister and also wished of continued support for the implementation, development and construction work of irrigation projects for achieving the year round irrigation facility.

In the beginning of program, DG Mr. Pandit welcomed the honourable minister and the secretary. Irrigation Newsletter editorial group also wishes successful tenure of New Energy, Water Resources and Irrigation Minister during his ministership in the ministry.

Sad Demise of the Secretary



The secretary of Ministry of Irrigation Mr. Ramananda Prasad Yadav has been dead due to road mishap with his two other close relatives at Salanghat of Dhading district while the vehicle carrying Mr. Yadav and three others plunged into the Trishuli river on February 10th 2018. A meeting was held chaired by joint secretary of MoI Mr. Sagar Kumar Rai on February 23rd in the meeting hall of Ministry of Irrigation to express condolences to bereaved soul and family in grief. In the meeting joint

secretaries and high officials of ministry of irrigation, DG, DDGs and project directors and high ranking officials of Department of Irrigation and Department of Water Induced Disaster Management were present. A similar meeting was also held on the same day at DoI main hall chaired by Director General of DoI. During the meeting, participants including DDGs, high ranking officials and other staffs of DoI expressed grief to the departed souls of the secretary and two other namely ex-SDE Mr. Dhruva Prasad Acharya and Driver Bishu Thapa. Irrigation Newsletter editorial group expresses deep sorrow to demised souls, wishes peaceful rest of departed souls and condolences to the families of bereaved ones.

New Director General in Department of Irrigation

As a decision made on February 12th of 2018, DDG of DoI, Mr. Saroj Pandit has been appointed as new DG of DoI. With the decision made on the same day present DG of DoI, Mr. Ashok Singh has been

Highlights of the Issue

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Editorial

Nature for Water

Water is a scarce resource and its availability bound to nature and natural activities. We use to say that more than two third part of the earth surface is covered with water i.e. ocean and seawater. For our consumption and other purpose like irrigation and industrial uses ocean water cannot be used. We need safe freshwater for our consumption and for irrigation as well. But freshwater is only two to nearly three per cent of total available surface water on our planet. Only 0.2 per cent of total water is readily available freshwater for us to consume. With the little amount of the available scarce resource, we have to manage with the world of 7 billion and more people and also pet and wild animals. There is no alternate to this scarce resource at all and also no alternate to conserve it to save our life and extend our civilizations.

From last 25 years we are celebrating World Water Day on March 22nd. In 2018, we are also celebrating the WWD 2018 to act to conserve and careful handling of this scarce natural resources. The main theme of WWD 2018 is 'nature for water'. The best policy is to conserve locally available fresh consumable water resource. To achieve this goal we have to act now to conserve local water resources as not to disturb the natural ecology at local level, but the existing scenarios are quite different. In the name of development activities, we are exploiting the nature extremely, which is the main cause of becoming available freshwater more dearer and unsafe to consume. Human activities on excavating, over using of the natural resources, used to disturb and destroy the existing balanced natural ecology, which ultimately causes the available scarce resources become more scarce and sources become draught. This situation ultimately causes increased evidences of debate and clashes on the use of scarcer resources.

To overcome the urgent issue, we should act from now to mitigate the activities, which directly affect on the over mining of such natural resources and over using of the scarce resources in various activities. We should also focus our activities to conserve natural ecology which will ultimately conserve our scarce natural resources including freshwater and its quality. We should also start thinking globally and act locally to conserve our natural habitate, which are mainly supporting to conserve freshwater. To remind and to check on our over activities, WWD 2018 slogan i.e. 'nature for water' refreshed and think once again on our over exploiting activities and to conserve nature for water. ●

transferred to the Director of Water Resources Development and Research Centre, Babar Mahal. To welcome the new DG of Dol, a special program chaired by DDG of Dol Ms Sarita Dawadi was organized at Dol main hall on the same day.



