

My foray into Interdisciplinary Water Education
Stories of and by the Recipients of South Asian Water Fellowship



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Concept and compilation: Anjal Prakash

Editing: Anabel da Gama/Hamsini Ravi

Support: Vasundhara Dash

Designing: Md. Abdul Fahad

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About the booklet



This booklet is an outcome of the Crossing Boundaries (CB) project of SaciWATERS presently operational in four South Asian countries – Bangladesh, India, Nepal and Sri Lanka. The project aims to contribute to the paradigm shift in water resources management in South Asia by means of a partnership-based programme for capacity building of water professionals on IWRM and Gender & Water through higher education, innovation and social learning focussed research; knowledge base development and networking.

South Asian Water (SAWA) Fellowship is an important component of the CB project. The fellowship is granted to young students to take up Integrated Water Resources Development course facilitated through the CB project in four south Asian Countries. The fellowship was granted to four partner universities – Institute of Water and Flood Management, Bangladesh University of Engineering and Technology (BUET) in Dhaka, Bangladesh Centre for Water Resources (CWR), Anna University, Chennai, India, Nepal Engineering College (NEC), Kathmandu, Nepal and Postgraduate Institute of Agriculture, University of Peradeniya in Sri Lanka.

These fellowships are aimed at active water professionals, the education of whom will directly impact the sector, and in contributing to gender balance in water education and the water resources sector by primarily selecting female candidates. Therefore, female candidates form a higher majority of the fellows.

This booklet contains personal accounts of select recipients of SAWA fellowship. They tell us the stories of personal trajectory and changes that the students went through in their journey into the world of interdisciplinary water education. These are inspiring stories of personal transformation as a result of the tertiary level capacity building programme undertaken by the project.

On behalf of SaciWATERS, I thank the students for taking time off to write these reflective notes. The Research Coordinators of the four partner universities need special mention for facilitating the process and encouraging the students to write their stories.

Warm regards,

C. G. Goodrich

Chanda Gurung Goodrich, PhD
Senior Fellow – Research
SaciWATERS

**Bangladesh University of Engineering and
Technology (BUET), Dhaka, Bangladesh**

Opportunities' Galore

Masuma Akter Happy



“Some of the coursework helped evolve my outlook tremendously”

Coming from a non- engineering background and being a two time awardee of the fellowship by SaciWATERS, I have a different story to relay.

During my graduating years, I developed a strong interest in water related issues and grew increasingly concerned about the growing water crisis within my own Country. On hearing about the MS-IWRM programme my interest to enroll grew. Since I was not eligible for the programme, given my graduation degree in Soil, Water and Environment, I applied for the PG diploma course in Water Resource Development, from the Institute of Flood and Management, University of Engineering, Bangladesh. I looked at this programme as an opportunity to gain a better understanding on water issues, as well as, to make my work economically viable. Another area which captured my interest, were the exposure trips to other countries, which were part of the course curriculum.

My first semester proved a little difficult, as most of my colleagues and teachers had an engineering background. However, with the support and suggestions given by teachers I managed to adapt. Lectures on socio-economic analysis, gender and water were my favorites. I could relate the lectures to people's experiences and systemic issues. The role of women in water management, understanding the equations in equity, etc. were learnings that changed my perspective. The significance of PRA and data collection tools for socio-economic analysis was stressed upon.

In the 2nd semester I took the IWRM course, which gave me insights into water management systems. Submission of a mini thesis in the form of a project report was also part of the course. The understanding on water related issues, effective community based responses, and the difference between equity and equality, helped my outlook tremendously.

I participated in a training programme in *Participatory field Research Methodology* as a SAWA fellow in Nepal. The experiences of the trip were immense, in particular, that of meeting other SAWA fellows of partner institutions. The training included theory and field sessions. Knowledge sharing was encouraged. The experience of understanding the local people and their culture was memorable. We undertook practical implementation sessions, using PRA tools, to understand their water management systems.

In Bangladesh there are recommended guidelines for using land and water resources, published by Soil Research Development Institute (SRDI). My project sought to explore local agricultural practices, differences between the recommended and current practices and the reasons behind the same. My study area was a small village of Narail district. I applied PRA tools to understand land and water management systems. The study revealed areas of non-conformity from the recommended guidelines. Conventional wisdom stated that women did not actively partake in agricultural practices. This theory was negated in my study, as it showed women's involvement in almost all activities, from that of seed processing to harvesting. Women were good sources to gain information on agriculture.

On completion of my diploma degree, I wanted to pursue my Masters under the SAWA fellowship. I was immediately selected as MS SAWA fellow to continue my higher studies. I applied for management level

courses like agricultural water management, remote sensing and GIS in water resources management, river and floodplain management, etc. I also undertook the *Interdisciplinary Field Research Methodology* course (IFRM). The course gave a detailed insight into the research tools and methodologies. A field trip is planned to conduct research related studies.

I visited the Mahawaleey Project in Sri Lanka, which has been successful in setting up appropriate and effective water management systems. I gathered a lot of information by interacting with the villagers.

At present, I am in my 3rd semester and have taken just one course for this semester. My main focus is on my research thesis. I have undertaken two field visits in my study area and I am in the process of presenting my proposal for the study. I am hoping to do a comparative analysis on project and non-project implemented villages. On my visits to the villages, I have found that the livelihood opportunities of the people in the project area are more diverse than the non-project area. In the project area, people are dependent on rice production and the benefits are reaped by land owners. In the non-project area the people adopt local techniques and poorer sections are direct beneficiaries.

I joined the River Research Institute (RRI) as a Scientific Officer while doing my thesis. My job responsibility is to analyse soils of different river beds and of different sites, for making structures. I am hoping to apply my



knowledge in the water sector to ensure better management of rivers. I try my best to explore effective solutions using IWRM techniques.

The limitation I see with the course is that it is designed for engineers, to develop an understanding on the socio-economic-environmental considerations. I feel that it needs to be more inclusive to the needs of other disciplines. More practical courses should be introduced.

My gratitude extends to all the persons who have played a role in creating multiple opportunities for my growth.

Good to better to best..

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Water Everywhere but None to Spare!

Sonia Binte Murshed



“The SAWA fellowship helps contribute to the water sector in the South Asian region by generating responsible professionals in the field.”

I have been working as a lecturer at the Institute of Water and Flood Management (IWFM), Bangladesh University of Engineering and technology (BUET) since 2009. With a major in Environmental Engineering, I began my career as a Coordination Engineer in a consultancy firm and then moved to a construction firm as an Executive Engineer. I resigned from my job to build my career in the water sector.

I enrolled myself in the M.Sc programme in Water Resource Development as a SAWA fellow in December, 2006. As a SAWA fellow, I undertook three compulsory courses:

- 1) Integrated Water Resource Management
- 2) Interdisciplinary Field Research Methodology
- 3) Gender and Water.

The course helped me pursue my journey from a technical disciplinary field to an interdisciplinary field. I was able to find solutions to issues beyond the technical approach. These included social and gender sensitivity issues. I completed my M.Sc. thesis on *Management of Conflicts between Irrigation and Fisheries* in the South-West region of Bangladesh. During my research, I worked with the local people to gather their views on various aspects of the study. I felt confident to face challenges and was enriched with the whole experience of working with the community. My personal insecurity of spending nights alone during my field visits was a challenge for me.

The South Asian Water (SAWA) Fellows training programme on *Development Issues in Water Management* was held in September 2007 at TISS, Mumbai, followed by a field trip to Pune. I enhanced my knowledge on issues related to water and experienced the varied cultural views of other students from India and Sri Lanka.

I was awarded for my paper titled “*Water Use Conflict between Agriculture and Fisheries in a Selected Water Resources Development Project in Bangladesh*”. The paper was based on my M.Sc. thesis. I also received an award for young professionals at the first International Conference on Water Resources Policy in South Asia, held in Colombo, Sri Lanka in 2008. As a lecturer in the Post Graduate Research Institute, I have to undertake several research activities, classes and training programmes. Research activities, requires that I carry out field visits and consultations with the local community. This enables me to effectively work on solutions. I try to address water related issues in a socio-technical way. My work environment encourages and inspires to undertake such endeavours.

The SAWA fellowship programme helps contribute to the water sector in the South Asian region, as it strives to generate responsible professionals. Students under this fellowship can complete their course across participating universities. For example, a student can complete semester one in BUET, semester two in PGIA and so on (like Erasmus Mundus programme). The students are given the freedom to undertake a research project in any of the SAWA fellow countries. This will help broaden their experiences and gain a better cross-cultural understanding.

Internship programmes may be offered to students through the Crossing Boundaries Project. A SAWA community consisting of ex-SAWA fellows, members of SaciWATERS and the Crossing Boundary Project staff can also be initiated. This would encourage a platform for learnings and exchanges.



