

***Activity 2.1: Symposium on Water Supply, Sanitation and Wastewater Management: Progress and Prospects towards Clean and Healthy Society.***

Cap- Net Lanka in collaboration with the Dept. of Agricultural Engineering and Postgraduate Institute of Agriculture organized its second national symposium on 23<sup>rd</sup> June 2008 at the Auditorium of Postgraduate Institute of Agriculture, University of Peradeniya. The theme of the Symposium was “Water Supply, Sanitation and Wastewater Management: Progress and Prospects towards clean and healthy society”. The symposium was coordinated by Dr. S. Pathmarajah.

Under the above mentioned theme, it was expected to attract the outcomes and lessons learnt from research studies and community development projects within the frame work of Integrated Water Resources management.

The objectives of the symposium were:

- Disseminating the knowledge generated
- Providing a forum for the institutions and individuals to share the lessons learnt and
- Visioning and a way forward.

Prof. Arjuna Aluwihare, a medical professional, former vice chancellor (University of Peradeniya) and the former president of National Academy of Sciences of Sri Lanka was invited as the chief guest. Prof. R.P De Silva, Prof. C. Sivayoganathan and Prof. A.L.T Perera, participated as special guests. Prof. E.I.L Silva, Dr. Ananada Jayasinghe and Dr. M.I.M Mowjood chaired the sessions of the symposium. There were 52 participants, representing various institutions, professional bodies, government officials, international agencies, researchers, university students etc related to water and sanitation sector presented at the symposium.

The session 1, under the theme of ‘Water Quality and Wastewater Management’ was chaired by Prof. E.I.L Silva, IFS, Kandy and six research based presentations were conducted by the following presenters:

<b>Topic</b>	<b>Authors</b>	<b>Institute</b>
Status of water supply wells in Jaffna Peninsula	A. Sutharsiny M. Thushyanthi S. Saravanan	University of Jaffna
Effect of land use on quality of ground water: A case study from Jaffna Peninsula	T. Jeyaruba M. Thushyanthy	University of Jaffna
Operational Challenges of surface and ground water treatment	Aravinthan Kalukasalam Jude Nimalan	Oxfam GB

	Bertrand Sylvain Prashanthan Stanly	
Effect of coconut coir-pith supplement on enhanced water reclamation activity in submergent plant wetland system	B.G.N., Sewwandi S.K. Weragoda M.I.M. Mowjood	University of Peradeniya
Lessons learnt from participatory approach in hand pump maintenance system	N.I. Wickramasinghe L.L.A Peiris	National Water Supply and Drainage Board
Community planning for wastewater management in low income communities	Keerthi Sri Wijesinghe Prabha Gunawardana Ranmini Udukumbure	COSI

The session 2, under the theme of ‘Water and Sanitation’ was chaired by Dr. Ananda Jayasinghe, Head, Dept of Community medicine, Faculty of medicine, University of Peradeniya and Five research based presentations were conducted by the following presenters:

<b>Topic</b>	<b>Presenters</b>	<b>Institute</b>
Hygiene promotion in emergencies: A lesson for long term health awareness	Ramyathathakumar Gopahan Thirunavukkarasu Tom Skit	Oxfam GB
Water and Sanitation in post conflict areas of North and East Sri Lanka	Herald Vervooran	ZOA
Application of ecological sanitation technology to Pussella Oya sub catchment	I.P.P. Gunawardana I.H. Rajapakshe L.W. Galagedara	University of Peradeniya
Integrating wastewater agriculture and sanitation	Mahesh Samaracera Jagath Kotywegedara	COSI
Domestic water consumption and waste water generation	S.P.P.N Gayani M.I.M Mowjood	University of Peradeniya

At the end of the sessions, a panel discussion on ‘water supply, sanitation and health’ was conducted in order to share ideas and recommendations of the participants to visioning the way forward. The importance of water conservation, providing education and awareness raising on water and sanitation among public, enforcement of laws and the need for a better coordination and networking were identified as most essential initiations in order to progress towards creating a ‘clean and healthy society’.

The printing of the proceedings is in process with the financial support of Sri Lanka Water Partnership.

### **Activity 2.2: Book on water treatment for domestic water supply (for school children)**

Reading materials on water treatment for domestic water supply in local languages are not available for teachers and students in school education. A book on the above title will be written and designed for school students (Year 8-10) with simple and attractive format. This book will discuss the water treatment process adopted in a conventional water treatment plant, and give a general idea to the student how to assess the water quality, and also how to preserve the water quality. This will help younger generation to realize the importance of effective use of drinking water.

Sketch and drawings were completed by the artists. The content of the book will be send to the National Institute of Education which is responsible for curriculum development for their comments and inputs. Quotations have been called for the printing. Printing will be done in 2009

### **Activity 2.3: Capacity building in IWRM in a selected watershed: Watershed conservation for sustainable water supply and sanitation in upper watersheds**

Currently, water pollution appears to be one of the main watershed management issues though there were some indications to this effect in the past. Increasing population, rapid urbanisation, intensive agricultural and industrial activities, along with the inaction of local authorities in exercising law and order, perhaps due to increased political interference, in the upper watershed areas has aggravated water pollution. Encroachment of reservations for intensive agriculture, housing and business premises, unplanned settlements, inability to address the lack of sanitary facilities, poor sewerage treatment, dumping of solid waste into water bodies, lack of institutional coordination are some of the causes for this problem. Sometimes this pollution problem could come up to epidemic proportions.

