



XXXVIth
PANI SATSANG



***Re-imagining Regional Cooperation
on
Transboundary Ganga:
Nepali Academic and Civil Society Concerns***

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Re-imagining Regional Cooperation on Transboundary Ganga: Nepali Academic and Civil Society Concerns

Background

The 36th *Pani Satsang*¹ was organized by Nepal Water Conservation Foundation (*NePaSaFa*)² and Bangladesh Environment Lawyers Association (BELA) on the problems of transboundary water. It was conducted in two parts (program in Annex 1). In the first half, an intensive interaction was held with teachers and students of Nepal Engineering College (NEC) and Kantipur Engineering College (KEC) while the second part was an intensive public interaction with senior water policy experts and members of the audience interested in transboundary water and natural resources management issues. It was an opportunity for the engineering students in attendance to familiarize themselves with the current burning issue of “Transboundary Water” and what were the ways they could contribute to furthering its study in Nepal and also to refining their research questions

Part A: Engaging with Upcoming Water Scholars

A total of 39 participants, consisting of senior students and faculty of NEC and KEC, made up the morning session. It was designed primarily to expose the upcoming generation of Nepali water scholars to the transboundary debates and issues of the past as well as to introduce works of Nepali academics and hydrocrats who have lived with and faced those issues. To this end, such literature and sources were briefly described and discussed with the participants, some of the details of which are provided in Annex 2. After a round of introductions and mention of research interests of participants, the issues around transboundary water problems were introduced by Professors of NEC and KEC as well as the Chair of *NePaSaFa*.

Problem Definition

In science, research starts not with the search for data or “facts” as they are commonly put, but by homing in on the problem and trying to define it as accurately as possible. It is during the process of defining the problem that the limitations of various disciplines and their tools come to the fore. Water problems are interdisciplinary, complexly entwined with social and environmental issues, thus becoming political as well, and are therefore called “*wicked problems*” (i.e. problems of which people cannot even agree on the definition of what ‘the problem’ is, let alone agreeing on the solutions). When someone or a group of people (or a ‘social solidarity’ as we say in Cultural Theory) think they know what the problem is, they then start to collect what they would consider as relevant data and, most

¹ *Pani (water) Satsang* (from Sanskrit/Pali: “gathering of truth seekers with common inspiration”) is a brand mark forum for policy dialogue of Nepal Water Conservation Foundation.

² *NePaSaFa* is the Nepali acronym of Nepal Water Conservation Foundation (**Nepal Pani Sadupayog Foundation**).

importantly, reject or filter out bits of information they would consider irrelevant. Unfortunately, as the old saying goes of one man's meat being another man's poison, what is filtered out as irrelevant by one social solidarity can be very valuable data for another social solidarity.

An example of plural policy definition given was the problem of the pollution of the Bagmati river running through Kathmandu. You can start defining it as a problem of water chemistry but quickly realize that you cannot solve it by only tools of chemical engineering; you would also be required to address issues of land and flood plain encroachment (a legal problem), of municipal failure to regulate and treat sewer discharge (a management problem), of the impossibility of building structures anywhere because of the presence of temples, ghats and *guthis* (a socio-cultural problem), etc. etc.

Institutional Data Filters

An example of data filtering can be taken as the 1993 flood on the Bagmati due to a massive cloudburst upstream that deposited some 450 mm of rain in less than 24 hours. In designing the Bagmati irrigation barrage at Karmaiya just north of the Mahendra Highway where the Bagmati emerges from the hills and debouches onto the Ganga plains, the maximum probable design flood was taken as eight thousand cumecs. There was one uncomfortable data that indicated it could be twelve thousand cumecs but it was filtered out by engineering and economic designers of the national hydrocracy and international aid agencies as a statistical outlier and thus irrelevant. Had there at that time existed a group of social and environmental activists, they would have fixed upon that higher number and used it to highlight the dangers inherent the project. In fact, during the 1993 cloudburst event, the flood was twice the design, at sixteen thousand cumecs. These two examples highlight the role of problem definition and also the question of not what data but whose data, what data and why was the data collected at all in the first place or not collected and filtered out instead. This fact has even more serious implications in transboundary waters.

These wicked problems are difficult to handle even within a single municipality or a country; one can well imagine how difficult it becomes when they have to be addressed between two or more countries. The lesson from this is that, if you have managed to successfully address wicked problems and confounding issues of water within a country or a municipality, be it pollution, resettlement, flood plains encroachment, multipurpose use or whatever else, you are better placed to address them when the river crosses a boundary and they become more compounded transboundary problems.

Crossing Disciplinary Boundaries

While dealing with transboundary water, not only is the geographical boundary crossed but so is the disciplinary boundary. Since each issue has several branches of sub-issues each as or more complicated than the others and thus characterized as *wicked problems*, a mix of disciplines have to come together to address each such problem from the relative perspective of the various research disciplines. Water is said to be not so much a subject as the intersection of several subjects, indeed most of the subjects taught at a university.

Several examples were elaborated to highlight the importance of multi- and inter-disciplinary approaches.³

One of the examples elaborating this point was the Melamchi transbasin water supply project for Kathmandu valley. Seen as a solution to Kathmandu's water shortage (indeed as an 'only' solution as in TINA – 'there is no alternative'), it plans to divert the Melamchi river through a roughly 30 km tunnel. This is a simple, supply-driven engineering solution favoured by the water managers. However, an interdisciplinary approach would first define the Kathmandu water shortage problem not only as one of supply shortage but also as that of inadmissibly high leakage, management shortcomings, institutional mismatch, ignoring of technologically simpler options etc. Solving these aspects of the wicked problem would require the use, besides civil engineering, of other disciplines as well – such as groundwater engineering for artificial recharge, social sciences for legal reforms, political science for decentralization of management etc.

Even before opting for the Melamchi alternative, these different possibilities should have been examined from other disciplinary viewpoints. However, having opted for it, it was necessary to apply a multi-disciplinary approach as there are distinct possibilities of much greater benefits if one treated this national transbasin water transfer project as a multipurpose project. The Melamchi project, if better designed as a multipurpose project, seems to have the potential to generate 50 MW of electricity in Sundarjal area plus much more between Chobhar at the southern end of Kathmandu valley to Karmaiya where it debouches onto the Tarai. Electricity thus could be made to pay for a big part of the tunnel cost, allowing residents of the capital city to get cheaper water. Additionally the Melamchi Project should also be provided obligatory wastewater and sewerage treatment plants, which would allow clean river flow to the Bagmati. Given that some 80 percent of the used water could thus be returned to the river, the farmers in the downstream Tarai region would also reap the advantage of dry season farming. Thus Kathmandu would get ample clean drinking water, the country would get electricity and the Tarai would get dry season irrigation. Unfortunately, silo thinking and mono-disciplinary that rules the roost in Nepal among the donors supporting this project has precluded such win-win situation from fructifying, which is a lesson for future transboundary water projects, both national and regional/international.

Projects Discussed

Several projects within Nepal that have transboundary, trans-disciplinary issues associated with them were discussed in this session.

³ For the purpose of this discussion, multi-disciplinary approach was defined as people of different disciplines coming together to use their discipline's tools to solve that part of the problem that is amenable to the use of those tools. The problem of integrating all the solutions from the use of different tool bags is still up in the air, it being left to some mythical "policy maker", often a harried politician with little time or inclination to read voluminous reports. Interdisciplinary research, on the other hand, is an attempt to understand the problems and solutions of one's discipline from the perspectives of another discipline. In this, say an engineering solution would have to be looked at with the eyes of a sociologist, a lawyer, an economist etc. thus building into the problem solving task an inherently integrating aspect.

Tinau

The Tinau River, which originates in Palpa district and debouches into the Tarai of Rupendehi at Butwal municipality, has a length of some sixty kilometers in Nepal. It crosses into India after irrigating the Marchawar region at the southern end of Nepal. In its stretch in Nepal it provides multiple benefits: it has a small hydropower plant, many 'farmer managed irrigation systems' in both the hill and the Tarai regions, agency managed lift irrigation in Marchawar as well as flood protection schemes and the use of the river for subsistence fishery by the traditional fishing community. All these benefits are in danger right now with excessive riverbed mining for sand, gravel and boulders for construction aggregates. It may be earning the district of Rupandehi and the associated municipalities a lot of revenue from the export of construction materials to India, but those benefits have accrued at with the hidden costs externalized to the other sectors such as farmer managed irrigation system, subsistence fisheries etc.