On the occasion, speaking to the employees of Dol, new DG Mr. Saroj Pandit thanked to all the official and also expressed wishes of continued support from all the officials during his tenure in the office. He also mentioned that country is at the doorstep of federal setup and it is a start of transitional period for offices and administration of the country and is also an important task to move forward with unique setup of irrigation organization in the new situation. In this regard, he also expect the necessary support from all the officials and staff of the organization. Deputy Director General and the chairman of the function Ms Sarita Dawadi expressed congratulation to the newly appointed DG and wished successes of new DG during his tenure in the office. At the beginning, high officials and staffs of Dol welcomed the new DG of Dol presenting garlands and flower bunches to him. Irrigation Newsletter Editorial group also extends hearty congratulation and wishes his successful tenure in the office.

Loan Negotiation for Rani Jamara Kulariya Irrigation Project (RJKIP) Second Phase

Rani Jamara Kulariya Irrigation Project (Scheme Modernization) is a project implemented with loan agreement between Nepal Government and World Bank (IBRD) from FY 2009/10. This is also a project of National Pride with the first priority. Due to the support from the world bank the major infrastructure like intake at Chisapani of Kailali district and main canal with other necessary structures has been accomplished and some portion of canal building and construction of structures are going on.

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In consequence, a new contract on loan negotiation has been signed by Joint secretary of Nepal Government under Ministry of Finance, Mr. Kewal Prasad Bhandari and Task Team Leader of World Bank, Mr. Ahmed Shawky on February 9th, 2018. The bilaterally agreed loan amount equivalent to US\$ 66 million will be used to develop command area within the project area (construction of branch, subbranch, tertiaries and other necessary structures, upgrade of agricultural service roads and protection of irrigated land). Remaining cost of the total project will be covered by Nepal Government and water users of RJKIP as mentioned in agreement paper. As scheduled, the project component A is assigned for Scheme modernization, component B is assigned for strengthening of Water Users' Association with capability build up and component C is assigned for Agriculture production support and project management work.

TRAININGS/WORKSHOPS/SEMINARS

Training on Capacity build up and Irrigation Management



Renovated, repaired and maintained irrigation subprojects of Farmer Managed Irrigation Systems under Community Managed Irrigated Agriculture Sector Project in need of its Water users' institutionally strengthened and institutional development work for sustaining irrigation system management are put under annual program to be performed in FY 2017/18. So as to fulfill the capability build up of water users' associations (WUAs) in fore mentioned irrigation systems a training program was organized by System Management and Training Programme (SMTP) on February 26th and 27th for 24 participants three each from Taplejung, Panchthar, Ilam, Jhapa, Sankhuwasabha, Bhojpur,

Terhathum and Dhankuta District of eastern Nepal. Among the participants four were female. Program was organized at Eastern Star Hotel of Biratnagar. During the opening session, chief guest of the program and Chief of SMTP Mr. Rajendra Bir Joshi welcomed all the participants and highlighted on the importance of the training program. He also mentioned about the topics would cover during the program. Mr. Joshi of SMTP, SDE Mr. Tej Rijal of Ministry of Irrigation, former Scientist of NARC, Dr. Kedar Budhathoki, Senior Plant Protectionist Mr. Arun Kumar Ghimire and Senior Planning Officer Mr. Badri Dahal of Eastern Regional Agriculture Directorate and Ms. Laxmi B.K. of SMTP covered various topics as resource persons during the training sessions.

Similar Training program was organized at the same venue on March 1st and 2nd for other 24 participants, three each from Morang, Sunsari, Siraha, Saptari, Udayapur, Solukhumbu, Khotang and Okhaldhunga districts. In the second event, 3 female participants took part. The training program was inaugurated by SMTP Chief Mr. Rajendra Bir Joshi. Speaking to the opening session of the program Mr. Joshi mentioned about the importance of training program to the participants and discussed about the course design of the program. During the training session, above mentioned resource persons covered various topics. In the closing session, Chief guest of the program Mr. Joshi thanked all the participant for active participation in the program and successful completion of the course. He also expressed that the knowledge gained during the program will work in making their respective WUAs institutionally strengthened and believed that systems sustain longer. The both of the programs were coordinated by Sociologist of SMTP Mr. Krishna Upreti.

IWRMP Regional review workshops



With a view to capability build up of working staffs of Irrigation and Water Resources Management Project (IWRMP), to exchange views and ideas, and to disseminate ideas on structural adjustment of IWRMP, working system and reporting procedure and discuss on issues, scheduled regional review workshops has been held in Mid Western Region at Nepalganj from January 26th to 28th, 2018 and Far Western Region at Mahendranagar from February 22nd to 24th, 2018 respectively.