As a student, I participated in various extra-curricular activities. I was the Ex. President of Environment Watch, BUET (Environment Watch is a club which aims at increasing the environmental consciousness among the BUET students. The club plays an important role in organising seminars, promoting tree plantation campaigns and creating awareness about waste disposal, etc). I was a member of Rover Scout, BUET and a member of BUET Debating Club.

I enjoy traveling, reading books and spending time with family and friends. My plan in future is to continue my career as a researcher in the water sector and be a good academician.

Good to better to best

Internship programmes could be offered to students through the Crossing Boundaries Project. A SAWA community consisting of ex-SAWA fellows, members of SaciWATERs and the Crossing Boundary Project staff can also be initiated, and serve as a platform for learning and exchanges.

In Pursuit of Happiness

Nazmun Naher



“My interdisciplinary knowledge of water helps me greatly in my job.”

I am Nazmun Naher, presently working as a Programme Officer – Engineer for WaterAid, Bangladesh. Prior to this, I worked as an Assistant Engineer at the Local Government Engineering Department (LGED), Bangladesh.

Throughout the world, interventions in the water sector are through the Water Resources Department (WRD). This is unfortunate, as WRD are guided by engineering frameworks and fail to consider the socio-economic and other inter-disciplinary aspects to water management. There is a dire need to adopt a more holistic approach towards efficient water usage. I feel that the implementation of IWRM techniques in all project planning, design and implementation is critical.

Prior to my MSc programme, my main contributions at work were more administrative. Since the programme, my responsibility and decision making authority increased. My responsibilities at LGED were to address gender sensitisation and Gender Action Plan (GAP) in my project areas, as well as, empower Local Governments on planning, environment and gender issues. I also assisted the Bangladesh Water Partnership programmes and actively participated in relevant programmes and seminars. The LGED work mainly included poverty alleviation and gender sensitisation programmes, in addition to construction of gender sensitive and environment friendly infrastructure. I had achieved a much appreciated position in the organisation, as well as, a platform to build my career as *woman water professional*.

My job at WaterAid differs from the previous organisation. WaterAid works for improving the life of the poor by giving them access to safe water, sanitation and hygiene education. It believes that to end poverty, WASH (Water, Sanitation and Hygiene) is the basic requirement. Here, we work with partners and influence

decision makers to maximize our impact. This platform allows me to contribute my best to achieve WaterAid objectives.

WASH services are given to the urban poor, rural poor, socially excluded and those displaced. My interdisciplinary knowledge helps me greatly at such times. For example, programmes are designed based on the area, condition of service receivers and accessibility, apart from using technology. As an authority on IWRM, I critically analyse gaps between policy proposal and implementation, as well as, the impact on water resources and equitable distribution. WaterAid conducts research studies to develop a fact sheet for policy interventions and changes. The course on *Interdisciplinary Field Research Methodology* will be beneficial to provide quality inputs for research projects undertaken with community people. It will also help promote policy reform regarding water rights and long term water resources management.

I just started my new career and hope to move ahead with dignity and responsibility in the development sector. My degree in WRD under SAWA fellowship will be advantageous, especially if, I want to pursue higher education or enroll for international scholarships, etc.

I would request the CB project to consider ex SAWA fellows for capacity enhancement programmes through advanced training programmes, cross country visits and exchange programmes. The need to explore internships programmes for SAWA fellows would help in procuring a job. The CB project can undertake campaigns to highlight the success and potential of the SAWA fellows in the water arena.



I extend my thanks to SaciWATERS for giving me the opportunity to secure my degree. I would like to express my gratefulness to the Institution for teaching and guiding me through the academic period.

Good to better to best

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Fostering Sustainable Networks

Umme Mahfuza Haque



“The programme gave me an insight into socio-economic and gender realities”

As I recount the days prior to the IWRM programme, I realise that my decision to apply for the course was a dilemma in itself. Torn between my responsibilities as a wife, a mother, a working lady, I was unsure about undertaking another commitment. However, with the support of my husband, I applied for the SAWA fellowship and was subsequently selected for my MSc in IWRM. In 2007, my journey to fulfill my dream began.

As the classes began, I was intrigued to note that we had students from different educational backgrounds, which no doubt facilitated the exchange of diverse views. That apart, we had subjects which looked at the practical application of theory, people centered solutions, etc. This new method of learning, which was interdisciplinary and integrated in its approach, was starkly different from that of my engineering days. The programme gave me an insight into the socio-economic and gender realities. I changed my attitude when I started to relate inadequate water management systems to impoverished living conditions. These realities were reinforced during visits undertaken for my thesis. Coming from a disaster prone Country, I felt that the course was appropriate and could address some of the systems dealing with these risks.

During the course I gave birth to my little daughter. It was a tough decision to leave her behind for my first trip to India, which was part of the course requirements. In India, we had the opportunity of attending lectures on Integrated Water Resource Management and Gender at TISS, Mumbai. Following which we were taken on a field trip to Pune, to get acquainted with inter-disciplinary field research methodologies. The classes and field trips enhanced our learning. However, the most significant, was my interaction with the other SAWA fellows, which broadened my understanding of water issues in their regions.

After finishing the course, I worked on my thesis on tidal irrigation, which looked at assessing the impact of re-excavating a silted-up canal to increase the surface water flow. The phenomenon would be brought about by tidal action which would replace the use of ground water for dry-season irrigation. I had to conduct field visits to collect data through field observations, field surveys, FGDs, etc. The learnings from these visits are immeasurable and serve as life-long guidelines in my work.

As a result of my field visits, I noticed a good gender balance between male and female farmers, as well as that of, school-going boys and girls who help in the fields. Gender-biasness is a phenomenon of the middle-class, urban and rural. Policy makers are part of the middle-class; as such they carry with them their gender-related prejudices. One would hope that they would accommodate the progressive views of the farmers and other stake-holders on equitable, participatory and sustainable policies and programmes.

The importance of an inter-disciplinary approach helped me greatly in my thesis. Exploring alternatives to make farming more lucrative was my outlook. Years ago, when the reliance was heavily on electricity, the farmers formed cooperatives to operate high capacity electric pumps from a nearby canal. Irrigation costs were much lower, even lower than the output I hope to achieve from my project of re-excavating a silted canal. This was possible as they had a dependable source of electricity. Integrated and inter-disciplinary approaches play an important role in understanding problems for effective solutions.

I also came to understand the dynamics of the farmer's cooperatives. Though the economic benefits were reaped by the farmers in the cooperatives, they did not sustain the same strategy for their present diesel pumps. I realised that internal conflicts superseded the economic, making the system non-functional. This valuable insight will help me in any future cooperative or project. Completing the thesis was a herculean task. Tackling the components at an individual level helped make it more manageable and achievable.



Application of my course to my present work area is limited. Working as a Sub-Divisional Engineer in Design Circle – 6, of the Bangladesh Water Development Board, I design hydraulic structures and protective works. As limited as the scope is, I try applying them as best possible. A suggestion for course improvement is to ensure the flexibility for the student to decide her/his regional boundary for their thesis. For example, if I was allowed to conduct my thesis in north-west, rather than south west, Bangladesh, I know I would be in a better position to practically apply varied aspects of my learnings. I am grateful to SAWA for the M.Sc. fellowship programme. I am also grateful to the teachers and coordinators for their persistent support and monitoring to complete the courses and thesis, without which, I would find it difficult to manage my submissions. These are the two main factors which supported an ordinary girl like me, to complete a programme with such insights. I know that by applying the concepts learnt I will bring about extra-ordinary results as a water management professional.

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A Magical Journey into a World of Water

Suha Sanwar



“Above all, this course ushered in some attitudinal changes in me.”

Fascinated to know about wetlands and coral reefs from an early age, I saw a Post Graduate Diploma (PG Dip) in Water Resource Development (WRD) offered by IWFM, BUET with the SAWA fellowship, as a brilliant opportunity. The reasons that prompted me to do the course were the study experiences I would gain from one of the best Institutions of the Country, as well as, the expertise I could develop in my area of interest. I heard a lot about the IWFM course and the journey through it was an enriching experience.

Having a blend of courses on socio-economic analysis, gender and water, along with IWRM, environmental analysis, watershed hydrology, etc. was vague at first. Only during the course I realised the interdependence of these subjects on the other and the need to look at systems from a more holistic perspective. I now understand how water and life are linked. My concern is not limited to microbial or aquatic lives, but includes the lives of my people as well. Most of all, I have learnt to respect the original wisdom practiced greatly by our ancestors. Attitudinal change is a major achievement for me in this course.

