



**International Conference
on
Water Resources Policy
in South Asia**

December 17-20, 2008
Colombo, Sri Lanka

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SaciWATERs

Conference Report

International Conference on Water Resources Policy in South Asia

December 17-20, 2008

Colombo, Sri Lanka

SaciWATERs

July 2009

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CONFERENCE
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SaciWATERS, at the very outset would like to humbly acknowledge the Conference Advisory Committee for providing support for the conference from its very inception. Their ideas and suggestions for the conference especially, for developing the various session themes, helped immensely in organizing it successfully. A lot of initiative and effort has gone into the review of the full length papers during this process. The Review Committee members were involved in a full day of intellectual churning to decide on the final sessions and papers. SaciWATERS is sincerely grateful to both the Conference Advisory Committee and the Review Committee Members for devoting their valuable time to the initiative. The presence of our Hon'ble keynote speakers, during the opening ceremony, illuminated the whole intellectual atmosphere through their erudite perspectives. The session chairs coordinated the sessions graciously and remarkably within the stipulated time, giving space to all the speakers and their views on various subjects. Their inputs regarding water related issues, and contextualizing each of the papers within the IWRM perspective was highly admirable. We would also like to extend our heartfelt thanks to the rapporteurs for extending their support during the conference and delivering a summary lecture at the end of each session. They also prepared an elaborate note on each session for the benefit of the speakers during the conference plenary, who worked with them, even at odd hours to prepare a concise and fruitful presentation. We are very grateful to all, who provided logistic support to ensure smooth sailing at all times without any glitches. We would also like to acknowledge Directorate General for International Cooperation, Ministry of Foreign Affairs in The Netherlands, for the financial support extended to the Crossing Boundaries-Regional Capacity Building on IWRM and Gender & Water in South Asia project, under which this conference was held.



Dr. Dibya Ratna Kansakar

Project Director – Crossing Boundaries Project

Aga Khan Rural Support Programme (AKRSP)
Asian Development Bank (ADB)
Calcutta Municipal Corporation (CMC)
Catchment Management Agency (CMA)
Common Property Resource (CPR)
Composite Empowerment Index (CEI)
Decade of Education for Sustainable Development (DESD)
Disaster Risk Reduction (DRR)
Earthquake Reconstruction and Rehabilitation Authority (ERRA)
Education for All (EFA)
Empowerment Index (EI)
Focus Group Discussions (FGDs)
Gross Domestic Product (GDP)
Gross National Happiness (GNH)
Groundwater Management Models (GMM)
Geographic Information System (GIS)
Gujarat Institute of Development Research(GIDR)
Indus River System Authority (IRSA)
Indian Institute of Management (IIM)
International Water Management Institute (IWMI)
Hydrologic Engineering Centre-Geographic River Analysis System (HEC-GeoRAS)
Local Government Engineering Department (LGED)
Megh Pyne Abhiyan (MPA)
Memorandum of Understanding (MoU)
Millennium Development Goals (MDGs)
Monitoring and Evaluation (M&E)
Multi Stakeholder Platforms (MSPs)
National Bank for Agriculture and Rural Development (NABARD)
National Environment Commission(NEC)
National Water Plan (NWP)

National Water Resources Strategy (NWRS)
National Water Supply Development Board (NWSDB)
New Tirupur Area Development Corporation Limited (NTADCL)
Post Graduate Institute of Agriculture (PGIA)
Project Implementation Agency (PIA)
Public-Private Partnership (PPP)
Road Development Authority (RDA)
Self Help Group (SHG)
Small Scale Water Resources Development Projects (SSWRDSP)
Society For Promoting Participative Ecosystem Management (SOPPECOM)
South Asia Water (SAWA)
State Water Policy (SWP)
United Nations Educational, Scientific, and Cultural Organization (UNESCO)
Water and Sanitation (WatSan)
Water Extraction Devices (WEDs)
Water Management Cooperative Association (WMCA)
Water Use Master Plans (WUMP)
Willingness to Pay (WTP)
World Bank (WB)
Center for Development Research (ZEF)

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South Asia is facing issues emanating from ill-managed water resources and use. Millions of people in the region do not have access to clean drinking water and sanitation. Many countries in the region rely on groundwater exploitation to supplement their scarce surface water resources. This dependency reaches about 30-35 percent of the total supply in Bangladesh, India, and Pakistan, putting renewable water resources at medium-to-high stress. The problem of insufficient, ill-managed supply is compounded by the poor quality of fresh water supplies in the region, which are threatened by water pollution due to location, ecosystem characteristics, land-use, and the degree and type of development. Given the range of water-related issues faced by the region, many countries have reviewed or revised their national policy on water resources development and management to incorporate issues such as integrated water resource management. However, these policies are subject to change, reflecting the dynamic reality of economics, demography, and ideology, thereby throwing challenges to civil society organizations and academicians who have been persistently involved in identifying the existing problems and bringing them to the forefront.

Keeping these issues and concerns in mind, **SaciWATERS** organized the International Conference on Water Resources Policy in South Asia in Colombo during December 17-20, 2008. The Conference was conceptualised in early 2008, when experts from the water sector, Project Advisory Committee members, and other experts were consulted on different issues that needed attention in the conference. After the initial round of discussions and further suggestions, various themes were devised and an announcement was floated. The conference being part of the Crossing Boundaries Project, a joint initiative of **SaciWATERS**, India, and Wageningen University, The Netherlands, brought together regional and international water professionals, academicians, policy makers, activists, and others involved and interested in South Asian water resources issues. As part of the ongoing water resources policy dialogue, the conference was expected to enhance the understanding of water resources governance and water management and use in the region by critically assessing the agenda for reform. Further, it investigated the varied dynamics of existing water resources management in South Asia and compared them with those in other regions. The participants engaged themselves with policy reforms process in South Asia and deliberated the challenges therein.

The preparatory process of the Conference gained momentum by mid October, when out of 130 full length papers sent by authors from South Asia, 67 papers were selected by the International Review Team at Hyderabad. These papers were to be presented at the conference in December. About 20 presenters were invited from different parts of South Asia and other parts of the world. The conference was finally attended by 120 participants representing six South Asian countries and other parts of the world such as South Africa, Germany, United States of America, United Kingdom, and The Netherlands. We are happy to present the conference report and look forward to your continued support for our future endeavours.



Dr. Peter P Mollinga
Convener, **SaciWATERS**

The conference inauguration took off with a grand opening in the presence of 150 guests including special invitees from Sri Lanka. The programme began with a short speech from the Convener who laid out the objectives of the Crossing Boundaries (CB) Project of **SaciWATERs** (South Asia Consortium for Interdisciplinary Water Resources Studies) and the importance of the conference in trying to bring people from all walks of life together to share their views on various issues related to the water resources situation in South Asia and its policy implications. Prof. Jayanta Bandyopadhyay, President, **SaciWATERs**, India, welcomed all the participants and the keynote speakers Dr. Amita Baviskar, and Dr. Madar Samad to the conference. He also provided the regional relevance of the conference to the participants. Dr. Baviskar spoke about 'Putting Cultural Politics into Water Policy' while Dr. Samad spoke in the context of 'Building a Resilient Water Economy in South Asia through Better Agricultural Water Management'. We received Prof. Mohan Munasinghe's pre-recorded keynote speech titled "Sustainable Water Resource Development and Climate Change - an Integrated Policy Framework", since he could not grace the occasion personally. This was followed by a brief introduction to the e-journal South Asian Water Studies (SAWAS) by Prof. Vishwa Ballabh. He highlighted the importance of the SAWAS website in trying to disseminate knowledge and information about the water sector to a wider audience and urged all water professionals to contribute and actively involve themselves in this endeavour. The website, which is hosted by **SaciWATERs**, was inaugurated shortly afterwards by Dr. Baviskar. The book titled *Droughts and Integrated Water Resource Management in South Asia* was released right after this event by Dr. Samad. This was followed by a cultural programme, courtesy an amateur cultural troupe, who presented water songs in Singhala and in English.





Political ecology, like its progenitor political economy has tended to trap us into forms of economic determinism-the notion that everything is reducible in the last instance to pre-existing, usually economic interests.

Dr. Amita Baviskar



Putting Cultural Politics into Water Policy

Dr. Amita Baviskar, Institute of Economic Growth, New Delhi, India

Dr. Amita Baviskar set in motion the conference by recalling the fact that in the current scenario, there are worldwide conflicts over natural resources. She stated the need for a close examination of the relationship between nature, culture, and power as they shape lives, in order to understand even those conflicts which otherwise seem absent because of a stable regime of extraction. She emphasized that the questions of nature, knowledge, and power that have so far been addressed through the lens of political ecology could now be viewed through the lens of cultural politics for better understanding. She pointed out critically that "Political ecology, like its progenitor political economy, has tended to trap us into forms of economic determinism - the notion that everything is reducible in the last instance to pre-existing, usually economic interests". She suggested the need to focus on the full range of material and symbolic values of how water is imagined, appropriated, and contested. Such an understanding, she said, could enrich political practice and public policy on issues of social justice and ecological sustainability.

Speaking about the US invasion of Iraq, Dr. Baviskar highlighted the nature of the conflict "in terms of empire and capitalist control over a critical resource like oil, a resource without which the entire military-industrial complex and large parts of the agricultural economy would grind to a halt". In this context she emphasized the need to focus not only on the regime of rule within which the conflict exists, but on "how this regime of rule is made intelligible by a regime of truth that tries to organise understanding and experience". The present regime, according to her, works on an underwritten imperial ideology which

states that the 'more civilized' know best how to run the lives of subordinate people and manage the landscapes they inhabit. Therefore a need for making the regime more organised and well trained towards improving the lives of ordinary Iraqis through management of their polity, economy, and society. According to her;

Ideas of Improvement, based on constructions of cultural difference – discourses of race and nature, gender and nature (the savage adivasi who needs to be civilized, the village woman who needs to be saved from patriarchal tradition), are at work in creating the White Man's burden, a cultural orientation that continues to inform contemporary discourses of development.

In such scenarios, it is generally thought that technocratic experts are expected to be able to direct the less educated towards a prosperous future when it comes to economic planning and efficient resource management. She explained the importance of culture and history put in practice through indigenous knowledge by indigenous people (e.g. the Narmada case and its indigenous tribal population), who have more powerful understanding of a precious natural resource like water, which is at stake.



She said that it is the prevailing ideology which determines how one interprets the facts, or even decides what relevant data is and what isn't. Therefore her approach to understand natural resources is cultural politics which undoes some of the assumptions that govern political ecology. According to her, strength of political ecology lies in its consistent focus on issues of social equality and justice which is often at stake when conflicts over natural resources occur, but it is cultural politics that examines social movements, large and small, that bring together diverse social groups, addresses transnational audiences, and uses international and national regulatory and judicial institutions to defend the threatened livelihoods against state-led extractive development. The common assumption is that;

Political ecology tends to assume that cultural identities are pre-formed, derived directly from an objective set of interests based on shared locations in terms of class, gender or ethnicity that challenges nationalism and/or capitalism. Cultural politics suggests that natural resources have value within a larger economy of signification which crucially shapes their modes of appropriation.

Taking the case of landless Dalits in India, she said that social capital; of being part of an association that manages the village temple and tank, which holds higher priority and importance as far as ownership, use and conservation of water or other natural resources is concerned as compared to material gains. Dalits have never been integrated into this institution, whereby the need for self-awareness is realised to constantly question what is being done in the field of water policy, to give more meaning to terms like social justice and ecological sustainability. They should not just become 'mantras' to be chanted mechanically but retain their power as talismans for the work done.

Building a Resilient Water Economy in South Asia through Better Agricultural Water Management

Dr. Madar Samad, International Water Management Institute, Hyderabad India

Dr. Madar Samad began his keynote address by reflecting on the major economic slowdown in the year 2008, which had a large impact on the Asian population. This has been manifested in supply shocks at a time of surging demand for feed, food, and fuel which in turn has resulted in a drastic increase in prices of food grains. Biofuel production has worsened the situation and disproportionately affected the poor through price level and volatility effects. There has been much thought about the availability of water resources to grow enough food to meet future demand for food and biofuels. He identified the various factors driving the increasing demand for water, which include growing population, dietary change, urbanization, biofuel production, need for environmental water, and climate change. Extreme climatic conditions like heavy rainfall results in excessive runoff leading to flooding followed by severe erosion, landslides in higher altitudes, silting, and choking of rivers. Low rainfall and drought conditions have resulted in declining groundwater levels.