Inaugural session of the workshop held at meeting hall of hotel Sneha of Nepalganj was chaired by Regional Director of Mid-Western Regional Irrigation Directorate Mr Dan Ratna Shakya. Chief guest of the workshop and the secretary of Ministry of Irrigation Mr. Ramananda Prasad Yadav in his inaugural speech mentioned about the financial discipline maintenance for timely accomplishment of works and smooth flow of activities. Unregulated activities should be minimized and checked to speed up the project development activities. Director General of DoI and the special guest of the workshop Mr. Ashok Singh in his speech wishes the success of workshop program and emphasized on regulated account keeping for sub project development works. Project Director, Mr. Shashi Bahadur Bisht, welcomed all the participants in the workshop and expressed views of importance of the workshop. During the session, DDG of DoI Mr. Krishna Belbase, Regional Director of Mid Western Regional Agriculture Directorate Mr. Shiv Narayan Chaudhary, Director of Ground Water Irrigation Development Directorate Chitawan Mr. Deepak Ghimire, Project Director of IWRMP-D, Agriculture, Dr Prakash Raj Bisht also spoke on that occasion. The inaugural session was ended by the Chairman of the session and Regional Director Mr. Dan Ratna Shakya with his closing remarks.

After the inauguration, four Technical sessions were carried out in remaining three days. During the sessions, reviews of work progresses by Irrigation Development Division and Sub Divisions were presented by respective chiefs from 16 districts as a major part of the workshop. Other aspects of the workshops like technical issues, financial management issues and administrative management issues were also discussed during the different sessions by TA Team leaders, Consultants and SDEs and sociologist and Agriculture specialists in the workshop. The closing session of Workshop was chaired by Regional Agriculture Director Mr. Shiv Narayan Chaudhary. Regional Irrigation Director Mr. Dan Ratna Shakya express his views on the successfully accomplished technical session and remarked it as an achievement to pronounce the issues during

development activities of the project. Project Director Mr Shashi Bahadur Bisht during his speech thanked to all the participants for their patience and invaluable contributions to carry out the workshop successfully. The workshop was coordinated by Senior Sociologist of IWRMP Mr Chetman Budthapa.

Another regional workshop for Far Western Region was organized from February 22nd to 24th. The inaugural session of Mahendra Nagar workshop was held at the meeting hall of hotel Opera of Bhimdatta Municipality and was chaired by Project Coordinator of IWRMP-D, Mr. Rajendra Prasad Mishra. Chief guest and Regional Director of Far Western Regional Irrigation Directorate Mr Mahendra Prasad Badu inaugurated the session and expresses his wishes for success of the workshop and expected the active participation of all the participants to make the workshop a success. During the session, Acting Regional Agriculture Director Mr. Pashupati Pokharel, Deputy Team Leader of TA team of IWRMP Mr. Sudhir Man Baishyat, SDE and Project Coordinator IWRMP-AF Dr Rajan Bhattarai, Director of Ground Water Irrigation Development Directorate Mr Deepak Ghimire, Chief Administrative Officer of DoI, Mr. Basudev Dahal, Chief Account Officer of DoI Mr. Surya Bahadur Bhandari also spoke during the session. The session was ended by Regional Agriculture Director of FWRAD Mr. Chaudhary with his closing remarks. In consequence, four technical sessions were conducted with the active participation of Irrigation Development Divisions and Sub Divisions Chiefs of the respective 9 districts of Far Western Region. During the sessions, reviews of work progresses by Irrigation Development Division and Sub Divisions were presented by respective chiefs from 9 districts as a major part of the workshop. Other aspects of the workshops like technical issues, financial management issues and administrative management issues were also discussed during the different sessions by TA Team leaders, Consultants and SDEs, sociologists and Agriculture specialists respectively. The closing session of the workshop was chaired by Regional Irrigation Director of FWRID, Mr. Mahendra Prasad Badu. During the session, participants expressed their experiences of workshop and the resolutions to their respective issues and exchanges of views and review of various activities carried out during the implementation of subprojects. The Project Director Mr. Shashi Bahadur Bisht expressed special thanks to all the participants, consultants and experts for their contribution to the workshop and also mentioned about the ideas generated during the workshop. He wished for participant utilizing their experiences gained in the field while involved in the work in future. He also indicated that it was the last of such type of workshop that project is being terminated on 30th June 2018. He also requested with IDD and IDSD chiefs to accomplish all the remaining project work within the mentioned deadline respectively. The chairman and RD of FWRID Director Mr. Mahendra Prasad Badu with his closing remarks ended the closing session as well as the workshop. The workshop was coordinated by Er. Bishwa Kumar Thapa of IWRMP.