Being awarded with the SAWA fellowship was a mind-blowing experience. I started my lessons at IWFM, BUET with the knowledge that other fellows were also undertaking similar courses in other Countries. We felt that we were preparing ourselves for a common mission to see the water sector from a new perspective. However, it was only after we met other SAWA fellows from neighbouring nations, that we realised our deep rooted bond for a common mission, that being, *to do something for water – a common resource of the region*. I made lifetime memories at the 14 day training at University of Peradenniya, Nepal. We experienced the diversities in culture and backgrounds. Every now and then, we found similarities in a word and would shout with joy. These moments were truly exhilarating.

The SAWA training on Field Research Methodologies was mind-blowing! Hectic training sessions, dramas, exercises, in- between shopping and chit chat sessions, were all part of the enriching experience. Dinner sessions would turn into discussion forums on water systems, supplies, increasing scarcities, solutions, etc. Not forgetting the site visiting! We returned with fond memories of our new friends and were enriched with the new shared experiences.

The project I worked on, in partial fulfilment of the degree, linked livelihoods of wetland people to their ecological resources. Planning and PRA tools to work with communities were utilised for this. Though the issue of wetlands was not new to me, I was bubbling with IWRM ideas, while talking to the people of the villages.



My PG Dip in WRD is linked to my current job which looks at natural resource management in a co-management approach. The support I receive from my employer to experiment my learning in the project areas is tremendous. My capacity to understand issues has increased and, I am presently working on restoring wetland biodiversity in the northern part of the Country. My aim is to integrate the communities concerns in any project by applying PRA tools. However, it is not always easy to communicate with community, sometimes even more difficult as I have to deal with vested interests. I am learning to cope with the obstacles of implementing IWRM.

One of the achievements of my research work is the opportunity to share my findings at the 5th South Asian Workshop on Research Methodologies, held at Thimpu, Bhutan. Participating at such regional events opens up doors for us to be heard and participate in the development of our land. These are opportunities to meet veterans, share in their experiences and increase our understanding on issues.

The opportunity received through SAWA Fellowship, took me to Sri Lanka, Bhutan and Malaysia, and is now a part of my identity. I am proud to be a Bangladeshi, a Muslim, an Environmental Scientist, a South Asian and a SAWA Fellow!

Bon Voyage to IWRM.

**Centre for Water Resources (CWR), Anna
University, Chennai, Tamil Nadu, India**

EQUITABLE EQUATIONS

M Kuzhali



“This course triggered me to think about people and economics, which are central to the management of resources.”

I came from a village, Neyveli, where water and electricity were in abundance at a very nominal cost. There were no conservation patterns followed by the villagers, as such, taps would be kept open to water the gardens, etc. It was only when I joined my College in Peelamedu, Coimbatore, that I realised the value of water. The college water was unfit for consumption due to its high salinity levels. The cost of even a single bucket of water, transported in a small tank on a cart, was very high. These situations made me realise the value of water. This was further reinforced during my stay in Chennai.

Before joining the IWRM course, Anna University, I worked at the Inter-State waters wing, Public Works Department, Tamil Nadu, where various disputes of water sharing amongst States were handled. The States Re-organisation Act, 1956, led to the formation of several more States on the basis of language, as against water sharing. The mindset and magnanimity of people differ from earlier times, which contribute to the inequitable distribution of resources in the States, leading to legal disputes with neighbouring States.

I decided to pursue the IWRM course which aims at equitable sharing and management of available waters among the different stakeholders. This was my area of interest, given that; the Inter-State disputes, at my earlier workplace, never reached any consensus.

As I started my journey as a student of a M.E programme in IWRM, I realised that any effort to manage the future water crisis, will have to be tackled on war footing basis. The general opinion is that the next world war will be on Water. Given the seriousness of the issue, the fate of the water bodies is pitiful. Lack of waste treatment and disposal systems, adds to this problem. Large scale contamination of ground water is also experienced. As such, the depleting resource in terms of quantity is another major threat.

Rigorous awareness campaigns are needed to make people responsible for managing their resources. The other way would be, to artificially recharge rain water to improve the ground water situation. The South Chennai Coastal Aquifer was a water market hub in the late 1980's. A survey conducted then, reveals that people expressed the taste of ground water to be like “*tender coconut water*”. But today, the same water is unfit for consumption. People attribute that to over-extraction, urbanisation, lack of proper sewerage lines and sea water intrusion into the aquifers. Therefore, adequate measures need to be taken to supply the required quantum at the appropriate time, as also, to ensure the quality of water.

Concretisation stops the rain water from seeping into the ground to recharge the ground and surface water. Even when storage is possible, there are high levels of run-off. This affects us on two fronts (i) it leads to vertical rising of water in the form of water logging causing damage to property, as also, disrupts normal functioning; (ii) sufficient reserves for the summer are not created, leading to water scarcity. Due to the skyrocketing land prices, the once cultivable grounds are land-filled and converted into housing plots. If this trend continues, there would be no land available to for agriculture, leading to a food crisis. This issue needs serious consideration.

The course made me realise that un-planned development is unsustainable. In the garb of globalisation, modernisation, etc. destruction is rampant. It is our social responsibility to hand over our mother Earth to the

younger generations. . Before pursuing this course, efficient management of water resources was limited to technical solutions. This course triggered lateral thinking which ensured that people and economics are central to management of resources. Social analysis and gender positions in developmental issues need to be considered using the participatory approach. Through this course, I had an opportunity to realise the status of women as primary water users and the difficulties faced by them.

On re-joining the department, I realised that the concepts of IWRM are applicable to the very nature of my work. IWRM provides means to address mutual sharing of available waters, suggests types of crops based on climatic and cropping patterns, etc. Based on my experiences, using the participatory approach we tried to achieve the maximum produce per drop of water. However, in my present capacity there are several hurdles. I am in an incompetent position to bring about or recommend any policy changes, more so since they are legal disputes.

I have a strong feeling that people will start realising that *Justice Delayed is Justice Denied* and initiate their own action plans. At such a point in time, IWRM systems can be utilised. My goal is to create enough awareness for this transformation to be triggered. I personally feel that every year the quality of the course is undergoing improvements. Since this is a new concept, the transformation is gradual. The enhancement of the stipend amount would make it more attractive. Setting up of placement cells would help the students in a better manner. With the exception of a few courses, similarity is seen with courses of other disciplines. Integration of the social component along with the technical aspects needs improvement.



Pathways to a Promising Future!

V. Veeralakshmi



“Understanding gender participation as the fabric of IWRM, were insightful abstracts from the course.”

It all began in 2007, when I received the fellowship to enroll in the prestigious Anna University in Tamil Nadu, for the IWRM degree programme. CB Project and IWRM were new territories for me. It was hardly some months before enrolling that I had heard of the course, as that of, providing opportunities for women engineers in IWRM and easing their financial expenses through scholarships.

Prior to this course, I was working at the Institute for Water Studies, PWD. My colleagues and I were undertaking micro-level research studies on river basins in Tamil Nadu. Thorough studies of the river basin were undertaken physio-graphically, geologically, morphologically and demographically. Also, the water balance of the river basin was arrived at, by considering different sectors of water demand, such as agriculture, domestic, industrial and power demands and different modes of water potential available (surface water and ground water).

My understanding of IWRM, however, was limited to technicalities of water management and land development. It was only through the course, that I understood that IWRM is closely linked with the social and economic aspects of people's lives. Management meant endorsing what is socially acceptable, as well as, economically viable for that community. Understanding gender participation as the fabric of IWRM, were other insightful abstracts from the course.

At the course, I was introduced to efficient and economical technologies available in the Irrigation Engineering field. Stakeholder participation, levels and dimensions in participation, decentralised approaches and role of stakeholders in irrigation management were explained in the course. It was through this course that I was in a position to propose insights on gender mainstreaming, integration, etc., which I felt needed to be introduced in my research level work.

Global perspectives on watershed management, participatory irrigation management etc., through case studies, were illustrated in detail. These stories induced our eagerness to implement new techniques. We were also given hands on exposure to the GIS software and tools. This exposure helped us lot in our project work.

During our study period, we were privileged to have participated in two PRA trainings, one in Madurai and another in Nepal. In Madurai, we had nice experience with DHAN Foundation in Chokkampatti village. The PRA training in Nepal provided an opportunity to cross borders with complete assistance. Our exposure was immense and we were enriched in the process. We made new friends on this journey and learnt skills of working with groups, coping with situations, using field tools and rapport building with the community. Our stay with the villagers made us experience their daily activities, their water management systems and other customary activities. The language barrier restricted our movement among the villagers; however, we enjoyed, learned and gained information and friends. I felt that my capacities were enhanced on IWRM and its principles.