Insufficient water for irrigation therefore has resulted in low crop yield, crop loss, and inadequate water for human and animal consumption. In recent times, many large rivers have dried up leaving many without sufficient water for different purposes. Hence groundwater development and regeneration is of primary need at this hour because it is the "last oasis", which is characterized by private investments, divisible technology, individual access to water and low



Groundwater development and regeneration is of primary need at this hour because it is the 'last oasis', which is characterized by private investments, divisible technology, individual access to water and low investments.

Dr. Madar Samad





investments. According to him, some strategies that need to be adopted to improve water and food security are exploration and development of surface irrigation like small village ponds, groundwater and water harvesting. This, he felt, will help in rural development and reduction in rural poverty; improve performance of many systems, keeping pace with the increasing demand for food and cope with environmental crisis. There is also a need to expand policies to upgrade rainfed systems. The traditional divide between rainfed and irrigated agriculture, identified as different forms, needs to be replaced by water management for agriculture. This could account for the complete spectrum from pure rainfed, via rainwater harvesting, to supplemental or deficit, to full irrigation. Sixty percent of all rainfall never reaches a river or aquifer and evaporates from the soil or is transpired by plants. Therefore, a proper approach to manage the complete water-cycle, including green and blue water can go a long way in solving the chronic water crisis faced by large populations in South Asia. Moreover, sectoral reforms are also required which can provide crafted solutions suited to local needs but without any blueprints. Policies outside water sector have huge influence on water resources in terms of diets, trade, agricultural subsidies, and energy.

The basic management approaches and institutional frameworks that existed earlier have to be replaced by Participatory Irrigation Management (PIM) and Irrigation Management Transfer (IMT), both of which can be undertaken through reforms to improve the irrigation sector in Asia. A recent series of appraisals of large and medium-scale irrigation systems suggests that participatory irrigation management has largely failed to deliver on all major objectives. Water Users

Associations (WUAs) that have been created in the past are weak and have little influence on major management decisions and water delivery practises. Several on-going efforts in a number of countries are essentially based on similar models and are therefore likely to produce the same outcomes. This calls for more effective reforms and therefore different models, based on physical, socio-economic, and cultural aspects of the country in question. Other strategies which can better the situation are innovative instruments to govern water resources through empowering users by giving them clear, enforceable water entitlements, water pricing, stimulating water markets for irrigation and other water services, introduction of incentive-based, participatory management of services and water resources. Therefore what is needed is to focus on overall administration in the agricultural system and not farmers alone whereby farmers and state agencies are bound into productive relationship. The sector also needs to be placed on a sound financial footing through improved management systems that are equitable and gender friendly.



Chairperson: Prof. Jayanta Bandyopadhyay
Rapporteur : Prof. Amita Shah

The session consisted of five presentations from India, Nepal, Sri Lanka, Bangladesh, and Pakistan. The two presentations by Prof. Tushaar Shah on India and Mr. Dipak Gyawali on Nepal discussed the existing scenarios of water policies in their respective countries and suggested alternative sustainable management practices, while the other three presentations from Sri Lanka, Bangladesh, and Pakistan focused mainly on the evolution and content of the policies and suggestions for modifications.

Prof. Shah spoke about the recent policy initiatives especially for ground water management in India, which has failed to keep pace with the new forms of market-based initiatives that hold significant promise for ensuring effective access and use of ground water in different parts of the country. He also emphasized that the future of irrigation in India lies in developing ground water resources in the central-eastern parts of the country, where majority of India's poor live. It was further stressed that high valued crops respond more to precision irrigation and therefore it opens up substantial scope for crop diversification thereby higher productivity and livelihood enhancement among the farming communities. Reinforcing the importance of reforms in the rural energy sector, Prof. Shah argued that instead of regulatory mechanisms involving institutions/government agencies, the state needs to be pro-active as a facilitator for expediting growth in irrigation. However, these alternative pathways stated above need further elaboration on some of the critical issues like equity among water users, sustainability of both land and water resources; and land alienation.

The next presentation by Mr. Gyawali focused mainly on the concept and practice of integrated water resources management (IWRM) in general and the specific context of Nepal. Highlighting alternative forms of power, he argued that the state is neither monolithic nor always authoritarian.

In fact the state, especially in a democratic set-up, emerging in most of the countries within South Asia, tends to work in tandem with two other important players namely markets and civil society organisations/activists. Pleading for a pluralistic framework, he argued that IWRM needs to be defined and articulated by taking into consideration multiple objectives and perspectives emerging from the various stakeholders. He stressed the need for constructive engagement with the concept of IWRM rather than viewing it as straitjacket formula, which would essentially involve the state in a central role in conjunction with inputs from the other agencies such as activists and markets. The major strength of this perspective however, lies in the emphasis on live discourses and negotiated solutions for attaining the larger objectives of IWRM without negating the role of any of the three players-the state, the markets, and the civil society.

Dr. Rajindra de S Ariyabandu provided a detailed chronology of the process of policy formulation in Sri Lanka. This, in fact, set the stage for understanding the process of translating ideas and ideologues into actual policies within the existing socio-cultural political milieu operating within the country. He also expressed concern about the issue of commoditisation of water, an agenda pushed by the international development agencies. He concluded by saying that most of the political developments were unavoidable in Sri Lanka but better planning, engaging key stakeholders to play a stronger role, and making the process less vulnerable to ad hoc changes would have definitely kept the policies more balanced. These developments clearly indicate that the policy development process was ill conceived and lacked a clear strategy.



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Prof. Tushaar Shah



...IWRM needs to be defined and articulated by taking into consideration multiple objectives and perspectives emerging from the various stakeholders.

Mr. Dipak Gyawali

Chairperson: Prof. Jayanta Bandyopadhyay



...better planning, engaging key stakeholders to play a stronger role, and making the process less vulnerable to ad hoc changes would have definitely kept the policies more balanced.

Dr. Rajindra de S. Ariyabandu



...sectoral initiatives for participatory processes such as IMT, in isolation of overall ethos of democratic decentralisation may take long to get rooted and work as per the design.

Mr. Mehmood Ul Hasan



...crisis in Bangladesh is not about quantum or access to water, it is mainly about the quality of water especially for domestic consumption and natural disasters.

Begum Shamsun Nahar



Mr. Mehmood Ul Hassan focused on the experiences from IMT in Pakistan bringing to the fore, the importance of cultural politics in rejecting the externally driven reforms in the water sector in the country. While this may be the last resort and a practical solution, it still remains unaddressed. In absence of this, the sector may continue to go through turmoil both externally driven on one hand, and incoherent internal policies being perused on the other. According to Mr. Hassan, the most important problem facing the sector in Pakistan is lack of transparency and resistance among the bureaucrats for changing the mindset towards more participatory approaches for irrigation management. After all, sectoral initiatives for participatory processes such as IMT, in isolation of overall ethos of democratic decentralisation may take long to get rooted and work as per the design. Most of the countries in the region tend to face a huge challenge in this regard.

Begum Shamsun Nahar presented a detailed account of the policies in the water sector in Bangladesh emphasizing that the crisis in Bangladesh is not about quantum or access to water, but is mainly about the quality of water especially for domestic consumption and natural disasters. She highlighted the problems of arsenic contamination and salinity which severely impact on the health of women and children in Bangladesh. She made a special plea for addressing the issues such as geographical consideration, equity in access to irrigation especially that of the tail-enders, environmental sustainability, and varied uses of water and its allocation. She also drew attention to the overlapping nature of the problems within the region, suggesting the need for dialogues within the South Asian region. She also argued that there is a need for coordination with other government departments for better management of this precious resource.

Chairperson: Dr. Philippus Wester
Rapporteur : Dr. Sara Ahmed

Dr. Jessica Budds presented her work outlining the history and political economy of water markets in Chile which have been largely promoted by international financial institutions, supported initially by the military state, 1973 and later by the Chicago Boys (neo-liberal technocrats). The reforms were highly political in character as water was seen as key to all development sectors. The Water Code separated access to water from land ownership. It granted water, the status of private property whereby under certain conditions – it could be traded, if adequately registered. She drew upon two case studies, one of Northern Chile, La Ligua river basin, where the big boom in export oriented agriculture led to the over-exploitation of groundwater in the absence of any significant regulation by the state. The second case was on mining in the Atacama region which also had a high demand for water, with little control by the state. Indigenous people, who owned land, sold it to middle men and the mining industry thus losing their rights to water too. She argued that while social and environmental benefits from water markets in Chile have not materialised, they have, in fact, left the poor more vulnerable. It was realised that in 2005, although the Water Code was modified (watered down) and indigenous people received compensation for the water they had sold; the effects have been devastating.

Ms. Eiman Karar spoke about the contested implementation of water reforms in South Africa. With the change in government in 1994 and end of the apartheid regime, South Africa moved towards ensuring a better quality of life for all and the White Paper on Water 1997 summed this up best in its professed objective, “Some, For All, Forever”. However, the challenges are enormous and inequity in access to water continues to exist, with 5 percent of the population enjoying 80 percent of the country's water. Climate variability is also affecting the planning and temporal projections. Progress in the implementation of reforms is characteristically slow. While only one Catchment Management Agency (CMA) is

functional, no water has been transferred through the water allocation reforms proposed under the first National Water Resources Strategy (NWRS), 2004. Licenses take too long to be processed while illegal use/theft of water persists. Other problems include huge investment in time, human, and financial resources for successful implementation of the policy. Finally, the state is both the referee and the main player in this process with little involvement from civil society and limited dialogue between research and policy components.

Prof. Claudia Pahl-Wostl spoke about European Water Framework Directive (EWFD), 2000, the European Flood Directive (EFD), 2007, and the Green Paper on Climate Change Adaptation, 2007, that not only recognizes uncertainty in water management, but also emphasizes that stakeholder involvement is critical. Through a number of illustrative examples, largely from Europe, she argued that what is needed is a paradigm shift in the approach to risk management from technical and quantitative assessments to robust and flexible adaptive management strategies. She spoke about NeWATER's approach, which recognises underlying uncertainties and complexities while calling for integration across different levels of governance. In practice however, change is slow and despite Europe's has the requisite technical know-how, supportive political framework and financial resources, the problem of re-engineering and integrating institutions across spatial, hydrological, and sectoral boundaries persist. Dr. Pahl-Wostl closed by calling for capacity building and diagnostic approaches built on cross-cultural, global learning processes such as the Global Water System Project.



Chairperson: Mr. Dipak Gyawali
Rapporteur : Ms. Seema Kulkarni



...in spite of all that has been attempted, there is still need for IWRM, where policies would need to be inclusive, and the right to water resources would be clearly spelt out by the federal system and policies.

Mr. Shital Babu Regmee



The reasons for failure ...lack of involvement of local people and primarily lack of political will, since the policy was an accepted project as part of overall donor funding package.

Dr. Ranjith Ratanayake

Following bureaucrats made brief presentations on their country policies/legislations;

Shital Babu Regmee

Joint Secretary, Ministry of Water Resources, Nepal.

Ranjith Ratanayake

Co-ordinator, Sri Lanka Water Partnership
Former Regional Co-ordinator, GWP,
Sri Lanka

Shafquat Masood

Indus River System Authority (IRSA)
Islamabad, Pakistan

Karma Chhopel

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Mr. Shital Babu Regmee spoke about the National Water Plan (NWP), which has fixed a target for different sectors e.g. irrigation, hydropower, water supply, water induced disaster prevention, industry, etc. He mentioned about the 2003 Irrigation Policy, which was based on the performance of the 1992 Policy, the guiding documents for which were periodic plans and water resources strategy and the objectives were all inclusive trying to attempt at access, conservation, inter-basin transfer, multiple uses, groundwater development, and capability and participation of local users. In the hydropower sector, the attempt would be to achieve electrification in rural areas at low cost to the optimum level through establishment of a fund for the same; develop hydropower as an exportable commodity; develop large storage type hydropower; and take note of environmental protection. He also mentioned the principles underlying rural and urban water supply and sanitation along with water induced environmental protection policies. He concluded by saying that in spite of all that has been attempted, there is still a need for IWRM, where policies would need to be inclusive, and the right to water resources would be clearly spelt out by the federal system and policies.