One of the problems of dealing with the international transboundary aspects of a river such as the Tinau is that it, together with other adjacent rivers such as Rohani, Dano, Jharahi etc. in this area and many others in other parts the Nepal Tarai, is a *marginalized river*. Marginalized rivers could be characterized simply as those rivers that, although they provide immense irrigation and fisheries benefits in the dry season as well as serious flood damages during the wet season, have no profile at the national level, let alone international. They are often left to local or traditional informal systems of management at the national level. Unsurprisingly, they have no international treaties or regional meetings but are linked to livelihood issues with their direct and indirect ecosystem services uses. In short, they are not on the radar of national or international discourse generators.

West Rapti (Naumure)

Like the Bagmati and Tinau rivers, the West Rapti too originates in the middle hills of Nepal in the districts of Rolpa, Piuthan, Arghakhanchi in the form of tributaries such as the Jhimruk and Madi (i.e. these are not snow fed but are still perennial), which after traversing the Deukhuri valley flows into India's Uttar Pradesh below the Dudhwa hills. The earliest proposal for development in this basin was by India to build the Jalkundi storage project for downstream irrigation and flood control, which unfortunately would have drowned out much of the fertile Deukhuri valley and was resisted by Nepal, which alternatively proposed to build the West Rapti project at Bhalubang just below the confluence of Jhimruk and Madi. The purpose of this project was to generate some 200 MW of electricity as well as to irrigate both the downstream Deukhuri valley as well as to do a small trans-basin diversion to adjacent western Kapilvastu district which is a dry district. Subsequently a better site was found further upstream at Naumure and the project today goes by that name.

India has used its clout among Western-dominated development agencies to prevent their funding water extracting irrigation projects in Nepal. Hence Nepal has had to develop projects like Sikta and Parganna near Bhalubang with her own resources. This aspect, together with unilateral embankment construction on these rivers right on the Nepal border in Uttar Pradesh, leading to water logging and flooding in Nepal, have become the dominating issue of transboundary waters between Nepal and her lower riparian neighbour. Within Nepal, participants described in detail how the construction of a transbasin water transferring hydropower project, the 12 MW Jhimruk project in Piuthan, completely ignored

issues of downstream water rights, irrigation as well as the needs and requirements of the fishing communities. It is a national transboundary as well as trans-disciplinary issue, one that unless Nepal deals with successfully within her own boundaries first, she will be unable to deal with in the transboundary context with her powerful downstream riparian neighbour. It was also remarked that aquatic aspects of rivers in Nepal are also a totally marginalized subject.

West Seti

The river West Seti is one of the major snow-fed tributaries of the Karnali. A storage project was identified with the help of French help and its consulting firm Sogreah some three decades ago. It is one of the rare storage hydro sites in Nepal that is suitable for development for Nepal's own needs for peak seasonal storage, as the only other such storage hydro she has, the Kulekhani (60MW+32MW+14MW) is now not sufficient to regulate a mostly run-of-river hydroelectric system that is the Nepal integrated power system.

Unfortunately, in the early half of the 1990s, license for its development was given over to the Australian developer Snowy Mountain Engineering Corporation (SMEC) as an export-oriented single purpose hydroelectric project, many suspect because it was a better competitor to the World Bank and government of Nepal promoted Arun-3 hydroelectric project. The granting away of this project was done violating Article 126 of the then Nepal Constitution (Article 156 in the current interim constitution) which requires such projects that entail resource sharing with neighbours to undergo parliamentary oversight and approval by a two-thirds majority if deemed to be of a broad, serious and long-term nature. The matter has been challenged in court, and the court has made a controversial judgement that electricity is not a resource and that commercial agreements do not need parliamentary ratification. This matter is currently being appealed against, due to the inconsistency in the judgement's logic.

The problem with SMEC was that it could not negotiate a bankable commercial price with India even while holding the license for this site and having it extended by the government of Nepal for over a decade and a half. With Nepali activists and water experts, it could not answer why multiple downstream benefits of irrigation, flood control, navigation and fisheries were not included in the project design, why the cost of the entire project was loaded onto electricity (thus making it prohibitively expensive). There was also problem with the government of Nepal when, during the period of the second half of the 1990s when Nepal had weak "musical chair" coalition governments, SMEC was able to whittle away the benefits that Nepal was to get from this project. For instance, the 10 percent free electricity that Nepal was to get was slowly changed, in what is known as 'salami tactics', to money that Nepal would get only "after SMEC had paid off all its creditors". From the perspective of the social activists, thousands of people would be displaced and it was unclear where they would be relocated. Furthermore all those whose livelihoods dependent directly from the environment activities like fishery and forestry, and those who did not own any land (dalits, landless, fisherman and backward caste) would not be provided any compensation but would be evicted from whatever property they possessed formally or informally. SMEC would follow the BOOT (Build, Operate, Ownership and Transfer) after 30 years, where they

would give 10 percent royalty to the government, but only if the corporation was making profit, if they showed losses the 10 percent would not be required.

Eventually SMEC was forced to concede that it could not develop the project as such and its license was cancelled. Currently China's Three Gorges Corporation has shown interest in developing West Seti for the Nepal national grid to ameliorate Nepal's current power deficit, a move that has won widespread support in Nepal. However, issues of resettlement, pricing of electricity, problems of multipurpose development etc. still remain unresolved, as is the issue of what happens to benefits that Nepal might not be able to fully use from regulated waters that might flow down to the lower riparian, unpaid for even as Nepal bears the environmental and social costs of creating that regulated resource.

Issues for Further Research

Transboundary issues, as discussed during this session, when considered from the perspectives of crossing boundaries – whether of national administrative jurisdiction or of disciplines – require serious further research. In order that a country like Nepal be better prepared to address transboundary issues in the regional and international context, it is imperative that the country learn to handle them effectively at the national level, because at that higher level, they are mostly and expansion in scale rather than substance. Some of those issues are outlined below:

1. Issue of marginalized rivers: As discussed above, there are many smaller rivers that flow from Nepal into India that are used intensely at the local level providing much benefits but also causing much damage during the flood season. Lack of attention at the national and international development agency levels is a shame which should be rectified, not the least because some thorny transboundary issues might be easier solved for these rivers than for the bigger and more iconic ones.
2. Groundwater decline: This is a serious emerging problem for the coming decades, in both the hills and the plains, mostly because of the misuse of the electric pumping technology and perhaps also partially due to climate change and weather variability. Because groundwater aquifers cross national administrative as well as international boundaries, and because groundwater geo-hydrology is poorly understood, this matter is destined to surface as a major transboundary issue in the future.
3. Aquatic environment: Compared to the Mekong region (and perhaps the lowest part of the Ganga's Bengal delta), fisheries has received step-motherly treatment within Nepali and Indian hydrocracies. There is a serious need for national attention as well as transboundary collaboration on conserving and sustainably benefiting from the aquatic resources of the transboundary Sundarbans-Ganga-Brahmaputra system.
4. Conflicting objectives of water development: The object of focus has historically been hydropower for Nepal and irrigation (and sometimes in the case of Bihar, flood control) for India. These are competing objectives that need to be handled with the creation of integrating institutional environments. In the case of Nepal, we are regressing backwards with integrated management of water resources when the Ministry of Water Resources was split to accommodate more political cadres as ministers in 2009. The ideal institutional environment for balancing the competing

demands on water development would be the Water and Energy Commission if it could be re-invigorated. It is also, together in coordination with local units of governance, the institutional mechanism best suited to handle water rights issues and intersectoral trade-offs.

5. Navigation: Because of the irrigation and hydropower bias of the last half century of development, navigation and climate friendly inland water transport has taken a back-seat, indeed ignored altogether. It is a truism if one looks at world economic history of recent times that no major regions or economic block of the world has developed without developing inland water transport (e.g., Rhine in Europe, St. Lawrence waterway, Volga-Don system etc.) Even though India has declared Ganga up to Allahabad a national waterway, and the issue of studying transboundary navigation has been included in the India-Nepal Kosi agreement of 1997, not much forward movement has taken place on this issue. It is in Nepal's (as well as land-locked Bihar's and Uttar Pradesh's) interest to pursue this matter with regard to developing cheap container transport and the concomitant access to the sea. It could be a matter for serious transboundary development trade-offs. It is also a matter that constructive environmentalists have been championing as a means of saving the Ganga and its tributaries: to counter the current dominant development paradigm of withdrawing most of the river water for irrigation and only putting back into the river raw sewerage from urban areas, it necessary to promote navigation which will at least assure that there will be sufficient water in the rivers.
6. India's constitutional provisions: Water and electricity are state subjects in India and states wield considerable power in these matters as evinced by Mamata Bannerjee's capacity to scuttle the Teesta agreement with Bangladesh. Hence the need for Nepal is to understand how water is managed and developed in the lower riparian states of India from West Bengal upstream to Bihar, Uttar Pradesh, as well as other states of the Ganga.
7. Lack of Regionalism: Despite all talks of regional cooperation, the fact of the matter is that there is no regional cooperation on water at the Track 1 (official government) level. Indus was a bilateral treaty, so were Farakka, Kosi, Gandak and Mahakali. India's rejection of regionalism and tri-/multi-lateralism is the ground reality; and it is based on diametrically contradictory dogmas, that of *absolute sovereignty* with downstream riparians and *natural flow* with upstream ones. It is only the fear of China diverting the Brahmaputra that is inducing any faint whiff of re-think on this count within the Indian hydrocracy. There is, however, quite a robust (but still insufficient) set of regional cooperation activities at the Track 2 (often retired hydrocrat and academic) or even more removed Track 3 (more argumentative activist) levels. The task ahead in transboundary regional collaboration would be to ensure that some of the innovative ideas and initiatives at the Track 2 and 3 levels be introduced into the currently moribund Track 1 processes. The small windows for this would be the only Track 1 regional initiatives in water which exist in the form of chartered centers of SAARC such as the Energy Center in Islamabad, the Disaster Center as well as South Asia University in Delhi, Meteorology Center in Dhaka as well

as the SAARC Development Fund in Bhutan. These centers should be galvanized and made use of to further regional cooperation in water in South Asia.