For our project work we had to choose from five main themes or problems. The study area designated was South Chennai Metropolitan area, which was high on development in recent years. The issue of the water market, which quenches the thirst of the Chennai city and other peri urban areas, attracted my attention. The market functions, its system of water exchange from peri urban villages to the city and other socio economic aspects of the sale, were indeed informative. Though the rural villages in South Chennai area have good potential in water, their situation is worsening given the rapid growth in population and development. I considered two villages Kovilambakkam and Nanmangalam in South Chennai area for my case study, where there is an informal exchange of water supply. I interacted with the farmers, tanker operators and different categories of consumers to analyse the reasons behind the sale, benefits accrued and the economic dependency of this trade. Since the issue was very sensitive and the people in this trade were wary of revealing information, my initial days proved to be difficult. I started to feel distraught over the responses I received. My guide Dr. N.K. Ambujam and Research Co-Ordinator Dr.Prakash Nellyat continued to encourage and guide me. The two PRA trainings helped me with rapport building, thereby paved my way into the community. From a technical point of view, one would conclude that the water market depletes the ground water table. But on a social analysis, I realised that this water market is the lifeline for the people of Chennai City, as most of the City sources are surface water sources, which depends on the rainfall. Another important consideration is quality of the transported water. The sellers, middlemen and consumers were not aware of the quality of water transported. As an IWRM Engineer, my conclusion was to introduce a regulatory mechanism to precede the sale and to protect the ground water resources.



After the course, I continued with my work in the research sector. However, since I was not in the implementation section, my inputs were restricted. My attitudinal and analytical skills drastically improved and I found a new level of confidence while delivering my views. I would like to extend my whole hearted gratitude for this opportunity, to the management and staff of SasiWATERS and Anna University; the Government of Netherlands; the Government of Tamil Nadu and the authorities of the Public Works Department. The outcome sought from the Cross Boundaries project can be compared to that of an Ocean, where we, the SAWA fellows, are the little drops which make this Ocean. My hope rests that the Ocean may be filled abundantly.

Propagating Water Dialogues

V Sujatha



“During the programme, I discovered some of my own prejudices with regards to gender.”

My drive to pursue my education led me to apply for my Master of Engineering in IWRM, at Guindy Engineering College, Anna University. I was elated to know that I procured a seat at the College, along with the SAWA fellowship from the Netherland Government. This helped me support my educational and personal expenses.

As part of the curriculum, we were exposed to a plethora of subjects, ranging from watershed management, participatory irrigation management, gender studies, field research methodologies, to technical engineering subjects such as, soft computing, statistics and operations research. The profound knowledge imparted at the course changed my perspective on viewing water problems faced by farmers. It was here that I learnt the utility of water. I also discovered some of my own prejudices with regard to gender, questioning them at a very basic level, of why men not women. The course gave me insights into women farmers who fail to gain the recognition for their work, both as a farmer and a house keeper.

Woman are the best Water Managers, no one can deny this and the best example for all of us is our home itself. Water for a household is managed to meet usage requirements like drinking, washing, bathing, etc. In cases of shortages, the woman carries water from distant pipes to the households for their family's welfare. I am trying to emphasize the fact that woman and water management are closely linked, as such any forum on water management should include women.

The best part of this programme was the trip to Sri Lanka, where we were able to meet our SAWA fellow counterparts from countries like Nepal, Sri Lanka and Bangladesh. The days of the trip were the most memorable days in my life. We were given intensive trainings in Field Research Methodology. We enjoyed the warm up exercises and games in between trainings. We also had the opportunity of visiting a beautiful village in Sri Lanka named Thamanegama. The villagers were kind and affable. We were offered a taste of their local dishes and tender coconut water. We practiced the PRA tools as a joint exercise despite the language barrier.

When it came to the selection of my Master's thesis, I chose to put my efforts and knowledge on the study of a deteriorating marshland situated in the heart of the city of Chennai. My thesis was titled Role of Pallikaranai Marsh in moderating the flooding. At the onset, I tried to monitor the changes the marsh had witnessed over the years, through Google Earth imageries, using a 1970 topographical sheets as a reference point. I used the Geographical Information Systems (GIS) extensively in my research to map the changes. I analysed the marsh storage capacity and the effect of flooding in neighboring areas due to the shrinkage of the marsh. However, I felt that my thesis failed to address the socio-economic aspect, for which, I prepared a detailed questionnaire. I interviewed people who knew about the marsh, as also, the residents abutting the marshland. I got important cues on the influence of the marshland on the people's life and how its deterioration has directly affected them. I used the PRA tools effectively on the field and used the SPSS software to interpret my results. My work was recognised and my paper got selected for the World Water Week – 2010, which is organised at Stockholm from the 5th to the 11th of September, 2010.

I completed my graduation in May 2010. I wanted to pursue my passion in teaching and was recruited into the Institution of my choice. I am currently teaching the subject I like the most, Water Resources Management, for the final year engineering students. I find teaching exhilarating and try to draw the interest of the students by engaging them in field activities related to water resources. The students also like the confluence between engineering and sociology and have taken to the cause of water and marshland conservation in the city. In this way, I can transform the lives of young engineers to think beyond engineering.



A million thanks to SaciWATERs and the persons who have made this unique programme a possibility for me. P.S: Pallikaranai marsh has been declared as a bird sanctuary after prolonged requests from the environmental community, as well as, the academia.

Campaign for Efficient Water Management Systems

R Arivarasi



“IWRM program is evergreen- filling the lacunae in the sphere of sustainable development education”

After completing my schooling in 2003, I joined an under graduate programme in Agricultural Engineering. I subsequently worked for a private micro-irrigation company as a Design Engineer of drip irrigation. From my little experience, I realised the importance of nature, and hoped that through the IWRM course, I would be able to contribute towards sustainable development.

I hold great pride in being a SAWA fellow. I feel that the programme changed my perspectives on water. 2008, the year I enrolled into the programme, was filled with excitement as I was keen on learning more about IWRM. The subjects captured my interests, enhanced my knowledge and built my analytical skills. Prior to the course, I never gave a thought to using water from a wash basin, a western toilet, etc. It was only the course, that made me question the quantum of water usage and decide on adopting least harmful systems. My every action, is now a conscious effort to ensure minimum usage and reduce wastage.

Another thought which disturbs me is related to the extraction of ground water for domestic activities. Motor pumps are most often installed for uninterrupted water supply by extracting water from the ground into an overhead tank. No thought is given to the number of times the water is refilled, thereby leading to a decrease in the level of ground water. Ground water is the only source of drinking water for people, as such, thoughtless acts, make the life of the poor even more difficult.

Though I would relate to the saying there is no life without water, I never gained an insight to the repercussions and depth of what this meant. It was through this programme that I understood about the National Water Policy, management of water, problems associated with water, etc. Conceptual understanding of the demand and supply of water, decisions on accessibility to safe water, etc. were part of the course and were indeed informative. I can now confidently initiate a water campaign to enlighten people to save for the generations to come.

I once saw a power-point on a Letter Written in the Year 2070 which is based on water, by our honorable Ex-President Dr. APJ. Abdul Kalam. It was truly inspirational and I felt the dire need to address water conservation through the collective efforts of all communities. I forwarded this presentation to all of my friends, hoping that it would strike a chord, as it did with mine.

My interest to know the varied departments that address water and its related issues also grew. During my project period, I outlined the departments working in Chennai and made them my respondents for data collection. Issues of water are not isolated to our own Country. During our course we were enlightened on the global water scenario and studied in-depth the problems faced by women as a result of this. From then on I relate every issue in a global framework and seek solutions accordingly.

The training programme conducted in Sri Lanka in September 2009 was very useful to know about PRA tools and its uses in relation to water resources. My global perspective widened at this training as we encountered students from other neighbouring Countries. My project was on the patterns of flooding and zones affected flood vulnerability mapping of Cooum river – Chennai. In this project I tried to integrate technical and social aspects in the best possible manner. I finished the project successfully in June 2010. My experiences during the study were numerous. My coping capacity to deal with situations increased. I faced the challenge of meeting people of different mindsets. I felt that this was a real learning for me.

My study indicated that the people who lived near the river were severely affected, not only due to the proximity to the river, but also due to the lack of awareness on water quality, impact of water degradation, health and sanitation facilities and other water related problems. I have been enthusiastic to work on water issues, however am unsure of the direction. I try to educate my family and friends on water management and can see the changes adopted. I hope that in future I have more active platforms to address the issues on water. From my experiences, I have noted that the IWRM course is environment friendly. It works to mould young IWRM Engineers into earth friendly persons who work for a more sustainable future.



Instilling pride

S Dhatchayani



“Earlier, I had thought that we could only draw solutions from western countries, but our own neighbours have many solutions that have previously been ignored”

I am the first batch of M.E- IWRM student from CWR, Anna University, Chennai. Before joining ME in IWRM programme, I did B.E. Civil and taught for four and the worked in the field of watershed development for two years. The practical experience gained in the field helped me to succeed in the interview and join the M.E. programme in IWRM.