Dr. Ranjith Ratanayake mentioned about IWRM policy initiatives that were initiated in 1980 in Sri Lanka. However, he pointed out that through history, each phase of policy making, only one aspect of water management was given importance and separate policies devised for the same. In 2000, a draft water policy was prepared and approved by the Cabinet, with the understanding that all water resources are a public property owned by the people and managed by the Government as a trustee. The proposed policy was to follow the IWRM principles considering issues of water in the social, economic, and environmental context with a stress on the need for participatory management and highlighting the importance of equity and rights. But the process proved to be faulty and the policy failed in 2004, the reasons being lack of involvement of local people, lack of coordination and institutional arrangements, the problem of "privatization" and primarily lack of political will, since the policy was an accepted project as part of overall donor funding package.

Currently all water resources are under the state control and decisions on use and allocation is determined largely by political imperatives. But use/exploitation of natural resources is subject to payback for political support. He mentioned that free capital investment and the culture of free services by the state especially in the irrigation sector (contributing to 85% use) has created a nexus between politicians and agency staff resulting in mutual reinforcement with little accountability to beneficiaries and no incentive to change. This has led to a situation of recipients being captured while trying to retain power within the service provider. High level of pollution has resulted in decisions being now taken from outside the sector by Watershed management and riparian relations with regard to transboundary issues will be followed in order to avoid any conflicts. Dr. Ranjith Ratanayake concluded by saying that the environment/disaster management agencies etc, have resulted in

Chairperson: Mr. Dipak Gyawali

a scenario of ad hoc punitive regulation rather than integrated management. This situation, he said, calls for the need for a development and management strategy for water resources which is all inclusive and would consider issues related to governance, water rights, conflicts within uses and users, stakeholder participation in decision making, cultural and social values with regard to water.

Mr. Shafqat Masood began by highlighting the basic physical, socio-economic, and hydrological characteristics of Pakistan. He also mentioned about the proportion of water used by each sector specifying that agriculture is the highest user constituting 93% and that occupation and industry largely depend on agriculture. The total investment in agricultural infrastructure is 300 billion USD. After projecting the current demand for water, it is revealed that by 2025, the demand for domestic consumption will increase manifold. Mr. Masood also highlighted the issues of transboundary water sharing amongst all provinces as part of water policy.

The national water vision was meant to promote sustainable utilization of water, with due consideration to environment, quality of life, ability to pay, and participation of all stakeholders. As part of the present water policy, there has been an attempt to bring a change in the institutional setup by setting up a Project Management and Policy Implementation Unit (PMPIU), which has been established in the Ministry of Water & Power (MWP); to steer capacity building of the related institutions of water sector; monitor / oversee the implementation of the policy; and study on effects of climate change on the water resource. Other attempts undertaken as part of this policy has been private-public

joint ventures for financing mega projects, engaging in dialogue with donors to prepare necessary Economic Models and to constitute National Water Council (WC) at the national level and Provincial Water Regulatory Commissions (PWRC) at the provincial level.

He highlighted the need for key policy inclusions in the context of integrated basin wise planning, developing storages, conservation practices, prioritizing hydropower, maintaining hydraulic structures and equity in water distribution, provision of research on possible environmental damages, and pollution issues in the industrial and household waste sectors.

Mr. Karma Chhopel pointed out that Bhutan's policies are guided by IWRM principles. However, priority has been given to drinking water followed by irrigation, hydropower, and industry. The national target is to be able to provide access to safe drinking water and sanitation to all. However, considering the increasing demand for water in other sectors, a conflict over water by different uses and users is expected to arise. To resolve these issues, he mentioned about water management and regulation, which shall be participatory and that conflicts among competing water users shall be solved through legal instruments, the Water Act, which will ensure conservation & protection, equity and registration in water allocation, water rights among users, licensing of water for commercial uses, support by secondary legislations, and upholding international legal norms and conventions. This process will also involve changes in institutional setup and follow principles of development and management strategies for better management.



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immediate need for water management was water legislation, and associated regulations which include clear institutional framework, roles and responsibilities, guidelines on licensing, abstraction, better coordination and planning, and arrangement of financial and human resources. One of the key issues raised from the floor was regarding the steps required for water policy to be implemented- a transition from intention to practice.

Mr. Regmee pointed out that in the past, policies created by outsiders and which were thereby considered ideal were imposed. But he contended that for a policy to be successfully implemented, it has to be tailor made to suit the context i.e. the policy has to be home grown and simple. For financing water resources there is a need for a shift in the thinking and strategies. Enough money can be generated from the region itself. There is a need for reversal of practice- our effort must be to first mobilize resources locally then approach the donor agencies and that too according to our priorities. He also suggested the need to take grass root activism into consideration. The bureaucratic mindset needs to change and the path taken forward has to be inclusive for a common goal. Some of the other experts also participated in the discussion from the floor. Prof. Jayanta Bandyopadhyay said that policies have good words and intentions but finally targets hydropower and irrigation. They should also target rehabilitation of the environment, especially in the Himalayan region, which has borne extreme impacts of the upstream development in the downstream areas.



Prof Janakarajan stated that it is very essential to see if policies have been backed by legislative vision- law enforcement and monitoring mechanism.

Ms. Eiman Karar also stressed that legal assessment is important and it is also imperative to see to what extent the policies/laws can be implemented. There has to be a check on the resources available, the time frames in hand, and the ability of the state and its preparedness to implement the law. She emphasized the need for interface with research and pointed out the need to question at what point one should do it.



Chairperson: Prof. S. Janakarajan
Rapporteur : Mr. Gaurav Dwivedi

The session had five presentations on papers ranging from economics of ground water, public-private partnerships (PPPs), economics of water policy, municipal water pricing, and water sector privatisation. The papers presented in the session covered the issues in details which helped in understanding the various complex issues.

The paper on groundwater by Dr. Nagraj Nareppa spoke about the pockets of peninsular India where investments on groundwater have been increasing over time leading to depletion of groundwater and related physical and economic scarcity. He stated that a blend of market based and institutional approaches for addressing groundwater extraction are crucial. Dr. Nareppa stressed on the urgent demand-side interventions like adoption of widespread use of drip irrigation to reduce groundwater extraction, charging for marginal electricity use to avoid overexploitation that was earlier charged free of cost / subsidized by the Government. He also suggested regulation of institutional mechanism through restriction of finance through National Bank for Agriculture and Rural Development (NABARD) in overexploited areas and enforcing spacing norms. The paper also highlighted the supply-side interventions like construction of water harvesting structures like recharge pits and farm ponds for improving groundwater levels, converting some of the irrigation tanks as percolation tanks for recharge, ensuring that the farmer invests on recharge pits. Therefore, approach to policy analysis according to him should focus on the institutional framework, economic instruments and regulations for sustainable and equitable management of groundwater both on short run and long run basis.

Dr. Prakash Nellyyat spoke broadly about the models that are being followed to improve services to the residents in the urban areas. He explained this through the case of Tiruppur Area Development Project (TADP), the first public-private partnership (PPP) project in the water & sanitation

sector in South Asia. TADP was implemented through the New Tirupur Area Development Corporation Limited (NTADCL), a group of public and private entities. Some of the shortcomings of the project were lack of financial and environmental sustainability and inefficiency in domestic water supply sector. Though the project succeeded in providing protected drinking water to 0.75 million people, it was not sufficient and the quality was still an issue and therefore the project largely fell apart and this, Dr. Nellyyat stressed, calls for the need to organize and plan future projects of this kind in order to achieve sustainable development.

A paradigm shift in approach and its various facets were key concepts brought out by Dr. Cyril Kanmony's presentation. Dr. Kanmony stated that supply-oriented policies followed so far have not given much importance to allocation-oriented approaches. Institutions are inefficient and incapable of providing incentives to promote the optimum utilisation and conservation of water resources. He suggested the need for introducing demand side approaches to cut cost like rainwater harvesting techniques which are very beneficial in states like Tamil Nadu where the natural recharging capacity or the porosity of the soil is very low. Also the distribution wastage estimated in agricultural, industrial, and domestic sector should be brought under control. Water productivity of 2000 USD per cubic metre (Gross Domestic Product (GDP) / Water Use) was stated as key concept to the demand side approach which needs a boost in South Asian countries. As far as water productivity in industry is concerned, India has the lowest number among South Asian Countries. Some other measures that came forth were correct pricing of water, community participation in better management of water resources, quality monitoring, and creation of water courts for solving hydro-political issues.



Chairperson: Prof. S. Janakarajan



The presentation on municipal water pricing by Dr. Chirodip Majumdar was based on contingent valuation method for assessing the volumetric pricing for the residents in selected areas of Calcutta Municipal Corporation (CMC). This was used for assessing willingness-to-pay (WTP) and full cost recovery in the future. For the selected group of respondents, the paper brought out the opinion from the audience quite clearly regarding willingness to pay and coming to a certain price band for water services by working on a Logit model to estimate mean WTP of Rs. 59.59 per household per month. His conclusions hinted at simple, transparent, and easily understandable uniform volumetric charge of Rs. 4 per kilolitre, rebate for the underprivileged to meet basic water requirement and making use of private water utility operator as a management option.

Dr. Kumudini Abeysuriya's presentation proposed that private corporations as political economic organisations can be an alternative and interesting model. She questioned the effectiveness of competition for privatisation and public private partnerships in today's era. In developing countries, private partnerships have been characterised by collusion, limited competition, weak regulation, and low monetary returns. This is underwritten by the government and the consumers are not consulted in most cases. The paper mentioned the need to increase competition and introduce strict contractual arrangements with private corporations to make private sector participation successful in water sector. The idea proposed was that PPPs can be used in water sector with some conditions like improved regulations regarding participation and private profits.



Chairperson: Dr. Dibya Ratna Kansakar

Mr. Animesh Gain attempted to understand the extent of damage and risk caused by flooding in the city of Dhaka and surrounding lands which are vulnerable to the disasters in Bangladesh. He analysed it using HEC-GeRAS (Hydrologic Engineering Centre-Geographic River Analysis System) & Geographic Information System (GIS) maps and hydrodynamic model. These maps can be very useful for disaster management preparedness and evaluation of policy alternatives for social cost benefit analysis. Some recommendations which were suggested were the need to study the extent of possible damage due to velocity of flow and addition of internal rainfall and drainage and the need to use satellite images of floods for exact verification of the result of modelling.

Mr. Harish Kumar B.K. attempted to present the existing conditions of the water flowing in the Bhadra River in Karnataka. The impact of inadequate management of water was presented by him, based on field investigations in the study area. He stated that a dam across the Bhadra river has reduced the natural flow thereby altering the socio-economic condition of the population living downstream for almost 40 km. He sighted the need for better management in the downstream through effective policy making, thereby improving the lives of those at risk.

Mr. M.T.M. Mahees presented the sociological understanding of cultural practices and its impact on solid waste generation and water pollution in the Mahaweli river in Sri Lanka. The direct solid waste disposal into water bodies and the untreated dumping sites are supposed to be some of the major causes of water pollution. The consumption patterns of people often determine the nature and amount of solid waste generation based on their class and social status. The consumption culture, that generates more and more solid waste especially in urban social environment, impacts on the quality of water and aggravates crisis of water pollution.

Ms. Poulomi Banerjee spoke on the watershed programmes in India that envision sustainable livelihoods in Project Implementation Agency (PIA). She stated the conditions under which sustained and successful participation is possible. Her presentation examined the dynamics of social capital and how collective action through social capital can lead to sustenance of participatory institutions. She drew data from fieldwork in Madhya Pradesh, India, using various indicators of social capital to substantiate her understanding of the issue.

Ms. Sonia Binte Murshed in her presentation brought out the conflict between farmers and fishing communities in Bangladesh due to the introduction of structural interventions like embankments and sluice gates for draining water from *bheels* to allow dry season agriculture. The fishing communities have been adversely affected along with associated ecosystem. She drew results from field surveys, stakeholder analysis through FGDs (Focus Group Discussions), interviews with farmers and fishing community especially women. She indicated the need for managing water resources in a comprehensive, integrated, and equitable manner which should also reflect in the National Water Policy of Bangladesh.