8. Hydrodiplomacy: Given that scientific hydrological modelling exercises are severely constrained by data deficiency and more so trust deficiency, the need is to devise programs of transboundary hydrodiplomacy. The need is to explore the underlying basis of fear that generates distrust and to explore alternative arrangements to bureaucratic procedural legal formalities that can elicit more trust and fewer impasses. They should also be able to explore areas where fear of losing out need not play an overwhelming role, such as transboundary cooperation in meteorology and high science weather predictions for the monsoon region of South Asia. Another fruitful are is traditional water management practices at the local levels in the Ganga basin. Such explorations do not involve water allocations and hence can be avenues for building trust among the involved riparians.

Part B: Panel Discussion with Senior Water Experts

The second part of the 36th Pani Satsang was discussions with an eminent panel of very senior water experts of Nepal on Nepali concerns with issues of transboundary water. The panel, which was moderated by NePaSaFa Chair and former Minister of Water Resources Dipak Gyawali consisted of:

Dr Anand Bahadur Thapa: former member-secretary of the Water and Energy Commission, Associate Member of the Royal Nepal Academy of Science and Technology and a leading expert on irrigation and navigation issues as well as overall optimum basin planning.

Mr Surya Nath Upadhyay: former Secretary of Water Resources and former chief ombudsman of the Commission for the Investigation of Abuse of Authority.

Dr Dwarika Nath Dhungel: former Secretary of Water Resources and one of Nepal's leading experts on administration reform and policies.

Mr Santa Bahadur Pun: former Managing Director of Nepal Electricity Authority and former Officer on Special Duty at the Ministry of Water Resources.

Mr. Som Nath Poudel: former Member-Secretary of the Water and Energy Commission and a leading authority on irrigation.

Mr Ratna Sansar Shrestha: independent lawyer and chartered accountant, leading expert on the financial and legal aspects of water resources development.

The second part of the Satsang began with the NePaSaFa Chair summarizing the main issues of concern for transboundary waters from a Nepali perspective (enumerated in section A above). It was followed by a talk by Dr Anand Bahadur Thapa which was based on a prepared background paper (Annex 3). The "talking points" of Rizwana Hassan (Annex 4),

which were circulated to the participants, also formed the basis around which the eminent panel deliberated on the issues of concern, which can be summarized as follows.

1. Dr Anand Bahadur Thapa began the proceedings by highlighting the point that Nepal's water source does not only have to be developed just for energy. Indeed, the national hypnosis of seeing Himalayan hydropower similar to oil for the Gulf Region and ignoring the benefits from stored regulated flow for dry season use has been the bane of harnessing water for economic gains in Nepal. He highlighted how, in a study of the Kankai multipurpose project, German and French experts showed that the net power benefits would be only some five million dollars whereas the net irrigation benefits would be ten times more in 1980 price. Nepal's biggest challenge is to educate the politicians and journalists how the very successful Columbia River Treaty between US and Canada or the Lesotho case with South Africa is something that Nepal should seriously emulate regarding downstream benefits. It is from being able to properly assess the downstream benefits in the US from regulated stored water that Canada was able to finance most of its own upstream hydropower development (even by getting that amount in advance!). Even underdeveloped Lesotho has been more successful on this count than Nepal!

In the case of India, it was during the time when Kamal Thapa was foreign minister that Dr Thapa as WECS member secretary, and a delegation was going to India. Dr Thapa had suggested to the delegation that they talk about downstream benefits. They did and the government of India subsequently formed the Prabhu Commission to study how much royalty might have to be given to Nepal for regulated water. It highlights how India does respond but only if our political leaders have the guts to raise issues of national concern. In another incident, Sailaja Acharya as water resources minister was able to give due importance to downstream benefits from regulated water and she did not allow Enron to get a carte blanche to develop the Karnali Chisapani multipurpose project as a single purpose, hydroelectric only project. For this sagacious and courageous stand she was ironically hooted at by members of her own party in the parliament! Such is the state of lack of awareness among senior party leaders of Nepal, highlighting the serious question – why should we develop our water resources, to what ends and by what means. This requires a serious national debate.

Take the case of the Kosi project. We have the legal right, as per the revised 1966 treaty, to develop the waters upstream as per our needs, and in the Sun Kosi we can divert it to the dry regions through the Sun Kosi – Kamala diversion. This project concept was also picked up by the FAO and India had agreed to it. It must also be remembered that it was the eminent Indian water expert Mr Khosla who had fixed the Sun Kosi dam site even before the Kosi high dam. Given the nature of the hydrology of the Kosi, it is better to build the Sun Kosi – Kamala diversion as a multipurpose hydroelectric and navigation project because it is easier to build a navigation canal from the smaller Dudh Kosi diversion from this scheme than from the much more difficult to control Sapta Kosi high dam site at Chatara. Indeed the Kosi high dam would actually drown out this possibility that is in the long run cheaper, easier to build and more in the interest of Nepal. In the Indus Treaty India

has won upstream absolute sovereignty rights, and India used this to push the Farakka Barrage against East Pakistan. The initial Gandak Treaty was quite bad but the subsequent revision in 1964 won back Nepal its upstream rights by removing the restriction clauses. (Both these revisions – of 1964 and 1966 in Gandak and Kosi treaties – took place during the Panchayat reign of King Mahendra.)

2. Rizwana Hasan's talking points were circulated and a quick summary was presented by the NePaSaFa Chair. It was agreed in the discussions that the 12-points of questions she has raised are important but need to be discussed separately since each one of the points are almost the subject matter of a separate Pani Satsang. (It was announced to the audience that, although she could not make it to Kathmandu and had to cancel travel plans at the last moment, NePaSaFa would try to organize her talk the next time she came to Nepal and that she was agreeable to it.) Mr Upadhyay mentioned that 35 countries need to ratify the UN Watercourse treaty for it to come into effect but only 31 countries had done so till date. None of the countries of Asia that matter have ratified it, with China against and India as well as Pakistan abstaining. India is also indiscriminately issuing licenses in the Brahmaputra for hydro developers, hoping thus to claim prior rights. Recent India-China agreements on the Brahmaputra are only for exchange of data and not for cooperation.

Unless India takes Bangladesh along, it cannot have any clout with China, and there are faint signs of shifts in the hardline, bilateral only position of India. A committee has been formed between Bangladesh, Bhutan and India on the Brahmaputra and in the joint statement and framework agreement, they have directed their hydrocrats to look for joint projects that are advantageous for regional cooperation. India, there are faint indications, hopes for a similar committee with Nepal and Bangladesh on the Ganga. However, people in the region have grounds to feel sceptical: India commits one thing and does another. With regard to SAARC power trade, nothing important has happened so far. Big countries cannot be pushed by small ones. In the multi-year Nile initiative, Egypt still refuses to budge from its previous position. In the Mekong, despite the successes of many Mekong institutional arrangements, the question remains: how many regional projects, after all, have come into fruition. Nepal therefore needs a two-pronged strategy: continue to search for new horizons but just go ahead doing what needs to be done for our national economic development on our own, with our own resources and with whichever international partner is willing to help.

Mr Pun agreed for the most part with Mr Upadhyay on his assessment of Rizwana's 'talking points' and asked if we go for regional cooperation, whose interests do we look at – India's or Bangladesh? Although both are downstream of us, they differ in their perspectives and approaches. Hence the need for Nepal is not to be too concerned with regional transboundary aspects of water resources development but to focus on developing it for our requirements keeping in mind the plight of the millions of Nepalis who have to migrate to the Gulf and other countries for menial jobs because such jobs are lacking here in the country. Mr Shrestha felt that downstream riparians do not seem to be sensitive enough to the fact that we in

Nepal suffer the negative externalities of dam development but the lower riparians reap the benefits of regulated, augmented flow without paying for the cost of negative externalities.