17th INPIM Nepal Talk Program

The Seventeenth INPIM Nepal Talk Program was organized on 1st February 2018 (18th Margh 2074) at the Main Hall of the Department of Irrigation office at Jawalakhel. The program started punctually at the set time of 3 pm and went up to 5pm. More than hundred participants participated in the program.



At the onset of the program, the President of INPIM Nepal, Mr. Suman Sijapati, provided briefing of INPIM Nepal Activities and its current status. Then he went on to give a general introduction to the topic and went on to explain how, on the basis of suggestions from the INPIM Nepal members, the topic for the talk program was selected as: “Managing Water Resources in Nepal in the changed, decentralized (federal) context”.

Three presentations were presented during the Talk Program. The first presentation was on “Water Resources in the Constitution”. This presentation was made by Mr. Surya Nath Upadhyay, Ex-Secretary of Water Resources. Mr. Upadhyay explained the basic concept adopted in the new constitution for the provision of utilization of natural resources especially water resources.

The second presentation was on “Participatory River Basin Management as a Backbone for Integrated Water Resource Management under Decentralized System of Governance: Learning from Best Practices”. This presentation was made by Dr. Sanjay Giri, Senior Advisor Inland Water System Unit from the Independent Research Foundation ‘Deltares’, Delft, The Netherlands. Dr. Giri explained the example from Spain and explained how their experiences can be very useful for us.



Similarly, the third presentation was on “Proposed Policy and Program for Managing Water Resources in the Changed, Decentralized Context”. This presentation was made by Mr.

Madhav Belbase, Joint Secretary, Water and Energy Commission Secretariat. Mr. Belbase explained the practices currently being carried out by the Government of Nepal in managing its water resources.

After these three presentations, the floor was open for question/answers and discussion. The participants actively participated in this session. Several questions were raised on each of the presentations and there was a good round of discussion and many participants expressed their views as to how the water resources should be managed in the federal context. At the end of the program, the INPIM Nepal President, Mr. Suman Sijapati wrapped up saying that this is just the beginning of the series of discussion that needs to be held in this pertinent topic as the country has already decided to move towards this path of federalism and there are going to be many ups and downs but such dialogues must continue.

FEATURE ARTICLES

External Challenges in Irrigation sector in Nepal: Benefit sharing between Hydropower and Irrigation in Nepal

✉ Dr. Prachanda Pradhan *

With the socio-technical change, intensification of infrastructure development in water sector, upstream downstream water allocation in the river system and potentiality of financial resources mobilization from the hydropower units in the irrigation channels, the scenarios of irrigation sector in Nepal have changed. These situations have drawn the attention of irrigation sector managers in Nepal.

In the social front, urbanization and migration from rural area have brought tremendous changes in agriculture profession. In many villages, young people prefer to be engaged in non-agriculture activities. Because of expansion of urbanization, agriculture lands are now converted into housing plots making the investment on irrigation system development redundant. Similar examples are emerging in many places. Hence, there is now need of serious rethinking in irrigation sector investment close to places where there is intense process of industrialization and urbanization. Interesting examples can be drawn from Butwal-Bhairawa industrial corridor. There exist similar examples in many parts of Nepal. It is difficult to find the data on loss of agriculture land from housing development and urbanization. Hence, there is now need to make serious consideration of these factors in making investment in irrigation sector. It is no longer only technical feasibility of irrigation development. There is need to make assessment of socio-cultural environment governing to agriculture practices.