Mr. Sydur Rehman spoke about the faulty water management practises in the Balajtala-Kalmdanga subproject in Bangladesh. This project with an aim to establish integrated rice-fish culture has not only proved to be unattractive for participation by shareholders, but has also proved unprofitable. The distribution of shares and benefits among land owner, land less workers, and traditional fishing community has been inappropriate. He suggested that the institutional arrangement needs to carve out a pro-active role for water management cooperative association, whereby fair distribution of share and benefits will be assured. This will also minimize conflicts between different groups of shareholders and pave the way for economic and social sustainability.



Chairperson: Mr. T.J. Bandaragoda and Dr. Madar Samad
Rapporteur : Dr .V.S.Saravanan



Dr. A. Narayanamoorthy offered a good overview of irrigation reforms on large scale irrigation sector in India. He drew on secondary information to identify the widening gap between irrigation potential created and utilised. His presentation revealed that there was an increase in the share of irrigated area compared to the cropped area by 17 percent. Further, he cautioned that despite good investment in this sector, efficiency was poor. His presentation highlighted the need to complete ongoing projects based on ranking, and create a water resources authority. He drew from the experiences of success in the state of Maharashtra in India and suggested that it be treated as a lesson for Indian irrigation reform.

Mr. Nitin Bassi through his presentation raised a very critical issue about legislations of PIM being able to guarantee any solutions. Using a case study from Madhya Pradesh in India, the paper focussed on the three tier structure of PIM created in the state; particularly, the top-down approach of the programme, partial delegation of responsibility, too much dependence on external funds, and inadequate involvement of NGOs (Non-government organisations). Supporting Dr. Narayanamoorthy's suggestions, he also called for setting up a Water Resources Authority (WSA) to manage irrigation.

Mr. C.E. Ajith Kumar's presentation set out to examine if high budget public investment in Kerala could address growing threat to food security in the state. Using secondary information, the presenter revealed that the land brought under irrigation was expensive for the state. They justified that irrigation infrastructure was grossly under utilised by other crops, such as banana, which reduced food grain cultivation such as paddy. He called for a review of the existing policies and emphasised on minor irrigation and suggested that more food crops should be brought under irrigation.



Mr. Venkat Rama Mohan's presentation questioned if the current irrigation reforms stretched beyond farmers' capacities? He attempted to analyse the participatory irrigation management policies, their trends, and sustainability in four states in India. The presentation highlighted that PIM Acts were evolving faster than the ground level experiences. There was a declining trend in Operation & Management (O&M) recoveries which requires further observation. Due to complete management transfer, including head-works, WUAs face double burden while Government frees itself from all responsibilities.

Dr. Jayanath Ananda in his presentation assessed the institutional arrangements of PIM in South Asia using a set of generic institutional design principles and examined the reasons for the poor performance of IMT. The findings indicated that traditional 'farmer-managed' irrigation systems have a significantly different set of institutional features compared to large-scale irrigation institutions established under PIM. These farmer-managed systems are adaptive to environmental changes, high in compliance capacity and interconnect well with informal institutions such as social norms and customs. On the implementation side, one of the core barriers to the PIM in South Asia has been the capacity constraints including technical and information capacities of the existing water user associations.

Dr. Firdaus Fatima Rizvi's presentation revealed how irrigation development had led to intensification of agriculture and subsequent degradation of land in the Ganga basin in Allahabad. Since the coming up of Sharda Sahayak Canal in the area, water-logging has been frequent resulting in crop damage/loss and emergence of various crop and animal diseases. In drought years too, water hardly reaches the fields at a lower level, but farmers have to pay taxes to the irrigation department. These negative externalities of irrigation have robbed them off their livelihood and



Chairperson: Mr. T.J. Bandaragoda and Dr. Madar Samad

marginalised them. A well-planned drainage system and comprehensive drainage programme involving local stakeholders, managed by local panchayat is an urgent necessity.

A paper by Ms. B. Anuradha focused on irrigation tanks in Tamil Nadu, where an integrated approach through participation of all stakeholders like farmers, technologist, and government was undertaken with the objective of improving the productivity and livelihood of the community. This was achieved by improving effectiveness and efficiency of ecosystem, farmer awareness and functioning of village-level water user association. The paper has drawn from case studies of Avalur Tank and Puliambakkam tank in Tamil Nadu where the three key network of active stake holders; technologist, government, and the farmers have been able to achieve short-term and long-term objectives of social equity, economic efficiency, and environmental sustainability.



Chairperson: Prof. Nimal Gunawardane
Rapporteur : Dr. Ben Crow



Mr. M.G.T.S. Amarasekara spoke about the Mahaweli catchment in Sri Lanka, where water availability has decreased mainly due to increasing population, pollution of water bodies, and degradation of watersheds, thus reducing their capacity to store and purify water. The catchment is under the threat of degradation due to soil erosion and landslides, waste disposal, encroachments, agricultural pollution, etc. The existing policies and regulations are not very successful in controlling/ managing the above issues in the catchment. Mr. Amarasekara hinted at the need for combined review of land policy, water policy and watershed management policy, and participation of respective line agencies to minimize repetition and to rearrange institutional set up and promote coordination through one delegated authority.



Mr. Umesh Babu spoke about IWRM in the Tungabhadra basin. His key findings revealed that there has been crop violation and unauthorized irrigation that has been extended in certain areas. The application of nitrogen fertilizers has led to degradation of the soil. The pollution load from both point and non-point sources have also increased manifold. Mr. Babu suggested the need for stakeholder participation during the allocation and policy making and emphasized that training is essential between the concerned departments in view of conservation.



Mr. Nawaraj Basnet stated some of the chronic water problems faced in Nepal. He discussed the project in the district of Sindhupalchowk, which is one of the twenty mountain districts of Nepal. He highlighted that there is a lack of effective dialogue and interaction between various national and local stakeholders, lack of participation of stakeholders at all levels in the decision making process which has resulted in mismanagement of water resources in Nepal. He said that there is a need to create

awareness of existing local water resources and mobilize communities for its holistic management by developing Water Use Master Plans (WUMP) for the optimal benefit of all levels of stakeholders.

Dr. V.S. Saravanan's presentation revealed that despite various actors incrementally and cumulatively governing water, a 'fire-fighting' approach presuming that 'water is infinite' is commonly adopted. They lack information rule that can enable various actors to communicate and take an informed decision. The actors and their policies are diverse, not confined to a 'place-based nexus' to manage watershed, as presumed by contemporary IWRM programmes. In this context, he called for government agencies to facilitate the integration of policies for an informed assessment of the problem, something that could be achieved through normative intervention, facilitating actors to debate, negotiating the programme and involve in comprehensive feasibility assessment of their policies. However, to enable actors to make informed decisions, there is a need to understand equitable distribution of resources, capacity of strategic actors and agents/agency of institutional change.

Mr. Sultan Ahmed in his presentation, talked about policy, plan, and guidelines in Bangladesh. He said that the Water Act has been drafted, but needs enactment. People's participation in water management is very crucial. Also genuine, self-motivated, sincere members are required in the Water Management Groups for sustenance. According to him, after rehabilitation, O&M should be transferred to the community. He views politicians, bureaucrats, and hardcore engineering community to be the biggest barriers in the process of achieving IWRM. This is further accentuated by poverty, land tenure system, lack of consideration for equity and environment, people's participation, lack of systemic instruments and lack of O&M budget, etc.

Chairperson: Mr. K.J. Joy
Rapporteur : Dr. Jayanath Ananda

Dr. A. Gurunathan was the first presenter in this session. He began by listing the typology of conflicts that exist in India especially in the tank irrigation sector. He said that conflicts vary from social to economic but mainly with regard to control and ownership of this precious resource. In the irrigation sector, he spoke about the conflicts arising in inter and intra tank sharing, between inter command farmers (head, middle, tail and well owning vs. non-well owning), tank farmers vs. other users/villagers, tank farmers vs. catchment farmers, tank farmers vs. the encroachers, encroachers and nearby land owners. The probable solutions according to him was to promote social capital and empowering community, prioritise the conservation patterns based on demand basis, prepare the people, and plan for water demand management through building consensus and demonstrating case solutions. Policy advocacy at multiple levels is also essential.

Dr. Sanjukta Das spoke about the Hirakud Multipurpose Dam project which was primarily built to control floods, provide irrigation to Western Orissa, generate electricity, help in pisciculture, and provide drinking water. But conflicts have slowly crept in especially amongst the farming community, who complain about the violation of their user rights. Many areas of the tail end of the canal are not getting adequate water. There have been grass-root level movements to protest government's water allocation to industries, which have influenced the government in signing of Memorandum of Understanding (MoU) in their favour. At such a juncture, she spoke about the transfer of water from agriculture to other sectors to promote efficiency without sacrificing equity. According to her, tradable right over water use, under riparian principle requires institutional reforms in Orissa, which could lead to further inequitable access to water due to low level of literacy.

Another solution could be to provide water rights to farmers and to increase water use efficiency in agriculture by construction of water courses with financial support from industries and divert a part of the excess water to industry.

Along similar lines, Dr. Padmaja Mishra spoke about a perceived scarcity which often leads to conflicts. This, she pointed out, is a difference in perception between policy makers and the users. Therefore scarcity is not necessarily a cause for conflict. There are many intervening variables that play a role and mere imbalances and not insufficiency could attribute to social frictions. According to the State Water Policy (SWP), IWRM in Orissa can promote coordinated development and management of water to maximise economic and social welfare without sacrificing sustainability of vital ecosystems. However, she questioned whether IWRM can actually enhance conflict resolution capabilities of the state, which depends largely on the quality of governance and participation of stakeholders. Orissa does not currently fulfil these preconditions owing to farmers being the main users, lack of coordination in administrative functioning, lack of water entitlements and unjust water tariffs, public unawareness about the value of water, and lack of human skill. She suggests the need for improved resource ability without reducing water use or reducing water use without compromising standard of living like restructuring water management in a participatory and equitable manner, and ensuring cost effectiveness, sustainability of technologies, and identification of alternative sources and undertaking recycling.

Dr. Suman Ranjan Sensharma spoke about the conflict on sharing of the waters of Cauvery between Karnataka and Tamil Nadu. After the elapse of the 50 years old agreement, the Cauvery River continues to



Chairperson: Mr. K.J. Joy



be a source of serious conflict between the two states. He analyzed this complex situation by using the Drama theory (derived from the Game theory) which incorporates non rational aspects of decision making process such as crisis, emotion, and self realization. Drama theory as explained by Dr. Sensharma attempted to understand how the game can be changed in the context of players' threats and promises. It allows redefining the game until the players find a common ground to agree upon, which is arrived at, in the process of redefining the game when players change their stands, beliefs, and preferences. He stated that Drama Theory attempts to continuously (de)construct the process of character's (player's) stands, beliefs, and preferences which leads them to eliminate each of the paradoxes to find a common interest gradient.

Mr. K.J. Joy, spoke about conflicts between different kinds of uses and users. Stating some case studies of conflicts all over India like Kaladeo National Park (agriculture vs. ecosystem), Cauvery water dispute (peri urban and urban), Ganga Canal (rural vs. urban), he suggested the need for change of attitude towards perceiving water and the way it is managed. Multi Stakeholder Platforms (MSPs) is being suggested as an institutional option for bringing different interest groups and stakeholders together for dialogue and exploring options which are more acceptable. Certain preconditions are required for MSP to be successful. This is owing to the various views of people and changing legal and policy terrain. He concluded by stating the need for legal and policy reforms.

Legislation can look towards developing the necessary inclusive framework and provide sufficient space and institutional support for negotiation and renegotiation amongst different stakeholders around critical issues confronting the water sector.



Chairperson: Dr. Sara Ahmed and Dr. Margreet Zwarteveen
Rapporteur : Dr. Anjal Prakash

Dr. Sara Ahmed highlighted a new role for the state: from a supply driven provider of water services to one which facilitates demand and enables community management of institutions. These institutions could be structured around decentralized governance or may be emerging as separate institutions meant to address management inefficiencies through participatory planning and inclusive decision-making. Women's participation here is seen as integral to these new institutions not only because of the gender division of roles and responsibilities in relation to water collection, agriculture, and livelihoods broadly, but also because there is an implicit assumption that women's involvement is empowering for them and will lead to more sustainable and gender equitable outcomes. Empowerment cannot be achieved by separating and isolating women from the complex social relations underlying their myriad and diverse relationships with water, the environment, and the larger socio-economic, political, and cultural context within which a gendered analysis of decentralized water governance is embedded. Decentralization is a process, which needs to be 'negotiated', and the hard reality is that for poor and marginalized women, negotiation is being contested in an economic environment where policies of privatization, pricing, and centralized technocentric delivery systems dominate the political discourse on water management.