Why did I choose to take up this course over others? The answer lies in the field exposure that i had where i had seen their expectations and aspirations. Water has the capability of transforming life if it flows to the people who need it. My learning of water as an important input and resources has led me to take up this interdisciplinary course. The courses were well framed and exposed us with the field realities while analysing them through lenses of gender and equity. We learnt that it is important to know the requirements of the people by taking and incorporating their opinion in the plan. In this way, we came to know of the problem better so that we provide better solution for them. We learnt this from many case stories that showed us the need for bottom up planning.



As civil engineers, we were never exposed to the techniques of researches while keeping people at the centre of it. We were given apt training by social sciences colleges such as TISS on how to collect information from the people. In a group of south Asian students from different countries, we were given hands on training on PRA tools and techniques. Since then, i have incorporated PRA in my thesis work. We also learnt the nuances of field level research. The south Asian solidarity was another point that we brought home. There were so many things to learn from our own neighbours which we never knew before. All what we learnt earlier were on situations and their probable solutions that were based in the western countries. Our own neighbouring countries however have many solutions which we chose to ignore earlier. With an exposure to a range of students from different countries, we felt that there were so many problems that were common and so the solutions. Apart from analytical and research skills, we also learnt the presentation skills during different training programmes.

After completing the ME, I joined as Lecturer again and continued with academics. However, I came back with a different set of skills – both analytical and applied, which is now helping me. I could influence students to work on water and look at it differently and supervise their thesis with a new idea and lenses. I wish there would have been more job opportunities for students passing out with an interdisciplinary degree. I thank all my teachers and SaciWATERS for providing this opportunity for me.

**Nepal Engineering College (NEC), Kathmandu,
Nepal**

DESTINED PATHS

Mela Aryal Lama



“The course triggered us to think environmentally, in our personal as well as professional lives”

Situated at the foot of Mount Everest, well known for Buddha and water resources, I came from a Country that has inadvertently outlined my choice of work. In my school days I contemplated a career in business studies and arts, only to realise that I lacked interest in the same. Science became my line of study and that is how my journey began.

From learning the art of dissections to exploring the wilderness of natural reserves, I gradually began to define my interests. The choice for my degree was easier having rekindled my love for the environment; I knew that Environmental Management was my area. I subsequently found a School for Environment Management and Sustainable Development (SchEMS).

SchEMS was a wonderful experience, the reason being field trips! Apart from regular classes, I participated in extra-curricular activities through the day. As students we were lucky as we had an array of Non-Governmental Organisations (NGOs) working with us on environmental management and protection. Many of them were known as *Friends- Friends of Nature, Friends of Bagmati, etc.* Led by veterans on environmental management and water-resources in Nepal, they were very proactive. The frequency of activities, seminars, workshops organised by them provided students a fantastic opportunity to learn. In classes, we were reading books and outside, we were learning from experiences.

The four years of my academic life were illuminated with such experiences. During the years of my study, I was closely associated with the NGO, Lumanti, to research on sanitation of slums. I also worked with Friends of Bagmati, where I researched on Bagmati's water quality. These exposures gave me subtle insights into environment management.

Soon after, I was at the Nepal Engineering College (NEC) studying Interdisciplinary Water Resource Management. A garland of small inspirations and experiences made me pursue IWRM at NEC. Quite honestly, what made me most happy was the ability of being able to study it in my own country. The relation I could make with my course and real-life situations, helped me gain thorough knowledge on the matter and address it accordingly. For me, IWRM was more a process than a study course. It was not an easy process to embark on as there were varied factors to deal with and each factor needed to be dealt with precision, planning and then executed.

Most discussions on IWRM were focused on the constraints that hinder the application of IWRM in our Country. Among the numerous components of IWRM, I had an inclination towards three basic ones: *Optimizing supply, managing demand and establishing improved and integrated policy, regulatory and institutional frameworks.* The difficulties in implementation of the three were the reasons for my interest. While talking of *optimizing supply* – detailed analysis of water-balances and steps to implement the concept of waste-water reuse is not easy. On the other hand, managing demand requires huge changes in existing systems (environmental, governmental), which posed as huge challenges. Establishing *improved and integrated policy, regulatory and institutional frameworks* had its own set of risks and opportunities. It had to enter untouched territories such as polluter-pays-principle and setting-up of water quality standards. As such the goals could be achieved through a step-by-step process. There is no overnight solution to this. Small but

but significant steps lead the way. This is the most important lesson for me.

One of the few things I learned while at school is the transition of IWRM into an inter-disciplinary study, as opposed to, traditional water resource management studies. Seminars, workshops and group discussions have been conducted to disseminate this concept to a wider audience. A side session organised by SaciWATERS, at the World Water Forum 5, put emphasis on this.

The experiences shared are small relays of the vast learnings we had in IWRM. The overall course embedded a niche that has enabled us to think environmentally, in our daily as well as professional lives.

As for my profession, I joined Nepal Water Conservation Foundation (NWCF), an organisation reputed for its work in water related sectors. To be more precise, I am working for the Institute of Social and Environmental Transition - Nepal (ISET-N), which primarily works in the areas of climate change and water issues. I consider it as a fantastic place to start my career. The learning from the IWRM degree has helped me conduct activities and share knowledge at ISET-N. My assimilation of knowledge has increased at my workplace, more than a classroom. The experiences and knowledge gained from IWRM has made my understanding inter-disciplinary.



There is always something new to learn. I have embarked on a journey, where my companions are my experiences and my motivation is to learn more and be creative. I wish everyone a wonderful environmental journey. I would like to emphasize that the fun and the learning is in the journey and not in the destination!

Whispers of Hope

Mon Devi Shrestha



“My ideas changed from evolving technical solutions to evolving community-based solutions”

2007 was an exciting year for me, as I was awarded the SAWA fellowship for my Masters Degree in IWRM. Prior to this course, my conceptual understanding on interdisciplinary issues was limited and only later, did I gain insights into these perspectives.

A lecture delivered by Mr. Ajaya Dixit made me re-think a common act of pouring concrete in a river and its implications. He spoke of cultural, social, local and environmental values, which ensure the sustainability of a project. Having completed my graduation in Civil Engineering, my ideas changed from evolving technical solutions to community based solutions. I was elated to have this opportunity of actualising my M. Sc. degree in IWRM.



Inter-disciplinary water management is more complex to understand as it cuts across issues, as also, difficult to implement in development and research projects. Understanding IWRM concepts from varied perspectives such as those of gender, accessibility, etc was enriching and helped enhance my capacities for more effective solutions.

In the rural areas of Nepal, women and other people are marginalised and burdened by water accessibility issues. The knowledge and understanding acquired from this course will help me to analyse the problems from a practical point of view. I hope that there will be some implementation of my recommended solutions.

At present, I am working as an Engineer in the Department of Electricity Development, under the Government of Nepal. The department is mainly responsible for policy formulation, licensing and sanctioning of hydropower projects to independent developers. I have no opportunity to apply my inter-disciplinary framework, as it is a Government sector and there are no policies related to this emerging concept. There are some gender policies, but due to poor implementation, these are non functional.

My suggestions to improve the course would be to include field orientations for all subjects. I would suggest enhancement of the managerial course, in order to build the students as potential Managers. Internship programmes should be facilitated as part of the last semester. This would give the students confidence to undertake tasks related to IWRM on completion of their programmes.

Good to better to best

My suggestions to improve the course would be to include field orientations for all subjects. I would suggest enhancement of the managerial course, in order to showcase the students as potential managers. Internship programmes should be facilitated as part of the last semester. This would give the students confidence to undertake tasks related to IWRM on completion of their programmes.



Trickle-down Movement

Hari Bahadur Thapa

“The course work ensured that I was exposed to an interdisciplinary knowledge base, and has helped me gain more confidence in this sphere.”

I am 33 years old, living in a village adjacent to the beautiful city of Pokhara, Nepal. My schooling began at the age of seven (1984), where I enrolled myself in a nearby high school. The school, having been located in a rural area, had open grounds as classrooms, shrubs as toilets and inadequate subject-wise teaching staff. Classes often depended on climatic conditions and since there were no toilet provisions, girls often suffered, especially when they were sneaked upon by the boys. Given these limitations, I completed ten years of my schooling and emerged with first division marks, which was a breaking record for my school at that time. My heartiest respect continues to remain with the teachers, who, through their persistent encouragement, contributed to me being where I am today. Even after 16 years of leaving school, my name is often cited as a 'good product' (student) of the school, though am not sure if I justify the same. Today, I feel happy knowing that there has been a considerable improvement in the standard and infrastructural facilities of the school.

After completing high school, I got admission at the Institute of Engineering, Tribhuvan University, Pokhara (1994), for a three year diploma course in Civil Engineering, through a highly competitive merit based entrance examination. I did not fair too well for the semesters, the main reasons being, the liberated college environment as well as medium of education which was English, as against my schooling in Nepali.