3. Mr Som Nath Poudel commented on both Dr Thapa's presentation and his paper that was circulated. When the MoU was done on the Kosi in 1997 Dr Thapa was team leader, Mr Poudel was member of the team and Dr Dhungel was the Secretary of Water Resources. During the discussions, the Indian side had agreed to the Sun Kosi – Kamala diversion, and its Secretary Mr Ramesh Chandra had mentioned that he could justify the Kosi High Dam just on flood control benefit grounds with irrigation and power benefits as "*phosa*" (i.e. free benefits). This opinion was not put down in the records in writing but the diversion project was. Also, some Indian experts have argued that navigation (which Nepal badly needs) is not cost effective but Mr Poudel felt that their arguments were spurious and the calculations wrong with questionable assumptions used to justify pre-determined results. First of all they have calculated the volume of goods currently transported to Nepal under the highly restricted economic growth conditions of today with some minimal growth and used it to say that the navigation canal is not cost effective. Well, if a cheap form of navigation is developed and international containers can be unloaded straight in Nepali inland ports, the volume of transactions will rise dramatically as happens historically with most infrastructure projects. Second, this has ignored the traffic for cheap goods transport facilitated in land-locked Bihar and Uttar Pradesh in India.

West Seti failed because India did not give more than 5 cents for power (not even peak power price) and refused to give for benefits from augmented flow for irrigation. We are currently working on the Budhi Gandaki storage projects and French experts have calculated that the peak power benefits alone are worth 10 cents without even considering the 450 cumecs augmentation over the 35 cumecs in the dry season. India has two 450 cumecs of channel on both banks on the Gandak and currently the Gandak is only able to give only 150 cumecs. This is a tremendous benefit that India has to learn to acknowledge. Very preliminary talks are now going on with India going for one-time compensation rather than going for the difficulty of annual compensation, with Nepal putting some 37% of the benefits and India 63%. Columbia River Treaty was also a one-time compensation. There has to be give-and-take across a wider canvas of development opportunities.

4. Mr Surya Nath Upadhyay focused on the issue of 199 years' time limit in the Kosi treaty that Mr Poudel mentioned at the end of his presentation while commenting on Dr Thapa's paper. There is much debate about how it historically came about. Dr Thapa thinks that 199 years means that it is not a treaty in perpetuity but one that recognizes Nepal's absolute right over the river and that the river's treaty is only for this limited period. Mr Upadhyay disagreed. There is a big deficiency in political parties who are not even listening to what the water experts are saying and do not understand what water issues were about. Rather than doing more integrative, interdisciplinary water policy making and project design, our politicians (in the Madhav Kumar Nepal UML-Kangress government) ended up splitting the Ministry of Water Resources into energy and irrigation. (Many of the discussants mentioned that

this was what India had wanted all along, since India does not want a strong water ministry in Nepal that would talk water rights.) The flaws in recent agreements such as Budhi Gandaki (or Naumure, Karnali or Arun-3 for that matter? –NePaSaFa) is that it was not done properly through official channels or provisions in the constitution. Any treaty should have time limits and not for perpetuity, and Mahakali's 10-year limit is instructive. Another problem in treaties like Mahakali is that water amounts for both sides are not specified and there is too much uncertainty about what is consumptive use (the capacity of the old Sarada Canal? Other uses in Lower Sarada? Capacity of Mahakali?)

5. Mr Dwarika Dhungel, who has done intensive research through oral history research with old administrators such as Laxman Rimal and Karna Dhoj Adhikari who were the responsible officers during the time. Expertise was also taken of the famous water law expert Dante Caponara from FAO. It is debatable if the original draft had 99 or 199 years. One important aspect that Nepal has to take into account is at what cost are we going to get whatever benefit it is that we are supposed to get? There are now new political contexts: for example Uttarakhand is not very anxious to drown its villages with the Pancheshwar high dam for water supply to Uttar Pradesh; there are federalism issues in Nepal that have yet to be sorted out. It will make transboundary issues with lower riparian countries more complicated. In re-thinking regional cooperation, we have to examine several complicated relations, Nepal-India, India-Bangladesh etc. In all of these, what are the interests of the multilateral agencies such as the World Bank, especially since their Ganges Basin Strategic Assessment has already shown that they do not take Nepal's interests into account? Nepal thus must beware of seemingly innocuous international support as they come with hidden commercial interests of the countries providing the funding. Nepal has to focus very strongly on what its interests are.
6. Mr Santa Bahadur Pun was of the view that these past treaties have to be revised. When these were done in 1960s, it was Mr K L Rao who had come to do the negotiations which took place in Shital Niwas. The context must also be remembered: King Mahendra had just taken over Nepal's politics and India had just got a hammering from China in the early 1960s border war. King Mahendra hit the iron when it was hot. It was probably a wider trade-off, this issue of 199 years that was done to get India to stop supporting anti-Mahendra forces operating out of India. The operative word in the revised treaty is "balance" – India would get the balance of the waters at the barrage, implying that Nepal was free to develop what it needed. Nepal should have done the Sun Kosi – Kamala diversion on its own and the issue should not have been tied up with the Kosi high dam.
7. Mr Ratna Sansar Shrestha mentioned how he challenged Prachanda and Baburam Bhattarai on their 40-point demand: their saying that the Kosi treaty should be abrogated is throwing out the baby with the bathwater, because the treaty itself establishes absolute territorial sovereignty of Nepal in the upland Kosi basin. The past projects under the treaty were bad, but have not harmed Nepal's water rights.

8. Participants from the floor questioned the speakers and brought forth their views as well. Issues of livelihood especially of the poorest of the poor primarily in informal subsistence economy, cross-sectoral issues, the value of storage and the externalized costs therein, what institutional arrangements would be needed to bring about genuine multi-benefit, multipurpose projects, and many more were brought up. It was felt that past approach to transboundary issues by Nepal has been often one-sided and thus not very beneficial. Hence there is a need to re-think the modalities as well as patterns of engagement with different stakeholders in the region.

Annex 1: Program

Nepal Water Conservation Foundation's 36th Pani Satsang on 10th December 2013 was conducted in two part:

- 9AM -12:00 Interaction of young scholars from Nepal Engineering College and Kantipur Engineering College on transboundary water problems
- 1PM- 5:30PM Pani Satsang panel discussion with senior water policy experts with question-answer session with the audience

Circulated Satsang Flyer:

Nepal Water Conservation Foundation (NWCF) and Bangladesh Environmental Lawyers' Association (BELA)

invite you to a **PANI SATSANG** on

Re-imagining Regional Cooperation on Transboundary Ganga: Nepali Academic and Civil Society Concerns

The last half of the 20th Century saw the water debate in Nepal, including transboundary collaboration, culminate in euphoric hype within a global context dominated by the free-market Washington Consensus, while that of the first decade of the 21st Century is experiencing stagnated doldrums. Making matters worse, international agencies promoting regional cooperation seem more captivated by global fads than burning Nepali concerns. This 36th Pani Satsang will bring together an eminent panel of Nepali water experts, scholars and practitioners who will engage between themselves and the audience on, *inter alia*, questions such as: **Is there a basis for a South Asian policy framework on integrated river basin management? What are the contentious transboundary water issues that need regional collaboration? Of how much relevance are existing international principles, existing (Helsinki) and pending (1997 UN Convention), and what should be done to make them relevant to Nepal's needs? Are existing bilateral arrangements still of use or have they outlived their usefulness? How should they be modified or replaced, and with what development philosophy? What are the aspects that these regimes and Nepali water-related institutions that have ignored (e.g. inland navigation, aquatic life and ecological integrity etc.) that need to be included? What should Nepali academia and civil society focus on in the years ahead?** The Pani Satsang will end with a talk by Rizwana Hasan of BELA, Bangladesh.

Program:

1:00 - 1:30PM Presentation by Dr Ananda Bahadur Thapa on Nepali concerns in transboundary regimes with special reference to the Kosi.

1:30 - 3:30PM Panel Discussion with Nepal's eminent water scholars, experts and civic movement stalwarts (Dr Ananda Bahadur Thapa, Dr Dwarika Dhungel, Mr Surya Nath Upadhyay, Mr Som Nath Poudel, Mr Santa Bahdur Pun, Mr Ratna Sansar Shrestha).

3:30 - 4:00PM High Tea

4:00 - 5:30PM Talk and interactive discussions by Syeda Rizwana Hasan, Magsaysay Award winner of 2012 and executive chief of Bangladesh Environmental Lawyers Association (BELA) on **Environmental Law within National and Regional Challenges**.⁴

This is a public lecture/interaction program and admission is free and open to all. Seating is first-come-first-served. Please direct queries to NWCF at (01)4720667.