Dr. Margreet Zwarteveen in her presentation explained the reasons why questions about gender in conventional water thinking, especially focusing on irrigation, are difficult to raise and discuss. She identified three sets of reasons; the first relating to the general ideas around irrigation, that lack critical interpretative tradition and cherishing of this gap as a virtue of modern science. Another reason she felt, was the way in which irrigation systems are normally defined, the way their boundaries are conceptualised and drawn, and the choice of metaphors used for representing irrigation realities.

A third set of reasons, she raised, was related to power and politics, bracketed from the normal analyses of irrigation. The use of deductive methods and ideal-typical models of explanation is widespread, and there is a strong association of sufficient irrigation knowledge with those who 'rule' or manage irrigation systems. Using insights drawn from field experience in South Asia and other developing regions, her paper argued that the social construction of gender and power, or rather the lack of it, in irrigation knowledge systems, is reflected in irrigation policy and practice. Even those which claim to be participatory are thus, by extension, more socially or 'people' inclined.

Mr. Nazeer Ahmed Memon discussed the role of women in irrigation and irrigation water management. Drawing from women's participation in PIM in Sindh, based on information provided by institutions involved in implementation and interviews with women farmers and professionals, he stated that women in Sindh have never been consulted in conception, planning, design, or implementation of any PIM program. Evidence from the field clearly showed that lack of women's participation in consultation processes has badly affected the efficiency and effectiveness of irrigation infrastructure. It highlights major problems associated with women's active participation in community / WUAs at the grass root level. Due to lack of visible participation of women in water management boards, women enjoy less privilege or access to opportunities, that irrigation reforms can offer. In doing so, the presentation reinstated that women have much more to contribute for effective water management in Sindh. For effective, efficient, and equitable management of water resources, men and women should be equally involved in the consultation processes and in the management and implementation of water related services.



Chairperson: Dr. Sara Ahmed and Dr. Margreet Zwarteveen



Ms. Pranita Bhushan Udas in her presentation stated that water management in the irrigation sector in Nepal has changed to centralized water management with state intervention in 1920s. But only in the 1990s, the issue of gender equity in the water sector was addressed in water policies and plans, mostly due to the influence of funding agencies. The content of water policy and its implementation has been limited to visibility of women in water committees. Her paper was an attempt to explore and explain reasons for these limitations in the context of Nepal. The key idea of the presentation was to identify the gaps in the context specific knowledge creation on providing working definitions of gender equity in the irrigation sectors. She stressed the need to address issues such as labour contribution proportionate to land-holding size during construction of irrigation canals, or limiting membership criteria to land ownership, etc. She argued that addressing such issues which help women and men water users, from different socio-economic backgrounds to fairly access water resources, is also a gender-equity concern.

Dr. Shiv Kumar Lal, in his presentation stated that current approaches to water management are highly segregated, focusing on technical improvements and sectoral solutions without sufficient attention to their basic social and sustainability goals. Within this social reorientation, most recent policy documents have recognized that the gender approach is essential to the development of effective, efficient, and sustainable systems and strategies. Women are managers of water who conserve, invest time and labour in improving supplies, and also monitor quality and quantity of water.

However, women cannot be expected to play effective role as managers and decision-makers if their position is undermined by the wider society. In order to achieve this goal, a gendered approach in water resources management is essential.

The discussions that followed these presentations looked critically at policies and processes of decentralisation in the water sector in South Asia. It reflected on the space which is provided for the articulation of 'voice' by the poor and marginalised, the extent of participation in community water governance, which has been effective in empowering women representatives, and the extent and level at which institutional structures effect men. Discussions also included an examination of the conceptualisations of masculine structured institutional arrangements around water.



Chairperson: Ms. Seema Kulkarni and Prof. Amita Shah
Rapporteur : Dr. Chanda Gurung Goodrich

Prof. Amita Shah and Ms. Seema Kulkarni's presentation was an exploration to unravel a new ground in the gender, water, and poverty discourse, which contributes to some of the larger debates around economic growth, efficiency, and equity in the water sector. The presentation brought out concerns for livelihood security, sustainability, and equity through various processes of participation, negotiations, and contestations. These are some of the important links binding the two discourses on water, poverty, and gender. The speakers concluded that the discourse on water poverty overstates the economic efficiency argument, while the gender water discourse is yet to take a leap, much beyond the welfare and instrumentality approaches. It is imperative to take forward the two discourses in a manner that leads to a more comprehensive understanding of Water-Poverty-Gender issues. The idea is to go beyond the instrumentalist approach and bring out the essentiality of linking gender empowerment with poverty reduction by exploring a new vision of agricultural growth, which may help strengthening women's collective agency.

Ms. Sayeda Asifa Ashrafi highlighted a case study of women's status and their empowerment due to intervention of the first phase of the Small Scale Water Resources Development Projects (SSWRDSP) in Bangladesh. The study had laid special emphasis on women's empowerment through their participation in Water Management Cooperative Association (WMCA). Empowerment was measured by taking some indicators like mobility, decision making power, autonomy, economic empowerment, exposure to information, institutional involvement, etc. Using these indicators, empowerment index (EI) and composite empowerment index (CEI) for a woman was calculated. The study observed that empowerment in most cases is directly related with factors that have significant contribution in local level

economy and therefore poverty as well. Empowerment and women's participation in water management has functional relationship, that the empowered women in the project areas proved to be more responsible with regard to water management.

Dr. Jyotirmayee Acharya spoke about the process of mainstreaming poor women farmers' participation into the ground and surface water management to achieve greater equality and overcome the cost of women's marginalization. She explained the context through case studies of intervention by Aga Khan Rural Support Programme (AKRSP), from Gujarat and Madhya Pradesh. She pointed out that issues of gender equity, factors of production, and the fact that non-exploitative gender relations foster agrarian productivity and reduce poverty are not considered in the policy-making process. Moreover, women's performance in PIM has positive impact on improving their access to microfinance, collaborative water harvesting schemes, integrated agricultural packages, and entry into local governance. Importantly, men in the communities and projects are also beginning to realize the opportunity costs of women's labour and collective action and this has made them ready to share spaces previously denied. The Self Help Group (SHG) and women farmers' association has gone beyond mere instrumentalism by being the first ones in address questions regarding women's agency and well-being.

She concluded by emphasizing that policy-makers in the agricultural sector including irrigation agencies and practitioners, seeking to reduce poverty and promote agricultural growth, should foster farmwomen's control over land and on-farm irrigation management in the households and community institutions.

Ms. Nazmun Naher Mita presented a case study about the consequences of not involving women in the irrigation projects



Chairperson: Ms.Seema Kulkarni and Prof. Amita Shah



in Bangladesh. Drawing upon the policy documents of the Local Government Engineering Department (LGED), she rued the fact that interests of disadvantaged people are not taken into account in the project selection processes. Gender has never been an inbuilt component of LGED's water project. Although women are invited as participants in project feasibility study processes, their needs are not included as project activities. Similarly, disadvantaged women, fishermen, and landless farmers are invited to be members of Water Management Cooperatives Association (WMCA) and are given financial support from the WMCA only if they can contribute. The issues of gender, poverty, and interests of other disadvantaged groups are only addressed through some co-activities like training, savings mobilization, and loan support during the post project period. As a result, gender issues remain unaddressed leading to negative environmental impact and institutionalization of local potentials which remain absent in water resources management.



Chairperson: Dr. Daanish Mustafa and Prof. Vishwa Ballabh
Rapporteur : Ms. Jayati Chourey

The session discussed various burning environmental issues existing in the South Asian region, ranging from climate change and adaptive strategies to the need for well-defined property right structures for water.

The presentation by Dr. Daanish Mustafa emphasized that it is important to recognize ecological sustainability as an essential requirement for poverty reduction. He suggested that in the projected climate change scenario, disaster risk reduction (DRR), adaptation, and social sustainability should be the key agenda items for South Asia if it has to survive the worst situation. High end climate science has limited communicational and policy relevance in the South Asian context. He also emphasized the need for reposition, vulnerability, and resilience at the core of development, climate, and disaster policy. Dr. Mustafa highlighted case studies from Pakistan in order to reinstated that indigenous knowledge and technology should be revived and encouraged through resource policy.

Dr. M. Shahjahan Mondal shed light on the severity of consecutive failures in the Brahmaputra barrage. He stressed the fact that if a failure is of considerable duration, the resiliency measure would be low. Resiliency takes into account the duration of failure. However, it does not take into account the magnitude/consequence of failure. With this background, he said that it is important to estimate water demands through evaluation of available water resources, development of a time-series model for stream-flow generation, evaluation of the impacts of climate change on both demand and resources, and evaluation of development options in meeting future water demand using risk indicators. He concluded by saying that future water demand in Bangladesh can be met only by sustainable development of multipurpose project on the Brahmaputra river.

Ms. Kamal Melvani presented from her work on the Paradeke Oya basin in Sri Lanka which has undergone severe ecological degradation in the last several years. Some of the critical concerns which she narrated were; the lack of vegetation in the riparian zone, the risk of exposed soil, and the contamination of streams through the errant use of agrochemicals. There is also lack of adequate legal safeguards, which is an overriding issue since there are presently no mechanisms in place to affect jurisdiction by the local authorities. She suggested that water policies must have provisions to allocate adequate water for environmental needs to ensure sustainable development.

Mr. Thinley Gyamtsho brought up the issues of water management in Bhutan in the light of the current policies. He pointed out the problem of the “uncomfortable paradox”, where farmers are facing water scarcity in spite of Bhutan being a water rich country. This is because of limited capacity of the existing farmers to manage and use water and the lack of IWRM methods to use appropriate technology to use this resource in a sustainable manner, even though investment has been geared towards hydropower generation. Furthermore, water management research programmes have not received much focus. The watershed management programmes have over emphasized afforestation and reforestation thereby limiting the growth of watershed approach. Therefore, he argued that increasing local capacity to use water for food should be the first priority for Bhutan and water projects and programmes should be realigned with the Gross National Happiness (GNH) concepts.

Dr. Vishal Narain's paper examined the process of land acquisition and its implication for water availability. He pointed out that 70 percent of Gurgaon's water needs are met through groundwater; leading to a steady fall in the water table.



Chairperson: Dr. Daanish Mustafa and Prof. Vishwa Ballabh



This has also been declared a dark zone; but the issue of licenses to builders continues. Rural urban conflicts arose when there was a breach of the Gurgaon canal by farmers which resulted in water being brought through tankers, which could meet the demand for water partially. The presentation identified the need for a property rights structure for sustainable rural-urban water flow, which, although difficult, should be attempted at. The rural urban dichotomy needs to be removed by understanding the possible consequences of the development process.



The final paper was presented by Ms. Renuka Thapliyal who spoke about the town of Shimla which is facing serious water problems owing to increasing population and influx of tourists. Despite Shimla being one of the better managed towns, it still faces problems related to erratic water timings, loss through leakage, high cost of production, poor billing, deteriorating water quality, and lack of funds to improve the system. At this juncture, she spoke about the need for involving government and the local people in understanding and developing sustainable means of supplying water to everyone in the area. She said that the government also needs to take a proactive role in trying to generate revenue which they are losing on account of incorrect/poor billing. She also focused on trying to develop integrative and decentralized approach, such as storm-water retention for aquifer recharging, rainwater harvesting for water supply, and other small initiatives for sustainability of water supply.



Chairperson: Prof. Jayanta Bandyopadhyay
Rapporteur : Dr. Kumudini Abeysuriya

There were four presenters in this session, concerned with different traditional water harvesting technology or practices that have come under threat as a result of 'modernisation'.

Dr. Kulbhushan Balooni described the technology of traditional water conservation practices through water tunnels known as 'surangams' used by the local people in the Enmakaje panchayat in the Kasargod district of Kerala, India. His presentation reflected the increasing use of bore wells that has threatened groundwater levels resulting in decreased water yields in the tunnels and erosion of skilled labour for construction of tunnels. Dr. Balooni called for government support for an integrated approach to water resource management that included digging of ponds to capture rainwater, recharge water-holding formations and the revival of water tunnels. A particular challenge in this regard is the incompatibility between water tunnels and bore wells which currently enjoy state government support. While the water tunnels were mainly owned by individual farmers, Dr. Balooni observed that the people involved in his study were reluctant to discuss private ownership and management arrangements.