In 1997, I completed the course and started working for the next five and a half years. During this time I felt the need to pursue my degree in Engineering and enrolled with a private college of Purbanchal University, Kathmandu (2002). Based on my past experiences, that is, my increased maturity, college living and work experience, my academic performance excelled and I even managed to take a part-time job with an organisation to support myself. The help received from the teachers and instructors, even college management, made studying better, even though it was a private – profit making newly established institution. My understanding and confidence in my career was reinforced with the Bachelors Degree in Civil Engineering.

After my degree, I joined a private engineering consulting company and continued my association with my previous organisation. Within a few months, I had the opportunity of participating in a months' tailor made training course on 'Water Resources Management and Planning' (August 2007). The training was conducted by UNESCO – IHE and supported by NUFFIC, Netherlands. This training was the turning point in my life, where I came to realise that Engineering was only one discipline in Water Resources Management and there were several other disciples and matters associated with water, its management and development. I was completely influenced by the topic, even though this was my first experience with the same. It even led me to write a paper on 'Integrated Water Resources Management in Nepal: New Tools and Approaches'. My dream was to become a Water Resources Manager instead of a hard core Civil Engineer.

During this time, the Nepal Engineering College announced a SAWA Fellowship for admission to a Masters Degree in Integrated Water Resources Management (October 2007). I decided to pursue the fellowship for admission into the Course, as I felt that the fellowship was meant to benefit me. It was not easy given the varied criteria for applications such as essay writing, written examination, professional experience, interview, good academic records, as also, 80% reservation quota for girls. However, gathering enough will power for myself, along with my newly attained knowledge from the UNESCO-IHE course, I refined my IWRM paper

along with my application for the Fellowship award. Given the limitation of time for preparing for the entrance exams, I built on my existing knowledge and confidence in the subject matter. On the date of the examination, I answered better than expected and was far more hopeful. I got selected for the interview and relentlessly assured the Management that I was the appropriate candidate for the fellowship. By this point my determination was two-fold and there was no turning back for me.

Some days after, on a day evidently different from any other, I felt different. I felt that the sun arose differently; birds were singing differently; I was, in a different time in itself. There was an anxiety about what was going to happen. That afternoon I received a telephone call from the Nepal Engineering College, stating that I had been awarded the fellowship, as I scored the highest marks i.e. 89.6%, leading by 9% in the overall evaluation, to pursue my Masters in IWRM. It was the most pleasant moment in my life as I claimed what was close to my heart and thanked God abundantly for the same. At that moment I felt like the luckiest person in the world.

On receiving the fellowship I joined the College and started a new journey in my life with new dreams. The College environment, teaching staff and infrastructure were all conducive for learning. All our sessions were similar to workshops or seminars. We had reputed veterans coming to share their views on Regional and National Water Resource Management Systems. In addition, my colleagues, 8 girls and 7 boys, were very helpful, hearty and the best of the best. We all became one big group where our ideas, interests, etc were commonly exchanged. My knowledge and interests on regional matters also expanded with the cross - boundary interactions, as many of my colleagues were from South Asian Countries.



The bond continues to remain till date. I take pride in my friendships at the post graduate level, which is rare sight in these times. The Course gave scope for Regional, National and International travels, which undoubtedly enhanced my professional career. I managed to visit 60 of 75 Districts in Nepal, as also some Indian States and participated in International training programmes.

I was encouraged to prepare research based papers regarding Water Management for National and International workshops and conferences, in addition to building rapport with experts and professionals in Water Resource Management. All these efforts have ensured that I have been exposed to an interdisciplinary knowledge base, which has helped me gain more confidence in this work area.

Even today, I hold high regard to the fact that I have managed to develop an interdisciplinary approach to Water Resource Management and Engineering, secure the topmost rank for the entrance exams, secure good grades in internal and external examinations/ evaluations and subsequently top the 3rd Semester of the Course. I continue to build my knowledge through dialogues with my disciplinary colleagues. However, my under-graduate engineering colleagues who practice in design, estimate, etc show little interest in other disciplines.

During my course, I had been requested to work on preparing a 'Water Use Master Plan' applying IWRM approaches to four VDCs, of which, I have completed one, three are still in progress. As the Team Coordinator, I have also steered the team to address multidisciplinary issues, coordinate with Institutions, as well as support other agencies. A couple of months ago, I was selected for a final interview for the post of an Irrigation Engineer and Hydropower Engineer, through a highly reputed and trusted nationwide free competition examination conducted by the Public Service Commission of Nepal. As the Hydropower Engineer for the Government in the Department of Electricity Development (DoED) under the Ministry of

Nepal, my main responsibilities are guidance in policy formulation, regulation, licensing, monitoring, conducting feasibility studies and key administrative kits to promote and develop the hydropower sector in Nepal. I am happy to join this service, and feel content to know that I am walking towards becoming a Interdisciplinary Water Resources Manager from a hard core Engineer.

I am hoping to contribute significantly, at the National and Regional level, to the Water Resources Sector. I have been honoured, by motherland society, for my academic achievements in Kathmandu. A lot of these achievements have been possible because of the SAWA Fellowship.

Pokhara University has designed an interdisciplinary course for IWRM, which tries to link the different aspects and disciplines of Water Resources. However, the micro syllabus has yet to be prepared. As we were the first batch for this course, there were no improvements/changes made during the two years. We enjoyed a lot during the course, however felt the need for the micro-syllabus to determine the depth and scope of our subject matter. The course is divided in four categories: basic course (1st semester), integration course (2nd semester), applied course (3rd semester) and master's thesis (4th semester). The limitation seen is that none of the categories accommodated courses regarding planning, management and institutional dealing etc., which are prerequisites for Managers. The overall course content is good, however, certain areas will need to be improvised upon and implemented.

Lastly, I would like to thank SaciWATERS, Nepal Engineering College, Respected Teaching Staff, Colleagues and all of associated persons and institutions who have given me this platform. I am deeply grateful and hope-filled for the opportunity I received to attain my Master of Science in Integrated Water Resource Management, which has paved a way for a successful future.

Good to better to best

As far as I'm concerned, the limitation in the course content is that none of the categories accommodated subjects dealing with planning, management and institutional dealing etc., which are prerequisites for managers. The overall course content is good, however, certain areas will need to be improvised upon.



Memoirs of an Engineer

Dibesh Shrestha

“As a student, I learnt to broaden my vision, thinking and understanding of water as a source of life, and to the human society at large.”

Ever since I heard of the IWRM course, I conceived it be a course on hydraulics and the hydrology of water sciences. Having a civil engineering background, I had the knowledge of drawing layouts, using topographical sheets, etc. To my surprise, the course reflected varied other approaches. It opened my eyes to the understanding that technically sound infrastructure has failed or has been less efficient because efforts to include the community in planning and execution were not undertaken. It also made me understand that the simple tools created by the local people had far greater efficiency. A clear example would be floods caused due to the lack of understanding of hydro-morphological behaviour of the Kosi River. My journey, as a student of the MSc programme in IWRM, has been filled with new ideas, concepts. I have moved from a core civil engineer to a student of water.

Studying an entity in its entirety bestows more knowledge on the topic, however, narrows the possibility of considering related aspects of the entity. In this regard, an inter-disciplinary perspective gives the complete image of the entity. As a student, I am learning to broaden my vision, thinking and understanding of water as a source of life; life to an individual creature and to the human society at large. In the learning process, I have found the courses on power, authority, history, field research, conflicts in water management, gender, water and social inclusion, to be pertinent in addressing the issues of water.

One of the exciting parts of being an IWRM student is that, I am part of the South Asian Water (SAWA) fellowship. Participating in the training on Participatory Field Research Methodologies, in Kandy, Sri Lanka has enriched my capacities to utilise research techniques and tools. New friendships with SAWA fellows from neighbouring Countries evolved. With the support of my teachers and friends, I am exploring the water market that is fostering in Kathmandu, more specifically, the private water tanker based market in Kathmandu. This is important for me, as it is my first water related research, as well as, it is outside the scope of my engineering background. As the research progresses, I am in a better position to understand the different aspects of water, markets and contextual dimensions. The use of inter-disciplinary approaches has helped me in the analysis. On completing the first phase of the research, I presented my research findings at the Fifth Regional Research Workshop on Globalisation of Governance: Implications for Water Management in South Asia, held at Thimpu, Bhutan. My work was appreciated by water professionals and experts from the South Asian region, which is a huge inspiration for young researchers like me.



My friend and I were also involved in assessing the social acceptability of the decentralised wastewater treatment systems of the Sunga Community, Bhaktapur. The objective was to gain an understanding into the determinants of acceptability and its effects on the operation of community based systems. We presented this paper at the First National Youth Conference on Environment in June in Kathmandu.