Water is source for agriculture development through reliable irrigation systems. Similarly, drinking water is the source for

the survival of living beings. Water is the source for electricity generation. Sometimes ago, over 95% water use in Nepal was in agriculture. But the water use scenario has changed. Priority of water use is given to drinking water. Since drinking water is for consumptive use, competition between irrigation use and drinking water have become phenomenal. Rural electrification, pumping technology and high density pipes for transportation of water across all terrains have posed a big challenge to existing and potential irrigation systems in Nepal. One can see now increasing number of conflicts between irrigation and drinking water use of water,

Water is source of renewable energy in Nepal. There is great demand of energy for domestic and industrial use. Both government sector and Independent Power Producers (IPP) have been encouraged to produce hydropower to meet the need of energy in Nepal as well as some hydropower units with foreign investment are aimed for export to neighboring country. There are both positive and negative impacts of hydropower units development in a river systems. The broad typology of hydropower – irrigation development can be categorized as follows:

1. Hydropower development in the existing irrigation systems like in Seti, Bijaypur, Phewa of Kaski district and Rani, Jamara and Kulariya of Kailali district, Chatara Hydropower Project of SMIP for example
2. Reservoir system like Kulekhani and Tanahu High dam Project, Karnali hydropower Project
3. Basin transfer project like Adhi Khola, Syangja, Jhimruk, Puythan, Bheri-Babi Diversion, Surkhet district.
4. Multiple hydropower units in a river system like in Puwa and Mai Khola of Ilam or Dordi Khola of Lamjung for example.

Out of these typologies of hydropower and irrigation benefit sharing, a number of serious considerations are now required in a) water right issue, b) water allocation principles in the catchment area, c) impact assessment methods for people and place d) benefit sharing between irrigation and hydropower and e) monitoring and evaluation of upstream down stream impact and mitigation measures. In this benefit sharing exercises, the developers, government agencies issuing license for hydropower development, fragmented water resource management agencies play important role.

In the typology 1 as mentioned above, irrigation agencies could not get benefit from the hydropower units. As of now, the revenue out of power generation from these units are not plough back for the irrigation channel maintenance. Recently, the Department of Irrigation is renovating the dam and channels of Seti Irrigation systems in Pokhara which will get benefit by Seti hydropower, Bijaypur and Task. However, there is no sharing of revenue for the maintenance of the irrigation channels. Time

has come to think by Department of Irrigation as a means of resource mobilization for system maintenance from the revenue generation from hydropower. There are many irrigation systems which can produce hydropower. In order to materialize these alternatives for Department of Irrigation, appropriate legal provisions are to be in place.

Typology 2 with reservoir systems. Such systems are being developed. As of now reservoir systems are only for hydropower, not multipurpose ones. Hence, such systems have to make consideration of upstream and down stream impact. It was reported that the Karnali Project is going to bring adverse impact in downstream to the Chisapani Irrigation project aiming to irrigate 40,000 ha. Hence, river basin planning along with Integrated Water Resource Management (IWRM) has now becoming very important for irrigation and hydropower development in Nepal.

Typology 3. Inter-basin transfer for Hydropower and irrigation. Such project can bring both benefit as well as adverse impact on irrigation. Andhi Khola Project brought positive benefit to irrigation where as Jhimruk brought adverse impact on existing irrigation systems in the downstream of dams specially during dry period. However, Bheri-Babi Diversion Multipurpose Project (Surkhet) brings benefit for hydropower generation as well as ensuring irrigation for over 40,000 ha land in Banke and Bardiya districts. The proposed 45MW power generation revenue can finance operation and maintenance of many irrigation systems in Nepal. The modality of operation of hydropower by DOI is yet to be developed.

Typology 4. Intensification of water infrastructure development in catchment area. There are now many water related infrastructures being developed in catchment area (specially hydropower units, drinking water projects and new and existing irrigation systems) where the irrigation systems and hydropower units are to co-exist. The first hydropower project was constructed in 1911. For next 50 years, only 3 hydropower projects were constructed. After 1990, many hydropower projects have come into operation and many of them are under construction. An example from Dordi Khola of Lamjung and Puwa and Mai Khola of Ilam. They have been affecting to each other in operation. Hence, institutional and legal framework are to be in place in this regard so that the benefit sharing between irrigation and hydropower can be ensured.