⁴ Syeda Rizwana Hasan could not make it to Kathmandu due to transport uncertainties and 'hartal' disturbances in Dhaka. Discussions were continued by the eminent panel based on her talking points (Annex 4).

Annex 2: Some Nepali Transboundary References

{This is not a comprehensive list but one meant to introduce younger Nepali scholars interested in transboundary waters as exploratory starting points. This was felt to be necessary given that important literature, especially in English and published abroad, are often not available even in libraries of Nepal, let alone bookstores, and when available, prohibitively expensive. The list starts off with books, but also adds other interesting articles as well. The list was used during the first part of the Pani Satsang and some of the ideas in these references were picked upon for discussion.}

1. D. N. Dhungel and S. B. Pun (eds) 2009. *The Nepal-India Water Resources Relationships Challenges*, Springer, Netherlands. {This book is of particular importance as it covers, in the collection of senior Nepali water experts between its covers, some half century of Nepali hydrocratic experience in dealing with the lower riparian.}
2. S. N. Upadhyay. 2012. *International Water Courses Law and a Perspective on Nepal-India Cooperation*. Kathmandu: Ekta Books.
3. I. William Zartman and the late Jeffrey Z. Rubin (ed) *Power and Negotiation*, International Institute of Applied Systems Analysis (IIASA), Vienna and University of Michigan Press, Ann Arbor, Michigan, USA, 2000. {This book is about how small powers negotiate with big powers, with cases of Canada-US, US-Egypt, EU-Andorra etc. The chapter on Nepal-India water negotiation is by Gyawali, D. *Nepal-India Water Resource Relations*.}
4. D. Kumar (ed.) 2000. *Domestic Conflicts and Crisis of Governability in Nepal*. Kathmandu: Center for Nepal and Asian Studies (CNAS), Tribhuban University. {While this seminal work covers different aspects of conflict, the chapter by Gyawali, D. and Dixit, A. 2000. *Mahakali Impasse: A Futile Paradigm's Bequested Travails*, in is about the Mahakali Treaty that has been languishing for some decade and a half and whose period of legitimacy seems to have expired. (Earlier version was published as *Mahakali Impasse and Indo-Nepal Water Conflict* in February 27-March 5, 1999 issue of Economic and Political Weekly, Bombay:XXXIV, 9: 553-564. The EPW article with a 2004 postscript published in 2005 by Sage Publications India in Samir Kumar Das (ed) *Peace Processes and Peace Accords*.)}
5. AFCAN. 2010 January. *Pursuit of Economic Diplomacy: Prospects and Problems*. Report of the Seminar/Workshop September 7-8, 2009 by the Association of Former Career Ambassadors of Nepal (AFCAN), Kathmandu. {This book by Nepal's senior diplomats covers mainly economic topics, but for issues of water and electricity, the chapter by D. Gyawali, *Hydro-Diplomacy and Hydro-Investments: Linkages, Problems and Prospects in Nepal*, would be of interest to transboundary water scholars.}
6. Ananda P. Srestha and Pushpa Adhikari (eds). 2009 December. *Mahakali Treaty: Pros and Cons for Nepal*. Sangam Institute, Kathmandu. {While the Sangam Institute has folded, and there are stories going around of how those who did not subscribe to the critical views on the Mahakali Treaty went around bookshops buying up all the copies and sequestering/destroying them, this collection is the last known attempt by Nepali water experts taking stock of this treaty-in-limbo.}
7. Gyawali, D. 2003. *Rivers, Technology and Society*. London: Zed Books (Nepali edition published in 2001 by Himal Books and Panos South Asia, Kathmandu, as *Water in Nepal*).
8. P. Shahadevan (ed) 2001 *Conflict and Peace Making in South Asia*, Lancer's Books, New Delhi. {This volume is the result of a Jawaharlal Nehru seminar in New Delhi.

The Nepali case from a Cultural Theory perspective is discussed in Gyawali, D. *Water beyond the State: Resolving Conflicts with Institutional Pluralism.*}

9. Navnita Chadha Behera (ed) "State, People and Security: The South Asian Context", Har-Anand Publications, Delhi, 2002. {An anthology from various perspectives around South Asia, the Nepali case from a Cultural Theory Perspective is in D. Gyawali: *Defining Environmental Conflict: A Cultural Theory Perspective.*}
10. Ranabir Samaddar and Helmut Reifeld (eds) *Peace as Process – Reconciliation and Conflict Resolution in South Asia*, Manohar Publishers with Konrad Adenauer Foundation, Delhi, 2001. {An interesting aspect of this publication is in its challenging the commonly held view that the Indus Treaty is sound, without problems and something that others might like to emulate. Various chapters show how it is plains/agriculture biased and that it is not really a water sharing treaty but a "partition" treaty. See D. Gyawali: *Pluralist Politics under Monistic Design: Water Accords in South Asia.*}
11. Joanne Linnerooth-Bayer, Ragnar E. Lofstedt and Gunnar Sjostedt (eds). 2001. *Transboundary Risk Management*. Earthscan Publications, London. {This volume comes out of the work on risk studies at the International Institute for Applied Systems Analysis (IIASA, Laxenburg, Vienna). The case study on the Himalaya in this volume is by M. Thompson and D. Gyawali, *Transboundary Risk Management in South Asia: A Comparative Example from the Himalaya*. Among other IIASA works is a program called Process of International Negotiation (PIN) out of which came the volume by Zartmann and Rubin in No. 3 above.}
12. D. Gyawali. 1999 October. *Institutional Forces Behind Water Conflict in the Ganga Plains*; *GeoJournal*, vol 47 no 3 Kluwer Academic Publishers, Amsterdam. {A special issue of this journal, which has been called 'Cultural Theory as Geography', has a look at how the wrong kind of technology (ill-thought of embankment building in the highly silt laden rivers coming out of the Himalaya-Ganga) has led to severe water crisis in the Ganga plains, which has serious transboundary implications.}
13. Adil Najam (ed) *Environment, Development and Human Security: Perspectives from South Asia*, University Press of America, Lanham, Maryland, 2003. {Various chapters tackle the security issue from different perspectives while one from a Cultural Theory perspective is: *A Cultural Theory Perspective on Environment and Security in Nepal.*}
14. M. Thompson, M. Warburton and T. Hatley 2007. *Uncertainty on a Himalayan Scale*, Kathmandu: Himal Books with James Martin Institute for Science and Civilization, Oxford University and International Institute for Applied Systems Analysis, Vienna, 2007. {Original UK edition published in 1986 and came out of the famous "paradigm shifting" Mohonk Conference in upstate New York in 1985 when watershed scientists came to the conclusion that flooding in the lower Ganga plains and in Bangladesh had practically nothing to do with the supposed deforestation in the Nepal Himalaya (indeed Nepal now seems to have more forest cover than it ever did in the past, thanks to community forestry), but with geo-tectonic and hydromet phenomenon.}
15. Marco Verweij and Michael Thompson (eds), September 2006. *Clumsy Solutions for a Complex World*, Palgrave/Macmillan Press, Basingstoke, UK. {This by now classic Cultural Theory volume discusses various cases of transboundary and international relations. Its core argument is that a simple model of "nation state to nation state, those being the only container of social engagement, is insufficient to explain transboundary environmental conflicts. Examples include the Kyoto Protocol, Himalayan hydro, etc.}

16. Vishal Narain, Chanda Gurung Goodrich, Jayati Chourey and Anjal Prakash 2014. *Globalization of Water Governance in South Asia*. Published by Routledge, Delhi for South Asia Consortium for Interdisciplinary Water Studies (SaciWATERS). {As mentioned in the Foreword, this book is both a marker and a continuing journey by the collegium of South Asia and beyond engaged in understanding the interdisciplinary nature of water to contribute to the ongoing paradigm shift in water resources management.}

Besides these texts in published books and journals, some other articles and presentations of interest in re-thinking transboundary waters from an alternative perspective would be:

On why the Bhutanese model is not really relevant for Nepal:

Gyawali, D. 2010 August. Neocolonial Path to Power. *Himal South Asia*

<http://www.himalmag.com/component/content/article/54/260-The-neocolonial-path-to-power.html>, Kathmandu.