Continuing research on areas of concern is my goal. I feel that changes, at an individual and policy level, can be achieved with the recommendations from these research papers. I am presently continuing the research on private water tanker operators in Kathmandu as my thesis. In my thesis, I am studying the social, physical, institutional and economic dimension of this water business. The basis of this study is the knowledge I have gained in IWRM.

Water management was an age old practice and it needs to be revived and restored. Rapid changes in the society have led people to give up this practice. Hence, the course should provide a platform to reawaken traditions, with more efficient technology solutions to water management. The goal is to ensure water for all and for life.

Good to better to best

I suggest that the course include internship programmes in various institutions, which will help bridge the gap between the academic and professional field. The programme should be promoted through various organisations, so as to create professional opportunities for other students, as also, make known the profiles of the existing professionals. In my opinion, this course is very valuable in a country like Nepal.

A Story Unravalled!

Eva Manandhar



“As a water professional, I have gained the ability to address, through specialised knowledge, functional present day usage challenges.”

The Integrated Water Resource Management (IWRM) scholarship was an opportunity which unfolded at a time, when discontentment about my chosen path, was at its peak. The work as a medical transcriptionist, soon after my degree, lacked opportunity and growth. As such, I welcomed the IWRM fellowship, as it sought to redefine my conceptual understanding on newer areas of work and diversify my opportunities for the future.

My first few days were filled with excitement and anxiety of what lay ahead. The unique teaching methodology and course content, which varied from conventional course curriculums, were deeply appreciated by all.

The first semester was dedicated to the objectives of a specifically designed Water Resource Management course. Further, categorical explorations of specialised courses to promote sustainable systems were outlined. Though these sessions aimed to guide, my questions remained unanswered.

Anxieties of the first semester were carried into the next. From my limited understanding of water resources, I came to realise its relation with our lives. Micro to macro linkages helped me gain a more critical insight to the smallest of issues, which I had taken for granted. An example to this effect is on the role of women and men in society in relation to the time spent by the women to fetch water for their households.

By the third semester, our exposure to water-related sectors in the form of field visits, assignments, report preparations, trainings increased. These sessions deepened my understanding on the issues in more precise manner.

The papers which helped me contextualize and relate to on-going events were on the *Cultural Linkages of Water in the Nepalese Society* in the first semester; *Lessons from Participatory Irrigation Management: A Case Study Of Khokana Irrigation System* for the Fifth International Seminar on Dynamics of Farmer Managed Irrigation Systems: Socio-institutional Economic and Technical Context, in March, 2010; and the study done on the *Landfill site of Kathmandu Metropolitan City*.



The PRA training in Sri Lanka enhanced my understanding of rural people and their indigenous knowledge about nature and its symbiosis. Getting to know SAWA fellows of the partner countries, mutual sharing of experiences were some of the most fruitful aspects of the training.

It was a great opportunity to present a paper on *Critical Analysis of the Institutions Working for Water-Induced Disaster Risk Reduction in Nepal* at the Nepal-Japan Disaster Workshop - Learning from Japan's Know-how to Overcoming Natural Disasters organised by Ehime University, Japan from 23rd August to 3rd September, 2010. The case study done on *Naubise Phant Irrigation System* with INPIM (International Network on Participatory Irrigation Management) was also very informative.

I applied for a job with the News broadcasting TV channel, named News24. After an interview, I was offered a position to broadcast programmes related to Water Resource Management. My friend and classmate Chiranjiva, and I hosted this programme together. We now work as *programme producers* for a weekly programme called *Jal ra Jeevan* meaning *Water and Life*. In the programme we have incorporated the information related to Water Resources gained during the course. The opportunity to work in the field of media makes me believe that IWRM graduates have diversified areas of work to choose from. The transitional journey has proved to be an enriching experience. The initial transition was difficult, but eased as I began adapting to the new environment. I am very grateful to my friend who helped me start out my career. Our collaborative effort is appreciated by many.

IWRM is a new concept in the academic field. The success of the course is determined by the persons who understand water resource allocation and the management process holistically. In my opinion, the main discrepancy of this programme is that no assurance is given to students on the success factors of such an approach.

IWRM programme has scope for improvement. It can partner with experts from different fields to make available short term or long term courses on IWRM. Specific management courses need to be introduced. The course should also include real-life experiences in water management sectors, strategy formulation concepts and implementation exercises through mock sessions.

As a water professional, I have gained the ability to address, through specialised knowledge, functional present day usage challenges. I would like to extend my gratitude to SaciWATERS for giving me a platform to build my future.

Good to better to best

IWRM programme has scope for improvement. It can partner with experts from different fields to make available more short term and long term courses on IWRM. Specific management courses need to be introduced. The course should also include real-life experiences in water management sectors, strategy formulation concepts and implementation exercises through mock sessions.

**Postgraduate Institute of Agriculture,
University of Peradeniya, Peradeniya,
Sri Lanka**

Dreams filled with a Promise

Indika Harshani Rajapakshe

“The course has significantly enhanced my capacity to address issues from an inter-disciplinary perspective”

My MPhil programme in IWRM at the PGIA, was the beginning of a new journey filled with opportunities and hopes. On securing my degree in Agriculture, I was offered the SAWA Fellowship under the CB Project. This was a welcome respite, given that my burden of financing the course and meeting my expenses were taken care of. Giving due acknowledgment to my MPhil education, I am very proud to state that I am presently working as the Water, Sanitation and Hygiene Advisor of HelpAge, one of the leading INGOs in Sri Lanka.

The course proved to be exciting as it was well balanced with classroom and field activities. Being a full time student, I reaped the benefit of additional lectures which added to my knowledge base. As part of the course, we had a dedicated research programme which brought together students from varied disciplines to achieve common goals. Fields visits built my understanding of working with communities. The course stresses on team efforts to achieve goals, exchange of information and synthesis of management systems with the communities at large.



My present position is an executive level position, ideally meant for candidates with years of field experience. Thanks to the community involvement during my thesis, I was seen a strong contender. My work requires that I address issues from an inter-disciplinary perspective. As such, I feel the course has significantly enhanced my capacity in addressing the same.

The main area of work involves targeted action to minimize water borne diseases. Our work strategies include provision of adequate water, toilet facilities, as also, creation of awareness on water sanitation and hygiene. Application of appropriate information, community interventions and strategies are my greatest strengths in the field. With my experience at the PGIA, I am confident to face any challenges that arise in my career. To my knowledge, there is a dearth of trained manpower on the subject of water sanitation and hygiene, which is integral to the development of the country. As such, the IWRM course is essential to build respected professionals. Based on the knowledge gained, I have been able to produce journal articles and book chapters. I would like to acknowledge the sustained efforts and support of the staff in making the programme a success. My appreciation and gratitude goes out to all who have given me the opportunity of being where I am today



Recounts of a SAWA Fellows Journey

A. W. G. N. Abeygunawardana

“The SAWA fellowship philosophy of promoting women water professionals is commendable.”

In 2006, I was selected for the IWRM degree programme at PGIA. With no prior work experience, it was, a dream come true. I felt that the programme reaped with opportunity to enhance my future.

The programme helped enhance my capacities by providing me with inputs on technical, analytical, social and administrative issues. It also widened my understanding of sustainability and management of resources. Attempts were made to revise the syllabus to ensure a more effective curriculum. Research projects, workshops, trainings, presentations, etc, were designed to strengthen the aptitude of each student. Various team building exercises were also undertaken.

The SAWA training in India was a good opportunity for me to explore my own vision. The field visits in India gave me an opportunity to learn about other cultures and their approaches in problem solving. It facilitated the building of new relationships with other South Asian fellows. The experience of learning PRA tools was enjoyable and much anticipated.

The Inter disciplinary approach is important in NRM research as it directly related to every facet of the society. However, to ensure that the ambit of study is not too wide for a student, research parameters need to be appropriately defined by the staff.

Promotion of women water professionals under the SAWA fellowship is a great idea. Women being the water managers, both at an individual and family level, play a significant role in minimising water wastage. Since their role is also that of a mother, they influence the next generation on effective and efficient water usage.

Sri Lanka, being at a strategic location, receives a lot of rainfall. However, water resource management systems are negligible, both at the policy and implementation level. The Draft Sri Lankan National Water Policy is still in process, as it was revised several times for institutional incompatibilities. Given all this, there is an immediate need to make necessary arrangements to minimize water wastage, conserve water, and avoid further pollution. I personally believe that if we can change the attitude of even one person while doing our research work it is of great value.

My career plans are to take forward the subject on natural resource management and conservation, particularly in the field of environment. I would like to be involved in the academic field as well.