Observations on benefit sharing between irrigation and hydropower in Nepal'

a. Inter-relation in benefit sharing between hydro and irrigation

It is found, on many sites, that good benefit sharing between irrigation and hydropower can be secured. Mostly, hydropower projects can complement in improving irrigation infrastructure and introducing new technologies like lift irrigation systems. However, there is need to plan about this before project implementation takes place.

(Tanahu High dam Project is under construction)

b. Negotiation about water sharing between hydropower and Irrigation

On many occasions, negotiations have made the benefit sharing possible. The examples are of Bijayapur, Dordi, Andhikhola, and Khopasi.

c. Catchment area and water right issue

While issuing license for hydropower project, catchment area and water quantity for the project is defined. How is that monitored and supervised is not clear? How is the flow of river is regulated? In most of the systems, 10% river flow is hardly maintained during dry season.

d. Issues in new irrigation Development in Marsyangdi river corridor

Once the catchment area is assigned for the hydropower project, other activities are not allowed in the catchment area. Even for the new hydropower development in the same catchment area, the prevalent laws do not protect the water right of the existing project. There was conflict for construction of Rainstar Irrigation System from Chepe River with Marsyangdi Project of Abu Khairani which is one of the tributaries of Marsyangdi river (Reported by SDE of Lamjung, March, 2018). Department of Irrigation is planning to develop irrigation in the Marsyangdi corridor where it is estimated to have 20,000 ha river terrace suitable for lift irrigation. Will the hydropower of Marsyangdi allow the use of Marsyangdi river water for this irrigation development? One has to see how the water use priority set by Water Resources Act is being implemented between hydropower, irrigation and drinking water supply.

e. Sectoral Approach on investment decisions

It has been sectoral approach in investment. Hydropower people are concerned only for energy generation. However, it is found that irrigation development is usually accompanied by hydropower component as well. There are many examples like Rani Jamara and Kulariya irrigation, Fewa, Bijaypur, Seti in Kaski, Chatara Hydropower in Sunsari Morang Irrigation System, Bheri Babai River Diver Project with both irrigation and hydropower. However, there is no incentive for the hydropower developers for integrating irrigation system in the project.

f. Registration of Hydro and Irrigation in different agencies

Hydropower development by separate agency including government companies and private investors company. Integrated approach in water resources infrastructure development has not taken place as yet.

g. Intake and power generation (in between effect)

Headwork diverting water for powerhouse through tunnel or different channel make irrigation water unavailable to the farm lands. Some mitigation programs are implemented. The case of Jhimruk is interesting in this context. Puwakhola of Illam has also the similar experience.

h. Other economic activities in assigned catchment area (like distillery, poultry and others)

It is found that there has been hardly adherence of natural flow of 10% downstream of temporary ponding place of Marsyangdi Project. Due to this situation, other economic activities between the dam and powerhouse became difficult.

i. Water flow and environmental flow of water

It is not clear how and who are monitoring the river flow and environmental flow of river. This situation of maintaining minimum flow of water will be crucial when many economic activities will have to take place above and below the dams. Enforcement and monitoring agency (licensing agency, monitoring and implementing agency) has to be effective for evaluation and monitoring of the status.

j. IWRM approach, basin approach and water resources inventory, etc.

Keeping in view of the situation as developed for development activities and other water infrastructures, there is now urgent need of basin planning with clear allocation and good analysis of trade-off water use in different sectors. Basin Planning will help to take the IWRM approach.

k. Revenue of hydropower can help maintenance and operation of irrigation systems

There seems to be no system of revenue sharing between hydropower and irrigation. In Pokhara, hydropower generation is made by using irrigation channels constructed by Department of Irrigation but revenue from power generation is not shared with DOI. However, DOI keep on maintaining the diversion weir and channels out of its own resources. DOI now must use the falls in the channel for power generation and use the revenue for irrigation system maintenance.

l. Defining impact area and its basis.

There is need to fix criteria to define impact on downstream area of a hydropower or to downstream irrigation systems. In the case of Jhimruk, 10 VDC is considered impact area of this project.

m. Change In Land Structure:

On one hand, agricultural lands are being largely converted as urbanization accrues. People are shifting vocations from

agriculture to some other income generating activity, as a result, irrigated lands are left barren. Those, into agriculture face manpower shortages. Furthermore, the previously observed enthusiasms in farmers and water user's group have lost voicing, as the problem cumulates. This has left hydropower projects at an advantage as previously allotted water for irrigation is now diverted completely for hydropower generation. Example: Phewa and Mardi

hydropower.