On the Kosi breach:

<http://www.scidev.net/global/disasters/opinion/poor-planning-and-corruption-caused-kosi-flood.html>

On Mekong-Ganga Dialogue and why replicating the transboundary success in the Mekong for the Ganga region is not as simple as it is made out to be:

http://www.india-seminar.com/2013/652/652_dipak_gyawali.htm

Water Alternatives (<http://www.water-alternatives.org/>) articles of interest:

a) Voices of water professionals: <https://groups.google.com/forum#!msg/wq-news/RJebW0397Bk/yEK9BiR24ZUJ>

b) Review of World Commission on Dams + 10 years:

<http://www.internationalrivers.org/resources/water-alternatives-special-issue-on-the-wcd-10-2470>

On Transboundary waters and Cultural Theory:

Water and Cultural Diversity lecture at Tsukuba University/Japan in their School of Environmental Diplomacy: <http://edl.envr.tsukuba.ac.jp/jp/seminar/smnr007.html>

AMENDED 1966 KOSI TREATY AND THE 1997 KOSI STUDY AGREEMENT

– Dr Ananda Bahadur Thapa

Summary: The 1966 Revised Kosi Treaty is a landmark treaty entitling Nepal absolute right to use the entire water of the Kosi in whatever way Nepal pleases. The amendment of the Kosi treaty from 99 to 199 years solely serves Nepal's interest. There is no justification in blaming King Mahendra for this amendment to 199 years. The 1997 Kosi Study Agreement has paved the way for implementing as soon as possible the Sun-Kosi Multipurpose Project that could revolutionize irrigated agriculture practice over almost whole Eastern Terai and at the same time provide abundant cheap electricity for the entire country. The proposed Kosi Canal Waterway could provide Nepal direct access to seaport that would greatly help to boost our trade and industry. Very recently our government is taking odd decisions leading to ruination of our water resources potential. Highest authorities of our government, legal experts, scholars distinguished in the field of water resources and media must be concerned and they must step in to prevent it.

At present our public is completely misled about the Kosi Treaty. Similarly our people are misled about the vast opportunity for the development of our country within relatively a short period if we succeeded in taking right decisions on implementation of the projects in Kosi basin. Unfortunately very recently our government appears to be taking very odd decisions on implementation of few major projects in Kosi and other river basins compromising our vital national interest. Highest authorities of our government, legal experts, scholars distinguished in the field of water resources and media must be deeply concerned about it. They must step in to prevent ruination of our water resources potential, which is the most valuable wealth of our country.

The 1966 Revision of Kosi Treaty

The Gandak River Treaty signed between Nepal and India in 1959 had totally curtailed our country's right to use freely the water of rivers in Gandak basin within our territory except in three months of the monsoon season when all Gandak tributaries are in full spate. There was a widespread condemnation of that Treaty within Nepal. Few years later our country started serious negotiations with India to revise the Gandak and Kosi treaties.

Unfortunately very few know about the revision of Gandak and Kosi treaties. The Gandak Treaty was revised in 1964. After this revision the restriction imposed on use of Gandak water in Nepalese territory has been considerably relaxed. Next, our then government succeeded in securing the revision of the Kosi Treaty. The 1966 revised Kosi Treaty is a landmark treaty entitling Nepal absolute right to use the entire water of the Kosi in whatever way Nepal pleases. Thus, India has without any reservation recognized Nepal's absolute right to use the entire water of the Kosi and its tributaries. Surprisingly, there is still a hangover of the bad feeling among most of Nepalese from the 1959 Gandak Treaty biased against Nepal's legitimate right. Still, people suspect foul-play in Kosi Treaty.

Indian Recognition of Nepal's Absolute Right

The Clause 4 of the revised Kosi Treaty guarantees Nepal's absolute right to use the entire water of the Kosi: *Clause4 - HMG shall have every right to withdraw for irrigation and for any other purpose in Nepal water from the Kosi river and from the Sun-Kosi river or within the Kosi basin from any other tributaries of the Kosi river as may be required from time to*

time. The Union (India) shall have the right to regulate all the balance of supplies in the Kosi river at the barrage site thus available from time to time and to generate power in the Eastern Canal.

Thus the revised treaty allows Nepal to draw for irrigation or any other purposes the entire flow of the Kosi even to the extent of drying up the river and virtually to cut off totally the water supply to the existing Kosi barrage and also to any other barrages to be built in India in future. It should be remembered that Nepal would have to use for irrigation in Eastern Terai the entire dry season flow of the Kosi, which is about 300 cumecs, if multipurpose storage dams are not built to augment the dry season discharge.

Doctrine of Absolute Right

India had been pursuing the doctrine of absolute right to water of the upstream country since the independence from the British Empire. India's claim on Jangipur barrage and the West Bari Canal delivering water from the Sutlej river for irrigation in Pakistan on the grounds that India is the upper riparian country had triggered the Indus river dispute. The dispute had been referred to UN Security Council. Similarly, India had denounced the Barcelona Convention in order to construct the Farakka barrage for diverting the Ganges, which is a navigable river, from flowing into then East Pakistan. India had then been following water right policy favourable to both our countries, which must have had bearing on the 1966 amendment of the Kosi Treaty.

Change from 99 Years to 199 Years

The validity of the revised Kosi Treaty has been amended to 199 years from the previous 99 years. It is quite obvious that this amendment serves solely Nepal's interest. The amended Kosi Treaty would allow our country enough time even if our country would have to follow time-consuming path to implement on our own various projects in the Kosi basin to utilize the entire dry season flow of the Kosi for irrigation exclusively in Nepal in the event the governments of Nepal and India failed to reach an agreement on development of very large multipurpose projects benefiting both Nepal and India. Strangely some of our water experts still consider that it was a mistake to amend the treaty to 199 years. They even blame King Mahendra for the amendment of the validity of the treaty to 199 years. They allege that the validity of the treaty was amended under Indian pressure.

1997 Kosi Study Agreement

In course of first official visit of our then Prime-minister G.P. Koirala to India an agreement was signed to conduct jointly detailed feasibility study of the Kosi High Dam Project. This type of isolated study of the Kosi dam project could be detrimental to the interest of our country since Sun-kosi and Kosi navigation projects are extremely important projects directly tied up with the Kosi Dam Project. I raised this issue within the Ministry of Water Resources displeasing many of my colleagues, who regarded that an agreement already signed between two prime-ministers should not be questioned. But I did not give in.

I prepared based on my own personal experience a new plan for the Kosi river development that could be put to the Indo-Nepal joint meeting. The proposed plan has been presented in two reports (*Ref-1, Ref-2*). Those reports had been circulated to various concerned agencies. Similarly important findings of those reports have been published in several local newspapers and magazines. The conclusions of the reports can be roughly summarized under following four headings.

Flood Control

Kosi river known as the sorrow of Bihar in the past had shifted from east to west over 70 miles within a period of 200 years. The shifting of the river course was accompanied by enormously big loss of life and property. However, the embankments built about 50 years ago has come as a great relief by preventing lateral shifting of the river course.

At present Kosi river channel bed is well above the surrounding grounds due to continued siltation. The embankments have already outlived their useful life. We have already witnessed enormous loss of life and property in 2008 breach of Kosi embankment when the flood discharge was only about 1 ½ lack cusecs, where-as extremely high flood discharge of almost nine lacks cusecs have already been measured twice within a time interval of 10 years about forty years ago when river bed siltation had just started. After that the flood discharge was mostly below 5 lacks cusecs. It is known from the experience of China that the loss of life and property would be catastrophic if the river flowing on highly elevated bed spills across the embankment at the time of extremely high flood discharge. It is reported that the loss of life each time exceeded one million when the Yellow river embankments were breached during very high floods of 1887 and 1931.

The flood control would be the most important benefit to accrue from large storage projects to be built in the Kosi basin. However, until the 1997 Indo- Nepal joint meeting Indian Government had been maintaining the view communicated to our government through official correspondence that Kosi flood problems have already been solved forever after the completion of the construction of the Kosi embankments.

It is absolutely necessary to implement large storage dam projects within the Kosi basin to save the life and property of millions living particularly in North Bihar and also in some parts of the Sunsari district of Nepal. It is recommended to conduct feasibility study of a much higher Kosi dam that could virtually eliminate Kosi flood problems for a very long time.

Sun-Kosi High Dam First

The Sun-Kosi multipurpose high dam project planned to divert the Sun-Kosi river into Kamla would help to revolutionize irrigated agriculture almost in whole of the Eastern Terai. It would also be providing abundant cheap electricity for the whole Nepal. This project could resolve significantly the Kosi flood problem for quite a long time until the completion of the construction of the Kosi high dam project.

Simple Sun-Kosi diversion project (without high dam) and the Kosi dam project proposed in my report are mutually exclusive of one another. Similarly, the Sun-Kosi high dam project and the proposed Kosi high dam project would also be mutually exclusive of one another if the Kosi dam is built first. But fortunately, they would not be mutually exclusively of one another if the Sun-Kosi high dam is built ahead. Thus it becomes mandatory that the Sun-Kosi dam project be implemented FIRST.