My gratitude extends to all the PGIA and CB project staff, both at the National and International level, without whose efforts, the actualisation of my MPhil degree would be a distant reality. I also wish to thank the Department of Agriculture - Engineering of the CB project for offering me this fellowship. My MPhil in IWRM has paved the way for greater opportunities.



A Leap of Hope

M.R.F. Nazreen

“The IWRM course enhanced my problem solving capacity, as well as, my knowledge base”

I come from a village with extreme weather patterns, from high rainfalls to severe drought conditions. I have personally experienced the difficulties faced during the drought and know that more time is spent on



gathering water. In rural areas, community water is a main reason for disputes. From my experience, I have come to understand that water is integral to life and every aspect of living is dependent on water.

After studying IWRM, I realised that water management was the solution to issues of water scarcity, water pollution, etc. In my own village, we have five or six streams that are originate from the area, however, high levels of contamination due to household waste, has made the water unfit for consumption. These streams being perennial in nature can be effectively managed to address water concerns in the drought season.

My village is situated on sloppy terrain, as such, the water from the roads drain naturally, because of which the villagers have not considered soil water management or water drainage systems. The repercussions are being felt through broken roads due to water logging which make transportation difficult. Awareness on water and water management is vital and should be undertaken with vigor. Solutions to water problems can be achieved as a group.

The IWRM course enhanced my problem solving capacity, as well as, knowledge. My approach to any issues has changed. I am proud to be a IWRM student under the SAWA Fellowship.

I am presently working as the Assistant Director of Planning at the Department of Agricultural Export. My MSc programme helps me a great deal in undertaking this administrative position. Although, I am not directly involved with water and water management, the experience and skills gained through the course have enhanced my growth as an individual. It has also built my managerial skills of leadership, effective communicator, decision maker, which I believe are very important for me as a planner.

In my career I have many roles to play, that of a data collector, processor, disseminator, as also, a coordinator. The experience I received at the programme on information collection, report writing and research methodology are now very useful tools for me. I am proud to state that MSc programme has motivated me to look at problem solving and decision making as techniques to be used in day to day living. It is only through the IWRM - MSc programme that I could achieve my goals.

Chronicles of a Journey to Success

W. S. E. Ranasinghe



“Every aspect of the IWRM programme has contributed to my proficiency at my current job”

In 2006, I secured a seat to pursue my Masters degree in IWRM at the Post Graduate Institute of Agriculture (PGIA), University of Peradeniya. After the selection process, I obtained a fully funded scholarship for the course by the Crossing Boundaries Project. It was important to note that all the ten scholarships were awarded to female students.

The programme had a blend of theory, practicals and field visits. The activities planned were related to water management, and hence were informative and exciting. The course covered a range of subjects dealing with water, soil, engineering, economics and management. The scholarship holders had the privilege of field trips to India, which was a wonderful experience. We interacted with people from three different countries, tried to understand cultural diversities, etc. We were taken to Indian villages, where we had a feel of the Local culture and habits. We did a comparative analysis of India's resources, culture, attitudes and potential to that of our own Country.

In 2008, on completing the programme, I applied at the Sri Lankan Planning Service, for the class II-grade II post and was recruited as the Assistant Director (planning) at the Divisional Secretariat, Ruwanwella. Project planning, socio-economic analysis and implementation are the key areas of my work, for which the IWRM course helped me immensely. My communication and analytical ability, helps me work with nearly 68,255 people from different regional and religious backgrounds. My knowledge gained, in particular from the field trip in India, strengthened my ability to work with diversity.

Infrastructure development, livelihood development and spiritual development are the three areas of development under my supervision. Planning, implementing, monitoring and evaluating these activities are part of my work profile. Decisions of unsatisfactory work, payments, etc are handled by me. Since a lot of the



work deals with problem solving mainly of issues related to land ownership, my work includes a lot of field visits. Techniques of community intervention and problem solving skills are some areas of IWRM which have proved necessary for this.

Research to update the existing data base is an essential requirement. According to the administrative structure of Sri Lanka, the country is made up of 25 districts. Each district is made up of Divisional Secretary's divisions, according to the size of the district and one divisional Secretary's division is made up of a number of Grama Niladari divisions. As such, Ruwanwella Divisional Secretary's division consists of 38 Grama Niladari Divisions. Interaction with the villagers is a requisite to collect information, after which the data is compiled and analysed as a *resource profile*. Data analysis is stored in a graphical format in the *control room* to be accessed by researchers, students and other people who seek such information

A major project I am presently dealing with is *Gama neguma*. It undertakes the tasks of supplying clean drinking water to the house holders and water for irrigation. To assure suitable and quality drinking water, analysis of water samples is undertaken. The period of requirement is also taken into consideration. If the beneficiaries meet the stipulated terms, their water requirements are addressed and monitored. Water supply for irrigation purposes is in accordance to the number of beneficiaries, and then the place is identified. The canals, streams, etc are constructed by technical officers based on the location.

The newest task at my work is the multi sector water resources planning project. This project has been prepared at the District level; our division outlines the probable persons for this project and submits the proposals accordingly. The vital component of this project is the multi-sector use of water resources plan, in all the river basins in the Country, including ground water resources. The plan seeks to analyse water demands and supply across all sectors, including irrigation, hydropower, domestic, municipal and industrial, environmental, tourism and other sectors. At present, this project is being conducted by my staff and me. Relevant data for our division is being collected with the help of government officers, village leaders, farmers and other non government organisations.

I am happy for the opportunity of being a student of the IWRM course and a part of the CB project. I hope to serve my country with my knowledge and experience. I would like others to join the CB project and make a difference.



Unearthing Sustainable Solutions

W.D.Warnakulasuriya

“I feel confident of my ability to find the best environmental solutions to protect contamination of surface and ground water sources.”

The opportunity to secure my MSc degree in IWRM, through the SAWA Fellowship, came to me when I was working as a Demonstrator at the University of Sri Lanka. I joined this programme with a limited understanding of the water sector and its issues. However, as the course progressed, my interest was triggered in the areas of water and its management, and I was hoping to finish the course as soon as possible.

The course content was designed to cover a broad spectrum of issues related to water, which included quality, pollution and treatment. It directed our understanding to the relation of water with gender, climate and other global issues. Along with our knowledge base, our strategies for on the site solutions gained significant ground. Our interventions needed to be relevant and appropriate given the global fresh water crisis.

I felt that, as an expert, I can create adequate awareness on the consumption and lifestyle patterns, as well as, on conservation techniques of house hold and industrial water, which are closely linked to the issue of water scarcity. An ability I also gained was to address water pollution issues, by identifying the root of the problem and finding appropriate solutions.

On completing this course, I joined the Central Environmental Authority. This was one of my greatest achievements. My profile includes managing waste water and finding solutions to problems related to industrial pollution, through water efficient systems. I undertake regular field inspections of middle and large scale industries that seek environmental protection licenses, as well as, issue environmental recommendations to sand mining industries located at the banks of the rivers.

The insights received from the IWRM course have helped me significantly, especially during field inspections, to decide best practice solutions for relatively harmful waste water generated by industries. I feel confident of my ability to find the best environmental solutions to protect contamination of surface and ground water sources. I also feel that by generating public involvement on the issues of water management, I have contributed towards addressing the issue of the global water crisis.

In cases where people fail to use a scientific basis for their work, as in the case of sand mining activities, I work with them to protect their river bank and water resources. Through my employer, I can influence policy decisions on the environment, especially on surface and ground water issues.

One of the main difficulties I face in the field is the lack of awareness on the impact of day to day activities have, household or industrial, in contributing to the global water crisis. Given their limited knowledge, they fail to undertake solutions which ensure protection and conservation of water resources. Further, a growing concern is Industrial pollution, which remains unaddressed. Last but not the least, I wish to extend my heartfelt gratitude to the Crossing Boundaries project for giving me an opportunity to be a specialist in the water management sector.

Good to better to best

Based on my experiences, I would like the IWRM course to emphasize on industrial waste management and the various techniques to effectively address the issue.

SaciWATERs

The South Asia Consortium for Interdisciplinary Water Resources Studies, SaciWATERs, is committed to bringing about structural change in the dominant water resources management paradigm in South Asia. Within that, SaciWATERs focuses on transforming water resources knowledge systems. Key ideas are an interdisciplinary approach to understanding water resources issues, from a pro-poor, human development perspective, with an emphasis on exchange, interaction and collaboration at South Asia level. The Crossing Boundaries (CB) project presently implemented by six partners from four south asian countries is a partnership-based programme for capacity building of water professionals on IWRM and Gender & Water. The idea is to strengthen integrated and gender-sensitive water resources management policy and practice in South Asia through a regional, collaborative, partnership-based capacity building programme for active water professionals through higher education, innovation-focussed research 'research with an impact', knowledge base development, and outreach and advocacy. For more details visit the website saciwaters.org