Dr. Niharranjan Mishra discussed the traditional approaches to conservation, collection, and distribution of water for rain-fed agriculture in Orissa. He noted that tribal traditions, observational wisdoms, and rituals had been shaken by 'modernisation', giving farmers a feeling of greater control and less need for dependence on traditional beliefs. Modernisation has led to a change from communal control to government control of water infrastructure, resulting in lesser interest in communal tank management and maintenance. Modernisation also led to sale of lands, creating landlords and landless people. Selling land led to loss of communal interest in the entire length of irrigation channels which was the case when ownership of land along irrigation channels was more fragmented. The audience reflected whether the traditional system is viable if modern options are beneficial.

Dr. Mishra noted that traditional approaches brought people together to participate in meeting their needs, and this opportunity for social cohesion was lost by modernisation.

Ms. Luisa Cortesi's presentation aimed to allow a fresh and useful insight into the concept of tradition. She described the work of the NGO, Megh Pyne Abhiyan (MPA) in North Bihar, where the revival of neighbourhood-scale dug wells for drinking water is a safer alternative to hand pumps and maintains the values of equity and sustainability. She noted that males in the project area perceived that the safety of water was increased with greater bore depth, observing that other market drivers could be contributing to this perception (e.g., deeper bores promoted by borers). At the same time, dug wells were seen as a status symbol in the community, which further reiterated the need to encourage the technology. Again, hand pumps were linked to arsenic contamination of ground water, and therefore the need for safer sources.

Mr. Samrat Goswami discussed changes in the use of water in West Bengal, where increasing numbers of small water bodies were irrigating decreasing areas of land. While ground water had emerged as a significant alternative to water from traditional structures in much of the state, Mr. Goswami's case study in the districts clearly brings out the depleting groundwater resources and greater dependence on surface water bodies. He discussed the need for greater government intervention and provision of incentives for community participation in maintenance of tanks and ponds.



Chairperson: Prof. Jayanta Bandyopadhyay and Dr. Ben Crow
Rapporteur : Dr. Vishal Narain



Dr. Rakesh Tiwary presented the role and implications of ambiguity in transboundary water treaties drawing from two case studies of Mahakali and Ganges in Nepal and India respectively. Transboundary water resources utilization and management poses slightly different challenges as compared to national water resources. This is because of the large areas under consideration, heterogeneous socio-economic and cultural conditions, and significant degree of variability among laws, regulations, national policies, and priorities. Transboundary water resource inevitably assumes the overriding bearings of international relations, organization and diplomacy, unlike national water resources. International treaties are the major tools for managing transboundary waters. Although cooperation over transboundary environmental resources has been analyzed from various perspectives, each identifying the problems of cooperation differently and hence suggesting different mechanisms to enhance it, the role of ambiguity in treaty design in resolving border disputes has far been overlooked. The case studies revealed that several types of deliberate ambiguities were incorporated in the treaty to allow each side to interpret them differently while accepting the main allocation of the resource. It also enabled negotiation deadlocks to be overcome by postponing disagreements to the future and by allowing each side to make different assumptions concerning the treaty liabilities and procedures.

Dr. Madhav Bahadur Karki in his presentation, pointed out that water should be allocated judiciously and efficiently among its users. This he felt could be possible by taking an integrated approach to address the multi-dimensional usage of water as well as multi-disciplinary nature of water resource management. This approach, according to him focuses on integration of land-use planning as well as

practices in the upstream watersheds and its effects on quantity and quality of water which is available downstream. It also recognizes the scarce nature of water resources with competing uses and conflicting interests of the users thus warranting best possible resource management paradigm and institutions. The approach is based on the need to take advantage of "externalities" while planning water management. These externalities are reflected in the upstream-downstream linkages, whether it is for communities, districts and provinces within national borders or across international boundaries.

Dr. Ben Crow's paper reflected on the international cooperation over major rivers in South Asia, which took a new turn with the signing of five innovative water, power, and economic cooperation agreements in 1996 and 1997. The innovations include four elements; the transfer of some previously diplomatic questions into the sphere of the private economy, bringing third parties, other than governments, into the design and negotiation of cooperative projects, the principle of sharing costs and benefits, and taking steps toward multilateral discussion. However, political and implementation challenges have remained, and have been exacerbated by looming water shortages as economies grow and climate change occurs. The great rivers of South Asia, particularly the Ganges and Brahmaputra, have been the subject of five decades of discussion between governments of the region. While those discussions have continued, these rivers have contributed, through flood and drought, to the uncertainty and impoverishment of the lives of the largest concentration of poor people anywhere in the world. The presentation explored some of the possibilities opened up by recent innovations in international cooperation, as well as the new challenges. Dr. Crow presented two challenges in particular. The first is that water flows are being changed by global warming. The second challenge is to address concerns related to industrialization. He suggested that an



Chairperson: Prof. Jayanta Bandyopadhyay and Dr. Ben Crow

independent regulatory agency could facilitate rational development, assist in the management of substantial uncertainties about future flows, and reduce the potential for conflict.

Ms. Priyanka Mallick's paper discussed the flood management in Brahmaputra-Barak basin in the north-eastern part of India and the issue of regional co-operation between co-riparian. According to her, floods are an integral part of the inherent variability of nature. They play a major role in replenishing freshwater resources, recharging wetlands and groundwater and supporting agriculture and fishery systems. However, floods have negative impacts on the lives, livelihoods, and economic activities and in extreme cases, they cause devastation. The presentation focused on the Northeast region of India and Bangladesh and argued that water could be the 'building-block' of the region's prosperity using multi-track diplomacy in the framework of regional cooperation. However, unregulated waters currently vent their fury in destructive annual floods, particularly the Brahmaputra basin which creates an annual mayhem of devastations bringing untold miseries to the people. Bangladesh, being the lower riparian, suffers even more with enormous loss of lives and property. Therefore, harnessing of this abundant natural resource for the benefit of this region has become an absolute necessity in the present geographical scenario of the two countries.



Chairperson: Prof. Tushaar Shah
Rapporteur : Mr. Rama Mohan



Dr. G. Anand Vadivelu presented his paper where he analysed the theoretical and empirical constraints on moving from open access to common property regime and management for ensuring sustainability, efficiency and equity in allocation and use. This he felt, needs urgent legislation. An inappropriate policy environment, such as free power supply, in some states is sending wrong signals and is a constraint towards efficient resource management. Analysing the Model Ground Water Bill 2005, and Ground Water legislations in 6 states of India for comparison, he suggested that nested governance structures and regimes are essential for effective community participation as well as moving towards a common property regime. Dr. Vadivelu suggested a scheme for Common Property Resource (CPR) regime whereby all stakeholders can be involved and starting from an incomplete model and a gradual move towards this ideal scheme is the practical approach towards shifting to CPR regime. He, however, stated that a good administrative support provided by states like Maharashtra towards common property regime can be of immense help.

Dr. Sanatan Nayak attempted to establish a relation between distribution inequalities and degradation of groundwater resources in 12 villages of Uttar Pradesh. He identified informal groundwater markets existing in the study villages where exploitation of groundwater and inequity in distribution exists. The unequal distribution of land holding has lead to unequal access to water extraction devices in the region in general and specifically in these villages. He highlighted the fact that clear social division exists between sellers and buyers, as most of the buyers are small and marginal farmers belonging to the marginalised communities. Dr. Nayak identified and analyzed four key parameters namely frequency of use of groundwater for irrigation, hourly expenditure by buyers and owners, average requirement by buyers

and owners, and irrigation cost to establish the relation between 'distribution inequity' and 'groundwater over-exploitation'.

Dr. Aditi Mukherji presented the consequences of introducing metered tariff system in place of flat tariff system for agricultural pump-sets in West Bengal, India, as part of power sector reforms with support from the World Bank. She studied this change in terms of impact on buyers and sellers in the informal water markets that exist in the state. It was found to benefit the sellers who made double profits because of less electricity tariff and higher selling rates. However, the buyers lost out because, they were paying 30-50% higher rates for water even after the introduction of metered tariff system. Dr. Mukherji concluded that, in the long run, there is a possibility of contraction of water markets resulting in buyers losing access to irrigation water at affordable prices. Government shall take measures such as subsidizing more wells for poor buyers to ensure equitable water distribution.

Mr. Abhijit Das presented his paper on arsenic contamination of drinking water in West Bengal, which is prevalent in 8 districts of the state affecting a large section of population. During 2001-2007, about 9.8 million people were covered by arsenic prevention interventions by the Government. In spite of such efforts people still continue to suffer from arsenic contamination due to ineffective implementation at grass-root level. He stated the need for arsenic safe water since other schemes are either private or have not been successful in provisioning of this service. And in this context, he pointed to the possible "welfare gain" that the society can achieve if corrective measures are adopted.



Chairperson: Dr. Ravi Narayanan

Rapporteur : Ms. Sayeda Asifa Ashrafi

Mr. Sunil Thrikhawala spoke about the present status of water supply and sanitation, challenges therein and possible direction to be taken to provide sustainable water supply and sanitation services to people of Sri Lanka. The water policy in Sri Lanka has been very ambitious and politically sensitive. The National Water Supply Development Board (NWSDB) is funded by both foreign and local funds and was characterized by a two-part tariff structure, fixed and variable. However, he questions the response to such kind of tariff structure and possibilities of cost recovery, which has not been stated in the policy document. There is an urgent need to clearly state in the policy document, the financing and cost recovery for any strategies adopted for better services. He prescribed the need for effective implementation of policies to protect watersheds and encourage the state's role along with strategic planning for training managers in the sector.

Ms. Sakshi C. Dasgupta spoke about the reasons for poor sanitation conditions prevailing in the South Asian region which include fragmented institutional agenda, financing, gender dynamics, and lack demand generation. She emphasized on exploring the possibilities of adopting a demand driven approach for improved sanitation, with special focus on the emerging paradigm of demand creation through social marketing in meeting the sanitation challenge especially the gender dynamics. She drew from successful efforts by TERI (The Energy Research Institute) made in some of the South Asian countries like Bangladesh, Pakistan and some states of India like West Bengal, where rural sanitary marts and localized communication and awareness was undertaken.

Dr. Bikramaditya Kumar Choudhary's presentation highlighted the case of water management situation in Susuwahi, an urban sprawl in Varanasi in northern India. The water supply from the city municipality has not been extended to this area because of insufficient storage capacities, leaving no other option but to revert to the private

vendors for supply. He pointed out an urgent need for intervention to extend water supply from municipal sources to these areas. He also urged the need to develop better theoretical models and approaches to solve the problems of overexploitation of water for other utilities, and ecologically damaging consequences of lack of service provisioning in the sanitation sector. His observations further reinstated that the issue of privatisation is economically justifiable, and socially desirable if decided on rationalized pricing based on uses that are non-existent in the city of Varanasi.

Ms. Zeb U Nisa, stated the success stories of rehabilitation and reconstruction undertaken after the devastating earthquake hit Pakistan. The obvious aftermath was lack of drinking water supply and sanitation facilities for the survivors. The project undertaken by Earthquake Reconstruction and Rehabilitation Authority (ERRA) for water provisioning to the households reconstructed all public and community owned drinking water supply, sanitation and solid waste management systems that were damaged or destroyed. As a result, the burden on women for collecting water on a daily basis was largely reduced and they could now pursue their household chores at leisure. Efforts were taken for capacity building and education of women about water borne diseases, basic hygiene, & maintenance of Water and Sanitation schemes; involvement of women for site selection, planning, designing, and implementation of WatSan schemes; participation of women in Monitoring and Evaluation and governance of water supply schemes.



Chairperson: Dr. Rajindra S. Ariyabandhu
Rapporteur : Dr. Aditi Mukherji



Dr. Rajindra S. Ariyabandhu started with a short comment on the difficulty of pushing through water sector reforms in a multi-party democracy like Sri Lanka. He pointed out that policy formulation is often held hostage to political trigger events such as an upcoming election. While such triggers sometimes, help to push a policy document forward, the fact that such policies are not well discussed and deliberated upon means that reaching a consensus at a later stage becomes difficult. He used the term 'knee-jerk' policy formulation to describe the experience of Sri Lankan water policy reforms and noted that due to the nature of multi-party democracy and the way bureaucracy works, water policy here has remained in the draft form even after 10 years. However, to update information, Prof. Nimal Gunawardane pointed out that consultation meetings were held in the recent past and that there was some progress in terms of consensus building.