Optimum height of the proposed Kosi dam would be over 335 m based on design criteria applied for Karnali high dam project feasibility study conducted under the World Bank assistance . It would be the highest dam in the world. India has proposed a dam height of 269 m. In either case the site of the Sun-Kosi dam would be submerged if the Kosi dam is built first. Thus the detailed study of the Sun-Kosi project should also be immediately started to complete the construction of the Sun-Kosi dam project before starting the construction of the Kosi dam. This unique situation makes it mandatory for India and Nepal both countries to fully cooperate with each other in implementing the Sun-Kosi high dam project at the

earliest, which would have in immediate future profound positive impact on our country's national economy.

Sun-Kosi Dam Site

The site of the Sun-Kosi storage dam to be built for diverting this river onto Terai plain had been identified based on several past studies. It is located just downstream of the confluence of the Sun-Kosi and Dudh-Kosi rivers that would allow the diversion of both these rivers. The place is called KURULE. Renowned expert on Himalayan geology Dr. J.B. Auden was also involved in selection of this dam site,

The first technical team investigating the Kurule dam site in 1947 was led by renowned hydraulics expert Dr. N.K. Khosla from the Government of India. The team found this site to be suitable for building a high dam.

The idea of diverting Sun-Kosi for irrigation in Terai was first put forward in 1968. This study was conducted under UNDP/FAO assistance. The study had identified Kurule as the appropriate site for diversion of Sun-Kosi river onto Terai.

A Master Plan study on the Kosi river water resources was prepared by JICA technical team in 1985. The study has identified Kurule as the site for the storage dam for diversion of the Sun-Kosi onto Terai.

Kosi Canal Navigation

The concept of Kosi canal waterway is entirely mine. The proposed waterway could provide landlocked Nepal direct access to seaport. Bihar could also greatly benefit from the proposed navigation canal.

Conclusion of 1997 Indo-Nepal Joint Meeting

As head of Nepal team I was easily able to convince the Indian delegates our view points on Kosi development. The Indo-Nepal joint meeting completely endorsed our proposal as described in my two reports. However, nobody was expecting that Indo-Nepal joint meeting could so easily reach an agreement about the thorny Kosi river issue. People had good reason to suspect that Nepal's interest might have been compromised. Some political parties even denounced the agreement. Kosi agreement was front-page news. Some papers even blamed me personally that I had wrongly signed the Kosi study agreement.

Gradually people started to realize that the Kosi study agreement was in conformity to our country's long term development need. I was helped by MITRAKUNJ to organize a meeting in Russian Cultural Centre attended by relevant experts, politicians, media persons distinguished in the field of water resources. I explained in the meeting the Kosi problems. Those attending the meeting realized the significance of the Kosi study agreement. The following day all papers covered positively Kosi news.

Shocking New Developments

It is quite shocking that our own government is now trying to reduce significantly the flow of the Sun-Kosi river presently available at Kurule site for irrigation in Terai by diverting the Dudh-Kosi river further downstream away from the Sun-Kosi diversion intake. In such case our Terai people would be experiencing shortage of water supply for irrigation even after the completion of the Sun-Kosi project particularly in later years because the limited storage volume of the Sun-Kosi reservoir could be expected to be silted up relatively quickly.

It is also rumoured that our government is going to abandon the Kurule site in order to build the Sun-Kosi dam further upstream at a new site perhaps out of the reach of the Kosi reservoir submergence area in order to divert the Sun-Kosi into Marine khola, which is one of the tributaries of the Bagmati river, even though such change would result to still greater reduction of dry season flow available for irrigation in Terai. The sole purpose behind such change could be to limit the availability of Sun-Kosi water for irrigation in our Terai and also to pave the way to implement first the Kosi High Dam Project instead of the Sun-Kosi dam project totally derailing the spirit of the 1997 Kosi Study Agreement. Implementation of Sun-Kosi dam diversion project would be delayed indefinitely as a direct consequence of such extremely harmful decision to change the location of the Sun-Kosi diversion dam.

REFERENCES - (1) Planning Kosi High Dam Project, Thapa AB 1993; (2) Kosi Canal Waterway, Thapa AB 1993

Annex 4: Rizwana Hasan Talking Points

Talking/Discussion Points of Syeda Rizwana Hasan⁵ for Kathmandu Pani Satsang 10th December 2013.

There are at present about 214 international rivers and lakes in the world that are shared by two or more countries.⁶ Of these, the Asia region shares 40 rivers. Of the nineteen largest basins, each with a drainage area of over one million square kilometers, only four are within the territory of one State. The remaining fifteen are shared by two or more countries. In terms of the number of co-riparian countries, more than 156 or about seventy-three per cent of international rivers are shared by two States.

Until the turn of the twentieth century, waters of international rivers⁷ did not create any major concern and was thought to be in abundance for human needs. Attempts to harness or utilize river waters had been limited to one purpose on one river. The problems created by non-navigational uses of river waters emerged prominently in the twentieth century. Industrial revolution, technological advancement leading to mega water projects, treating rivers as natural sewage, population growth, demand for irrigation- all intensified the demands on water resources. All these factors have made States eager to exploit rivers, national and international, within their own jurisdiction and have sharpened their awareness that acts of their neighbors may have serious repercussions upon them while harnessing those rivers physically falling under more than one jurisdiction.

In the process of resolving disputes over sharing, control and utilization of international rivers, a number of legal principles have been defined and evolved. The concept of *absolute territorial sovereignty* that regarded State as 'master of its own territory' and allowed it adopt in regard to the portion of an international river within its territory all measures all measures deemed suitable to its national interests 'irrespective of their effects beyond its borders' gradually started losing ground and was eventually replaced by the concept of *absolute territorial integrity*. According to this theory, a lower riparian's right to undiminished flow is the parameter in the riparian relations which cannot be injured. The essential inequity of this theory resides in the fact that it allocates rights without duties. The theory that has gained much strength and is now well-established not only in the international river law but also in general international law is the theory of *limited territorial sovereignty* that is based on the assertion that every riparian State is free to use the water of an international river flowing on its territory, on condition that such utilization in no way prejudices the rights and interests of the co-riparian States.

⁵ Syeda Rizwana Hasan is an enrolled lawyer with the Supreme Court of Bangladesh and Chief Executive of Bangladesh Environmental Lawyers Association (BELA) with its primary focus of promoting the notion of environmental justice. She received the Ramon Magsaysay Award in 2012.

⁶ The legal discussion of this note has been drawn largely from the book titled "International Rivers: Rights of the Riparian States" by Dr. Mohiuddin Farooque

⁷ An international river is one that flows through or between the territories of two or more States. ILA, Report of the Fifty-Second Conference, Helsinki 1966, p. 484

It is now a settled principle of international law that a riparian state can utilize the waters of an international river that it shares with other co-riparians. It is also a general principle of international law that a riparian State while exercising its rights in such waters must take into consideration the effects of such use upon other co-riparian States. The doctrine of *equitable utilization* of international rivers has been accepted in a significant number of cases around disputes between co-riparians. According to this doctrine, each riparian State is "entitled, within its territory, to a reasonable and equitable share of the beneficial uses of the waters."⁸ The equitable utilization doctrine gives equal rights to the co-riparians over share of international rivers, but does not give them the right to an equal division of the waters. Rather, equality of right is the equal right of each co-riparian to a division of water on the basis of its economic and social needs, consistent with the corresponding rights of its co-riparian States, and excluding from considerations factors unrelated to such needs⁹.

The doctrine of 'equitable utilization' or 'equitable appropriation' has emerged as the most acceptable juridical method of adjustment and that this doctrine has effectively reduced the sole importance of the doctrine of '*prior appropriation*'. The doctrine of prior appropriation which is a municipal legal doctrine is based on the rule "first in time, first in right." The US Supreme Court in the *Nebraska v. Wyoming* case made it clear that strict adherence to the priority rule may not be possible if an allocation between appropriating States is to be just and equitable. "Apportionment calls for the exercise of an informed judgment on a consideration of many factors ... (and those factors)" indicate the nature of the problem of appropriation and the delicate adjustment of interests which must be made."¹⁰

Some regions have come forward to protect and manage their common rivers under special agreements and conventions that greatly incorporate the progressive principles of international law stated above. 26 countries have signed the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992) that has the objective to prevent, control and reduce transboundary impact. The Mekong Agreement on the Cooperation of for the Sustainable Development of the Mekong River Basin (1995) lays down procedures for the four countries (Vietnam, Thailand, Lao PDR and Cambodia) for *data and information exchange and sharing; water use monitoring; notification and prior consultation; maintenance of flows on mainstream, and water quality*.