¹These preliminary observations are drawn from the reconnaissance study of multiple hydropower and irrigation systems in Nepal ranging from 500 kw to 144 MW. Support for this study was provided by ICIMOD, Kathmandu, Nepal.

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FORTHCOMING EVENTS

Water Environment and Climate Change: Knowledge Sharing and Partnership, 10th to 12th April 2018, Kathmandu, Bagmati, Nepal, **Website:** <http://sophen.org>, **Contact person:** Ramdeep Sah, **Organized by:** Society of Public Health Engineers Nepal **Deadline for abstracts/proposals:** 31st October 2017

8th Asian Regional Conference of International Commission on Irrigation and Drainage, May 2nd-4th, 2018, Kathmandu Nepal. **Website:** www.8arc2018.org, **Contact Person:** Bashudev Lohani, nencid@wlink.com.np or lohanibasu@yahoo.com **Jointly organized by** ICID, NENCID and Department of Irrigation of Nepal. Paper Submission deadline: 4th January, 2018.

4th International Conference on Food and Agricultural Engineering (ICFAE 2018), 13th to 15th May 2018, Lisbon, Portugal, **Website:** <http://www.icfae.org/>, **Contact person:** Ms. Alice Lin, **Organized by:** CBEES, **Deadline for abstracts/proposals:** 10th December 2017

Conference on Water Pollution 2018, 22nd to 24th May 2018, A Coruña, Spain, **Contact person:** Irene Moreno Millan This conference provides a forum for discussion amongst scientists, managers and academics from different areas of water contamination. **Website:** <http://www.wessex.ac.uk/conferences/2018/water-pollution-2018> **Organized by:** Wessex Institute, UK & University of A Coruña, Spain.

International Conference on Environmental Science and Civil Engineering (ESCE 2018), 15th to 17th June 2018, Shanghai, China, **Website:** <http://www.esce2018.net/>, **Contact person:** Ms. Rebecca All the accepted papers will be included in the Conference Proceedings, Organized by: IAASE, **Deadline for abstracts/proposals:** 15th June 2018.

9th International Conference on Environmental Science and Technology (ICEST 2018), 20th to 22nd June 2018, Prague, Czech

Republic, **Website:** <http://www.icest.org/>, **Contact person:** Ms. Sophia Du, Organized by: CBEES, **Deadline for abstracts/proposals:** 15th April 2018

9th International Conference on Environmental Engineering and Applications (ICEEA 2018), 10th to 12th July 2018, Amsterdam, Netherlands, **Website:** <http://www.iceea.org/>, **Contact person:** Ms. Lydia. Liu, Organized by: CBEES, **Deadline for abstracts/proposals:** 30th March 2018

8th International Conference on Environmental and Agriculture Engineering (ICEAE 2018), 26th to 28th July 2018, Singapore, **Website:** <http://www.iceae.org/>, **Contact person:** Ms. Zero Jiang, Organized by: CBEES, **Deadline for abstracts/proposals:** 20th March 2018

International Conference on Water Conservation & Management WC2EM-2018, 10th to 12th August 2018, Bali, Indonesia, **Website:** <https://inwascon.org.my/wc2em/>, **Contact person:** Nur Farwizah, Organized by: INWASCON, MALAYSIA, **Deadline for abstracts/proposals:** 30th April 2018.

4th International Conference on Civil, Offshore & Environmental Engineering (ICCOEE2018), 13th to 14th August 2018, Kuala Lumpur, Malaysia, **Website:** <http://estcon.utp.edu.my/iccoee/>, Organized by: The Department of Civil and Environmental Engineering, Universiti Teknologi PETRONAS (UTP), **Deadline for abstracts/proposals:** 31st January 2018.

2nd International Conference on Structural and Civil Engineering (ICSCE 2018), 26th to 28th September 2018, Lisbon, Portugal, **Website:** <http://www.icsce.org/>, **Contact person:** Ms. Ivy Hou, Organized by: ICSCE, **Deadline for abstracts /proposals:** 15th May 2018

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