Mr. Gaurav Dwivedi presented on water sector reforms initiated by the Asian Development Bank and the World Bank and their implications in Madhya Pradesh. He highlighted the fact that these reforms violate the norms of water as a human right and takes away the obligation of the state to provide water for its citizens. He also mentioned that most of the provisions such as, disconnection of drinking water in case of non-payment, turning over of irrigation schemes to private entrepreneurs etc. will not work, given the political and socio-economic situation. This clearly brought out the processes of policy making and how there is a need to unravel the subtleties involved.

Dr. Priya Sangameswaran in her presentation argued that recent developments in social science theory offer useful techniques like use of Meta narratives, that have powerful impacts on the policy making process. She used the concepts of critical geography and critical

development studies to understand how water policies are framed. She particularly emphasized three concepts, viz. scale, diverse economy, and ethnographies of the state.

The presentation by Dr. Jos C. Raphael talked about water policy and water law formulation in Kerala, India. He discussed the contrasting views, giving examples of two policies; an irrigation policy, which did not get mass recognition, since it was not discussed properly and that of paddy land encroachment policy which received wider support, because it was well discussed before being put into action. He emphasized the importance of public discussions and consultations before promulgating a law. He urged the need for local language to reach the masses and identified the importance of public opinion during formulation of a policy. Dr. Raphael felt that awareness on water law through popular media and other communication tools at grassroots after law enactment could go a long way for a successful policy.



Chairperson: Dr. Peter P. Mollinga
Rapporteur : Mr K.J.Joy

Dr. Peter P. Mollinga, at the very outset made significant introductory comments on the Crossing Boundaries project, especially the type of boundaries it tried to cross over the last two years or so. He primarily took a review of the progress of the CB project and the impact it has been able to make so far. He stated that the primary objective of the IWRM education that is being imparted through the CB project is to shape or develop water professionals who can internalise the three sets of normative concerns, namely, ecological sustainability or sustainability of the bio-physical processes, human development and democratic governance. To understand the changes that the CB project has made so far, SaciWATERs had commissioned studies in the respective countries where the CB project has been operational to understand the type of changes it has been able to bring about in higher education and policies related to water. The study also tried to gauge the status with regard to the employability and job opportunities of the students who have gone through the interdisciplinary course. According to Dr. Mollinga, after three years, there seems to be a general push towards more comprehensive and integrated programmes, especially in the environmental/ecological areas but not in the social/ managerial spheres. There also seems to be an increasing demand for 'hybrid' IWRM professionals especially in the 'development' sector (NGOs, donors, academia) but not in the Government sector. In the areas of policy changes in the higher education and water resources domain, very little change seems to be happening and it is limited to the lower echelons.

Prof. Shahbaz Khan stressed that the water education strategies need to reflect the whole scope of education. This would include the formative years of schooling, vocational training, university and professional education, lifelong education and training, and other informal and innovative ways of knowledge and information transfer.

United Nations Educational, Scientific and Cultural Organization (UNESCO) has been facilitating contacts with financial entities and Member States of UNESCO, to provide financial and technical assistance, and periodic evaluation to ascertain alignment and performance. He emphasized that water education programmes should link education to broader strategies and policy frameworks, particularly the Millennium Development Goals (MDGs), Decade of Education for Sustainable Development (DESD), and Education for All (EFA). It should also seek to mobilise and support the existing capita of ideas, resources, networks, etc., building on community assets within a rights-based approach, and build trust between all stakeholders through shared actions and dialogue. The "content" of water education programmes must be useful to local environmental issues and risks. In the light of the above, he stressed on the importance of networks in playing a more significant role in generating and disseminating trans-disciplinary knowledge on Water Education and Training.

Dr. Vishal Narain presented his findings on some of the prestigious science and technological institutes in North and Eastern parts of India. He noticed that students and faculty are sensitive to water management concerns, but were more interested in regional issues. There was disenchantment with excessive technical focus in conventional programmes. At the same time, a compromise on technical skills was felt in inter-disciplinary programmes. The need for inter-disciplinarily was recognized by the administration, but confined to the positivist sciences. Talking about polices, Dr. Narain focused on the institutional fragmentation which hinders IWRM perspective along with the belief that engineering orientation should give way to more IWRM perspectives.



... primary objective of the IWRM education... imparted through the CB project is to... develop water professionals who can internalise... normative concepts... , ecological sustainability or sustainability of the bio-physical processes, human development and democratic governance.

Dr. Peter P. Mollinga



Water education programmes should link education to broader strategies and policy frameworks, in particular the Millennium Development Goals.

Prof. Shahbaz Khan

Chairperson: Dr. Peter P. Mollinga



There was disenchantment with excessive technical focus in conventional programmes. At the same time, a compromise on technical skills was felt in inter-disciplinary programmes.

Dr. Vishal Narain



The programme (IWRM) was able to attract people with different backgrounds such as agriculture, engineering, social science, and medicine

Dr. M.I.M. Mowjood

The education system itself encourages specialization within a stream and there is a strong attachment to respective disciplines among academics. In this context, he called for the need to create a demand for inter-disciplinary water professionals in the government, demonstrate the benefits of an inter-disciplinary approach and recognized need for capacity-building in the government through donor funding.

Dr. M.I.M. Mowjood presented an evaluation of the IWRM course at Post Graduate Institute of Agriculture (PGIA), University of Peradeniya, Sri Lanka. He stated that the IWRM program of the PGIA aims at producing inter-disciplinary professionals who could effectively address social, economic, technical, and environmental aspects of sustainable water resources management. The integration of different disciplines is an attempt to assess, analyze, and improve water resources, water allocations, and hydro-ecosystems while developing methodologies to implement policies and legislations related to all aspects of water in the country. PGIA has succeeded through support from a regional initiative under the CB Project. The programme was able to attract people with different backgrounds such as agriculture, engineering, social science, and medicine. A total of 127 students have been registered up to 2008, out of which 26 have graduated while others are in the process. The first batch of South Asia Water (SAWA) fellows had graduated in 2008. At present, there are 39 students following the courses. Some students who completed the IWRM Masters programme are continuing their higher studies (PhD) in local and international universities.

In addition to fellowships and research, CB project has helped to improve the curriculum and train the academic staff.

These interventions from the CB project during the last three years have substantially improved the capacity of the staff to teach and supervise the research programme of the students. While identifying the gaps, he said that coordination among the courses is necessary to avoid repetition. Individual courses offered have a poor sequencing and little integration among them. An initiative has already been taken to compile the course materials with lessons plans, objectives, reading materials, case studies, assignments, quizzes, and evaluations with each staff. Visibility of the programme has to be increased at the highest level of policy makers and at the relevant institutions. Advocacy for recruiting the IWRM graduates in water sector is essential for marketing the programme. It was noted that a considerable number of students could not complete their research work or could not submit their thesis for completion. Monitoring each student on their performance of course work and research is necessary to guide them in advance to complete the programme in time and also to achieve the objective of the programme. Students enrolled in PhD and MPhil under the CB Project work as a team on a common research proposal. Interdisciplinary research is a challenge for the programme and needs further support and intervention for further improvement.



Chairperson: Prof. S. Janakarajan

For the plenary sessions, all the 16 sessions were grouped into 6 themes based on close thematic linkages and were assigned a reporting person who made a brief presentation in the conference plenary addressing the following questions:

- *What is the defining context, main concern, and central problematique of the sessions combined?*
- *What are the implications for water policy in South Asia – in terms of relevance, content, change & reform?*
- *What are the concrete and feasible ways forward to make water policy more effectively contribute to human development?*

Ms. Sayeda Asifa Ashrafi summarized the gender sessions mentioning clearly that there is a need to understand the interface between gender dimensions of poverty within the framework of social and institutional relations. Since, there is also a struggle existing between gender knowledge and normal water knowledge, it calls for a gendered water polity need for gendered water policy through meaningful participation, and also strategic direction for operational plan. This would help in policy support for political articulation and women's empowerment through water management.

Mr. Thinley Gyamtsho highlighted the main interlinkages between sessions on environment, IWRM, and dying wisdom while summarizing these sessions. He stated that at present, policy makers need to understand the requirement to keep the environmental balance, appreciate local needs and knowledge, while considering multiple perspectives/voices: engage all the actors at all the levels in addressing problems and equitable sharing of benefits.

Ms. Seema Kulkarni summarized the contested water policies in South Asia pointing out the commonality of all the South Asian countries, in them being agrarian based with high dependence on water and other natural resources. These

countries are characterized by a large section of population, dependent on natural resources and most importantly water for their livelihood. This region is also conflict stricken, socially, economically, and politically in the context of water, although political framework and administration in the region are different in their own ways. In such a context, introducing privatization and commoditization of resources can have negative impact on the livelihood of the poor. Therefore, policies need to address these concerns and imbibe ideas like IWRM-equity, sustainability, and democratization. The discourse needs to move away from sectoral to one that links the larger processes of development.

Dr. Madhav Bahadur Karki, reflecting upon the conflict within sectors and issues within nations on common waters, believed that the lack of discussion among stakeholders on issues of optimal use and good governance of water will always result in further conflict. Further, national and regional water policy is driven more by political rather than socio-economic factors. Climate change and globalization have added new dimensions and rationale for decision making. Therefore, intersectoral and regional co-operation should be based on economic and social benefits in totality and not only on national, political, and sectoral interests. Neutral forums, facilitator, and constant generation of new information & knowledge should be used to resolve conflicts and promote co-operation. As far as existing water sharing treaties are concerned, accords should be reviewed and implementation arrangements redefined based on rapidly changing economic and environmental factors.

Ms. Zeb U Nisa summarized the sessions on reforms, groundwater issues and water supply and sanitation. She spoke on the assessment of the performance of the existing irrigation reforms in South Asia, open access, inequality in access, water



Chairperson: Prof. S. Janakarajan



quality, and depletion of groundwater in the region and to achieve the MDGs in the context of WatSan for all. Highlighting the main content of all presentations made therein, she said that papers reflected on the performance of PIM and environmental degradation in South Asia. They also spoke about Groundwater Management Models (GMM) towards addressing inequality, quality issues as well as ground water depletion, existing state of practice, policy gaps, willingness to pay, and gender participation dynamics of WatSan System in South Asia.

Lastly, Ms. Kamal Melvani's presentation summed up the sessions on water policies and economics of water. Her presentation highlighted the critical need to understand the background and context in which water reforms would be executed and to make sure that water reforms are beneficial to all sectors. In order for a better reform process to be initiated, there needs to be adequate discussion and deliberation with all stakeholders. Failure to engage in consultation with all stakeholders could result in the inability to reach a consensus. Such consensus must be the platform on which laws are framed. Better participation will lead to better laws.

Chairperson: Prof. Janakarajan

Speakers

Mr. Dipak Gyawali

Transboundary Water Issues

Dr. Peter P. Mollinga

Water pricing, reforms and conflicts

Dr. Daanish Mustafa

Water and environment, ecology and climate change

Dr. Sara Ahmed

Gendered governance

Ms. Kusum Athukorala

Action based research

This session involved a comprehensive summation of thoughts and ideas emerging from each of the presentations put together in connection with the other.

Mr. Gyawali at the very outset stated the need for a reality check on the scenario in the context of water and expressed his views about the conference in being able to bring out a huge grey zone where existing challenges have been expressed without being extremely pessimistic. He reiterated the fact that although everything may not be in order over space and time, but in the presence of an element of optimism, there is hope for a better situation in the future. And this he thought gave a sufficient reason and opportunity for civilized constructive engagement with those whom one usually disagrees with. Highlighting some of the consequences of globalization, Mr. Gyawali said that;

Along with markets, globalization has crossed many boundaries. And one of the manifestations is that, hegemonised national development of water is no longer possible. Nations can no longer be treated as islands. One has to now cope with various varied voices; local, national, regional and global; take care of international finance, international activists, who will raise more questions resulting in dire consequences.

De-hegemonisation will emerge as the pitfall of new forms of hegemonisation; like, hegemony of donors, unaccounted money, foreign money, short-sighted policies, institutional distortions, in fact toxic consequences. This includes not only donor-funded projects but also donor-funded research. He emphasized that it is time that the government understands the importance of listening to its own local activists and market players if they want to avoid a fight with foreign players in the future. He stated that transboundary powerplay, for example, is not between global markets and activists. Sometimes, international treaties are purposely kept ambiguous for both sides to violate and keeps a window open for activists to barge in.