The 1997 UN Convention on the Law of the Non-navigational Uses of International Rivers has adopted the following principles/norms/duties/rights:

- *Equitable and Reasonable Utilization and Participation (Article 5)* which authorizes watercourse States to utilize the watercourse and also imposes the duty to cooperate in the protection and development thereof.
- *Factors Relevant to Equitable and Reasonable Utilization (Article 6)*¹¹

⁸ Art IV of the Helsinki Rules of the ILA

⁹ Lipper, loc. Cit., p. 44

¹⁰ The Gallows Projects and Colorado Water Law: The limits of the doctrine of Prior Appropriation, 25 NRJ (1985), pp. 589, 618

¹¹ a) Geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;

(b) The social and economic needs of the watercourse States concerned;

(c) The population dependent on the watercourse in each watercourse State;

(d) The effects of the use or uses of the watercourses in one watercourse State on other watercourse States;

(e) Existing and potential uses of the watercourse;

(f) Conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect;

- *Obligation Not to Cause Significant Harm (Article 7)*
- *General Obligation to Cooperate (Article 8)* to attain optimal utilization and adequate protection of an international watercourse
- *Regular Exchange of Data and Information (Article 9)* (hydrological, meteorological, hydrogeological and ecological nature and related to the water quality as well as related forecasts)

To enter into force, the Convention required ratification by 35 countries but with only 16 ratifications received less than half of that number.

Every river system is naturally an indivisible physical unit, and that as such it should be developed as to render "the greatest possible service to the whole human community that it serves, whether or not that community is divided into two or more political jurisdictions."¹² While following the 1973 UN General Assembly resolution 3129 international rivers are regarded as *shared natural resources* to be safeguarded *by means of an effective system of cooperation*, the growing awareness on environmental protection is subjecting the issue of protection and utilization of international rivers to emerging notions as that of e-flow¹³. E-flow is about allowing the necessary flows close to the natural flow regime to maintain the ecological integrity of the river for performing its diverse functions. The advocates of e-flow demand that the flow regimes need to be worked out through the participation and involvement of the different users within the basin and public consultations should be mandatory for downstream communities till the distance upon where the impacts can be felt. In determining e-flow, the needs of river communities whose dependence does not alter the flows must not be compromised and the basic drinking water and livelihood needs like fisheries must not be ignored. Flows needed for wild life/protected areas should not be impacted by the new project.

Sharing of common rivers has always remained a contentious issue in South Asia. Despite water sharing treaties prevalent amidst countries, lack of political consensus have led to the atmosphere of mistrust, misinformed, and often incited, popular sentiments. With political positions remaining contested, the crisis goes unresolved making millions of commoners' victims and sufferers. As climate change begins to hit, South Asia is predicted to have severe negative impact on its water sector. According to the projections of the UN, India is estimated to experience water stress by 2025 and is likely to cross the 'water scarce' benchmark by 2050 under high growth scenario.

Lack of consensus among the government players on common rivers, non-implementation of existing agreements, irregular functioning of the bi-lateral communities, lack of focus for protection of river ecology, isolated development trends, differing power ratio, bargaining abilities and so on have threatened the ecology and environmental services of mighty and major rivers like the Ganges, the Teesta, the Borak, the Koshi, the Karnali and the Gandaki. The Brahmaputra is also not out of danger while implementation of the Indus Treaty between India and Pakistan is challenged with growing crisis.

The following instruments (treaties, MoU and so on)¹⁴ have not managed to define common binding principles for cooperation for this region on common waters:

(g) The availability of alternatives, of comparable value, to a particular planned or existing use.

¹² Smith, Diversion of International Rivers (1930)

¹³ Towards Restoring Flows into the Earth's Arteries, A premier on Environmental Flows (2012), Latha Anantha and Parineeta Dandekar, River Research Centre and SANDRP

¹⁴ The list of agreements and institutions has been prepared by Tauhidul Anwar Khan

- Agreement between the Government of the People's Republic of Bangladesh and the Government of the Republic of India on sharing of the Ganges water at Farakka and on Augmenting its flows (1977)
- Indo-Bangladesh Memorandum of Understanding (MOU) (1982)
- Indo-Bangladesh Memorandum of Understanding (MOU), (1985)
- Treaty between the Government of the People's Republic of Bangladesh and the Government of the Republic of India on sharing of the Ganges Water at Farakka (1996)
- Agreement between Nepal and British India in 1920 for building the Sarda Barrage at the Mahakali river
- The Kosi and Gandak Agreements between Nepal and India to build water projects at the border point of the two countries on these major tributaries of the Ganga (1950s, Kosi treaty revised in 1966)
- Treaty between Nepal and India concerning the Integrated Development of the Mahakali river including the Sarda Barrage, Tanakpur Barrage and Pancheswar Project (1996)
- Agreement between India and Bhutan on the Chukha Hydro-electric Project (1974)
- The Indus Water Treaty (1960)

Due to lack of political commitment leading to 'nationalistic rhetorics', institutions in place responsible for implementation of the above treaties (the Joint Rivers Commission, Indo-Bangladesh Joint Committee, Mahakali Common River Commission, Chukha Project Authorities, Indus Commission) have also not proved effective in promoting regional harmony, cooperation and solidarity with regard to utilization, sharing and protection of common rivers.

The chronic failure of the SA governments to protect the common rivers and resolve disputes guided by the principles of equity, fairness and no harm¹⁵ have led to the following contentions that civil society in South Asia has to either answer themselves or solicit answers from the relevant authorities:

- Asymmetries in political & economic power influence the control exercised over shared rivers in total ignorance of social and ecological justice and livelihood security
- State as a source of identity for its people has raised question of legitimate representation of interests in case of water-sharing negotiations
- In the absence of specific institutions and/or defined principles, arrangements and procedures at the regional level, water governance in South Asia (SA) promotes "unilateralism"
- By denying to include shared river management in the agenda of SAARC as a multilateral issue, the regional leadership and SAARC have not only failed to demonstrate transparency, righteousness and compassion but have also failed to positively touch the lives of South Asians
- Where treaties/agreements exist, they are often not respected and are also running the risk of becoming obsolete as population and water demands grow in the basin, while climate change and consumptive use deplete the river flow
- In the absence of defined governance model, priorities and negotiation principles, existing treaties neither safeguard 'environmental and water justice' nor promote 'energy equity'
- The negotiation process over transboundary rivers continues without defining the rights and obligations of the riparian states and the same is not inclusive, transparent, democratic, equitable, gender-sensitive

¹⁵ Article IX of the Ganges Treaty (1996) signed between Bangladesh and India

- The quantum based negotiation process as opposed to basin based approach completely denies the integrity of the river eco-system
- Lack of public policy and practice reform through increased civil society and community participation has led to domination of the market players in the decision making process over transboundary water governance

On the face of continuous degradation and drying out of the major common rivers in SA, fresh approach needs to be initiated to reduce ecological vulnerability through the promotion of environmental justice for all. In simple terms, the demand on water for river itself, to maintain its geomorphological and economic demand should be important element in the planning process. With added pressure of global warming and climate change, a regional perspective may need to be developed to pull the region out of the crisis. It may warrant developing fresh perspectives to develop a shared regional vision to provide insights on curtailing global externalities and enhance the eco-system resilience to confront the same.

The shared vision or a regional framework on cooperation developed by pulling creative thought processes across the region may lead the region to its desired destination of sustainable development. The process of developing the framework can draw from the models of regional cooperation that exist along major trans-boundary river courses from Nile to the Mekong.

Against the above backdrop, it is my hope that discussions such as these by academics, activists and other civil society public intellectuals must make an attempt to answer the following questions:

1. Do we recognize rivers as 'international' or 'common rivers'?
2. If yes, should we define the vision for cooperation and sharing on such rivers, if defined as 'international' or 'common'? If no, what is the future we envisage?
3. What should the framework that guide the governments in dealing with transboundary/common rivers?
4. What should be the guiding principles and norms (or criteria) for such cooperation?
5. From where do we draw these principles and norms? Are existing international framings that may or may not have been ratified by particular countries any help, howsoever tenuously?
6. What ecological, social, political, economic, scientific considerations should guide the development and implementation of such a framework? What institutional reforms within our own countries, especially with regard to the vision and mission of our water management agencies?
7. What are the barriers to cooperation on transboundary rivers?
8. How can these barriers be overcome to promote meaningful cooperation?
9. Why have treaties not delivered or delivered so poorly?
10. How inclusive are the treaties/agreements and the institutions to civil society and broad academic concerns?
11. How do we balance rights, entitlements and duties?
12. When and with what changes can we visualize rivers as instruments of peace and shared waters as signs of trust and solidarity between sharing nations?

My sincerest moral and intellectual support to individuals and organizations asking the above questions and working towards attempting to draw a roadmap for future academic and civil society activism for a more wholesome regional cooperation on transboundary rivers.