He strongly pointed out the problem of escapism by the government which results in suffering of large numbers, something that should be countered by alternative technology and not consider dams to be the only solution. One way of regional cooperation with nations would be to introduce "A well defined proposition, with fuzzy cooperation dominating active hydro diplomacy." Referring to Ben Crow's presentation, he said that "bartering may not be possible in the strict sense of the term within hydrology, but can be introduced in the form of a clever mix of packages beneficial for the countries in question in other sectors." He also mentioned the need for looking at sources of water and how to improve the situation through monitoring of monsoon regimes.

Dr. Mollinga referred to Dr. Amita Baviskar's keynote speech, re-iterating once again that political ecology approach to research on water issues coupled with the understanding of cultural framework and theory is something which has been echoed several times in several ways in the conference.



...bartering may not be possible in the strict sense of the term within hydrology, but can be introduced in the form of a clever mix of packages beneficial for the countries in question in other sectors.

Mr. Dipak Gyawali



Research on policy actors, state actors, main stream actors, the shocks,... is the main scope of political ecology approach... very different from critical development studies...

Dr. Peter Mollinga

Chairperson: Prof. Janakarajan

He urged the need for being conscious of where to speak from, so that there is a scope for communication and rational debates. He emphasized that this conference has by and large moved towards not only respecting each others' domain, but also understanding each other's perspectives, which is a very positive indication. With respect to the critique of the green revolution and peasant theory during the late 70s promoted by the World Bank, he referred to an aphorism "If you want to help the World Bank, you do research on small farmers. If you want to help small farmers you do research on the World Bank". This, he said, clearly means that;

Research on policy actors, state actors, main stream actors, the shocks, the movers and shakers of the system is the main scope of political ecology approach which is very different from critical development studies, which has a higher propensity to study the small farmers, for very obvious reasons.

Dr. Mollinga felt that this conference has been able to provide sufficient stimulus for more work on the state, mainstream actors, and even markets in the future. He highlighted on the issue of water resource management being a contested process and the conflicts have been very prominently represented in the current academic discourse. A network of water conflicts in India reveals the interest in the fundamentals, both academically as well as strategically, being part of this contestation process. He also mentioned that water resource management is a political process; a perspective which was absent 10 years ago and later was a prerogative of academicians.

This, however, is not true in today's world because this political understanding and debate has also started in other circles. Highlighting globalization as a process, looking at mechanisms of how globalisation works; the issues have to be understood in this new regime. He talked about the different currencies of globalization namely policies, knowledge and ideas; using local and global knowledge and trying to appropriate that. The other currencies were money and technology. He revealed the systematic exploration of the intricacies of globalization as a two-sided process because there is a lot of appropriation of global ideas and by-local actors. Giving an example of the WB and ADB loans, which have been provided in different states of India, he stated that the states in most of the cases have got away without doing anything and the money is spent elsewhere.

A very critical issue, which he highlighted, was the South Asian water resources debate being characterized by quite a few red herrings and colourisation like water pricing and privatization. He referred to the HDR report 2006, which states, "We have wasted ten years of abstract debates on privatization, in being far too ideological. The real question is the need for regulation of markets, government, and community supply". He mentioned that a debate around privatisation must be brought back in the years to come, which at this juncture takes a dichotomist position. This conference, he cited was a perfect example of a civil debate and to continue such debates, he felt that there is a need for organizing such platforms in the future.

Dr. Daanish Mustafa began on a light note by saying that, it is expected that people would get wiser after this conference because a lot of confusion has been generated during the discussions at the event and that "confusion is the first step to wisdom" as quoted by Mr. Gyawali.



If water management is considered to be a social practice and social practice by definition is political, then, politics is ultimately debate, discussions, disagreement; an argument and engagement with different subjectivities.

Dr. Daanish Mustafa

Chairperson: Prof. Janakarajan

Dr. Mustafa reflected on the fact that the conference has been able to raise many questions in the context of water. Water is the only non-substitutable resource and accepting the fact that development is a well recognized social practice, he quoted Karl Marx saying that the object of any philosophy is to understand reality but “the point however, is to change it.” He emphasized that there is always an interest to know the reality especially in the academic and research world, in order to bring some change. But this concept, according to him, is somewhat overrated because, after reaching the reality there is no effort to look further. When such situations are achieved, it is able to destabilize peoples' conception, their comfort, and confidence of knowing the reality. Therefore, if this conference has been able to achieve this understanding, then it has rendered an incredible service.

He expressed his fear regarding the threatened ecology and environment, which according to him are 'material context of existence'. It is a system characterized by dichotomies in the human nature and it is this dichotomy that lies at the core of all problems that we face. But beyond this notion of truth and reality is the notion of consensus and reaching a consensus is very important. While explaining the nature of politics Dr. Mustafa spelt out, “if water management is considered to be a social practice and social practice by definition is political, then, politics is ultimately debate, discussions, disagreement; an argument and engagement with different subjectivities.” Subject is the notion of self identity, reflection into one's own self. And ultimately this event has been about competing with each other's subjectivities, engaging in these subjectivities and redefining each other's understanding of these subjectivities. And through this it has destabilized everyone's comfort zones and made an impact on material reality because it is a creation.

For example, dams are creations, water as a resource is a creation, and water as the basis for cultural existence is a creation. So changing reality, according to him meant changing the self, the subject, and a very meaningful way to take this forward would be further interaction and debate and this conference has provided a very good learning experience in this regard.

Dr. Sara Ahmed recalled an anecdote; pointing out the need for dropping the “I” from IWRM, something which has been of much debate, discussion, and chaos in people's minds even during the World Water Week in Stockholm in 2008. She mentioned that it is difficult to use the word 'integrated' just because of the element of gender attached to it and despite advances in understanding, research, and practice on gender, “it is a challenge to make gender visible in the water sector at all levels and all fields”. It is a common saying that research on gender is usually characterized by only qualitative work, but the work SaciWATERs has been doing is commendable. Infact, work done by some other water professionals in the context of gender are to a large extent sidelined. There are gaps existing even in outputs like knowledge, capacity building and policy advocacy. It is noticed in many cases about people working around capacity building, that any exercises on gender and IWRM tends to become a technical exercise rather than empowerment and political articulation. In terms of policy advocacy too, “there is no mention of gender and water policies, gender and natural resource management.

Policies only reflect gender roles in stakeholder participation”. In terms of knowledge, there is a tremendous gap in terms of epistemologies, ontologies, metaphors, and symbolisms as far as gender is concerned and how it is mainstreamed.



...despite advances in understanding, research, and practice on gender, it is a challenge to make gender visible in the water sector at all levels and all fields

Dr. Sara Ahmed



Chairperson: Prof. Janakarajan



The Hole in the Bucket...was the first attempt to use another media to translate research into action ...to attract attention of political decision makers...

Ms. Kusum Athukorala



The entire enterprise of decentralisation, reforms in the water sector in South Asia rests on its success and on women's participation in a whole range of water institutions, villages, around drinking water; irrigation; to a much lesser extent than the drinking water sector as a whole. She spoke about difficulties in women's articulation in the institutions, and the challenges that they face which points to the fact that there is a need for reforming the reforms. Taking the example of the proposal of having the gender and equity Guage taken up by Society for Promoting Participative Ecosystem Management (SOPPECOM) and SaciWATERS is just one step ahead in this process. A much larger databank on gender needs to be generated so that this sector is not accused of only qualitative research, anecdotes, and case studies. Dr. Ahmed brought forth some of the gender specific larger questions which need attention; how to negotiate some of the boundaries and understand intersection of gender with other sectors like caste, class, faith, and ethnicity etc., something that is missing in the current research. So more work needs to be done in the terms of understanding these and talking more on the framework, tools, methodologies used, in terms of education, curriculum, and practice.

Ms. Kusum Athukorala, in her speech identified the critical importance of action oriented research, which SaciWATERS has been attempting to do. She mentioned that SaciWATERS was set up with 3 components in mind, namely education, research, and advocacy. The education component has been very successful, with several SAWA scholars graduating every year, many of them being women. The advocacy initiated by SaciWATERS through conferences at various fora and publication of the research work has been a proof of that. A documentary film, "The Hole in the Bucket", also an initiative along these

lines was the first attempt to use another media to translate research onto action, a media that is expected to be a little more useful to attract attention of political decision makers whose attention to long reports has always been somewhat limited. "The Hole in the bucket" points to the fact that issues like social equity, gender, ecosystems, marginalization keep falling out of the hole and the immense number of publications has only left huge carbon footprints, but has not been able to change the mindset of the decision makers. In this context, she pointed out the need to find ways to translate the work being done into action. Taking the example of the abortive Sri Lankan water policy, Ms. Athukorala mentioned that it was the media, who first reflected the need for a policy in Sri Lanka, when the government taxed common people for water, something that created immense hue and cry. Public opinion stalled the process, over and over again, but the need for a policy was never recognized and therefore nothing materialized.

She spoke about the "water professionals" who should have built consensus through constructive engagement with the academia through universities which are the intellectual store houses." In this backdrop, she emphasized that there is an urgent need to interact with policy makers, who are usually avoided but, if one has to translate research into action, one has to actually find ways of interacting with them through constructive dialogue without compromising with principles of losing or diluting self conviction. She specified the need to understand their preoccupation and concerns regarding issues and therefore the need to appreciate that the messages given to them are crisp and in a language that they understand. The SAWA fellows with support from their own institutions and external organisations like SaciWATERS can develop their potential to the fullest and emerge as active players in this process. A major attitude and mindset change is called upon in changing the situation, for example, the paucity of gender disaggregated data.

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She identified capacity building as a very important component if one has to move from research to action for critical issues in South Asia; for researchers to galvanize society and policy makers and for progressive action. She pointed out that the recipients also need capacity building through means of delivery. Another way is to “look beyond mere norm of harnessing technology; using the media effectively because they are key partners. Capacity building should not be treated as one shot activity and would require constant support and coaching, holding it as a cyclical and iterating process.” She concluded by saying that above all there should be a passion and a conviction to make a difference.

The session concluded with a round of questions and discussions. A concluding speech was delivered by Prof. Janakarajan, merging views shared by the speakers at the session and putting together his observations during the conference. Speaking about transboundary issue, he said that “treaties do not go beyond construction. There is no mention of beneficial sharing in an equitable manner, for example, sharing the cost of disasters.” He also emphasized the need for Governments, NGOs, and markets to be able to develop a platform to monitor climate change. He expressed the lack of adequate data available to all, free of cost, which is one of the biggest hindrances to good research. At the same time, he emphasized the need to generate data and disseminate it. He highlighted the importance of coordination while talking about the three-legged approach, which are in fact, the different subjectivities that have been spoken about earlier, and a need to get provoked to reach a consensus without a conflict between the subjectivities. Referring to Dr. Baviskar's keynote, he stated that “there is a need to understand the interdependence of political ecology, hydrocracy and cultural politics, and to build consensus along these lines.”

Climate change and associated problems is a very important issue, which has been raised in some sessions. The message delivered was simply the need to address them immediately by crossing the boundaries of different subjectivities and beyond the dichotomist view of different disciplines, to avoid dire consequences. He also reiterated that “action oriented research is only beneficial when one can move out of mere academic work and involve in building of partnerships.” Since times have changed, “research has to go way beyond personal interests in academic work and look at the audience to whom it is addressed.” He also laid down the need to publish documents in the local language to be able to reach the common man, one of the key requirements to translate research into action. However, he appreciated the fact that this conference has gone way beyond normative prescriptions and moved towards a bigger agenda, a more practical agenda as revealed through the CB project. He ensured that further support in this ongoing process would yield better results in future.

The conference concluded with a vote of thanks from Dr. Dibya Ratna Kansakar (Project Director, CB Project, SaciWATERS and Executive Director, SaciWATERS) and announcement of the result for the Young Professionals. The award was given to Ms. Sonia Binte Murshed from Bangladesh for her paper titled “Water Use Conflict between Agriculture and Fisheries in a Selected Water Resources Development Project in Bangladesh”.



...there is a need to understand the interdependence of political ecology, hydrocracy, and cultural politics, and to build consensus along these lines.

Prof. Janakarajan



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