Increased contamination of water sources due to disposal of sewerage, agricultural pollution and soil erosion will continue to create problems in future. In addition, there are indications of inadequate quantities of water to meet future demand for domestic industrial and irrigation purposes, let alone assuring reasonable environmental flows. A closer look at on watershed management issue has its root cause due to political interference though very little has been expressed and documented. As indicated in the Land Development Ordinance, headwaters had been delineated and protected in the past. However, this regulation is violated by allowing people to encroach and cultivate. Attempts by the bureaucracy at the very initial stages to contain this problem could not succeed due to political reasons. Lack of interventions by the authorities to prevent continuous encroachment of reservations along streams is a common phenomenon. Direct discharge of sewerage and solid waste into streams from these unauthorised encroachments may have serious implications for downstream users.

It is evident from the preceding sections that new issues have arisen and conventional approaches can no longer address these complex problems. In the past only one water quality parameter, i.e. soil erosion was addressed. Now contaminations due to sewerage and

eutrophication have surfaced as major water quality problems. Inadequate institutional capacity, inability to exercise law and order along with the increased politicization are becoming more important factors for watershed degradation. Increased incidence of flood and drought associated with climate change has further aggravated the already existing problems in the watersheds.

Comprehensive planning at the river basin level (which can encompass typical components of watershed management projects) is identified as an approach to address the complex issue of watershed management. This approach is technically sound and very logical since resource constraints, demand management and upstream-down streams issues can be taken in to account. However, socio-economics and institutional issues are not explicitly included in this approach. That is where integrated water resources management becomes more relevant.

A collective effort of Cap-Net Lanka, Crossing Boundaries project of the Postgraduate Institute of Agriculture and National Water Supply and Drainage Board (NWSDB) of the central province is to be made to address the issues mentioned above in a systematic manner. Development of training modules, training of trainers, field training for public and other stakeholders in integrated water resources management with special reference to watershed conservation is to be implemented during next six month.

It was decided to develop the module under the following topics. The team leader for each module from University of Peradeniya has been identified. The counterpart staff from the NWSDB has been identified at the planning meeting to work together with the university staff to develop the modules.

**Table 1. Main topics of the training modules with team leaders**

Topic	contents	Team leader
Watershed conservation	Basic characteristics and functions of micro watershed	Prof.E.R.N. Gunawardena
Demand management	Assessment of surface and groundwater resources, water allocation, Efficiency and equity	Dr. M.M.M. Najim
Water and Health	Water born diseases and prevention	Dr. A. Jayasinghe
Water and Sanitation	Sanitation practices at house hold level	Dr. L.W. Galagedera
Water pollution monitoring and control	Water quality parameters, point and non-point sources, pollution monitoring programmes	Dr. N.D.K. Dayawansa
Wastewater Management	Minimization of wastewater generation, wastewater treatment technologies	Dr. M.I.M. Mowjood
Institutions, policy, laws and regulations	Role of institutions, policy, enforcement, Participatory approach	Prof.E.R.N. Gunawardena
Teaching and training methodology	Effective teaching and training methodologies	Prof. C. Sivayoganathan
Conflict management	Identification of causes and approaches	Dr. S. Pathmarajah

Planning and Implementation of action plans	Project preparation, work plan, time frame	All members
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The modules are being developed and the ToT and Field level training programmes will be organized in 2009.

***Activity 2.4: Dialogue Platform of water professionals***

Water policy debate in Sri Lanka is going on for a considerable period. The professionals in the water sector are less aware of this on going debates and most importantly lack an understanding of the process and few contentious issues.

A Dialogue platform of water professionals was organized with the collaboration of National Water Supply and Drainage Board on 29<sup>th</sup> of May 2008 at NWSDB- Training Centre, Water Treatment Plant, Katugastota. This programme was jointly coordinated by Eng. L.L.A Peiris and Prof. E.R.N. Gunawardana.

The main purpose of organizing this dialogue was to make professionals aware of the water policy process in Sri Lanka, the contentious issues and provide them an opportunity to discuss and clarify some of the doubts that they have on the proposed water policy. This was an awareness programme to make water professional more knowledgeable and gets them involved in the policy formulation process.

The main target group of this programme was the professional staff (Engineers and Technician) of the NWSDB and there were 53 working professionals, participated at the above programme. Prof E.R.N Gunawardana, Mr. A.H. Jayaweera, (UNICEF) and Ms. Ruana Rajapakshe, (Attorney-at-law, Supreme Court of Sri Lanka) served the program as resourced persons.

The programme consists of two presentations followed by a question and discussion session.

**Presentation I: Water Sector Reforms in Sri Lanka and IWRM Strategies**

First presentation by Mr Aanda Jayaweera focussed on the policy formulation process in Sri Lanka. This includes the activities/programmes which led to the initiation of the policy formulation process, how it was done, content of the proposed water policy document, and what happened between 1996 and 2006.

**Presentation II: Water rights and Civil society'**

The second presentation by Ms Ruana Rajapakse focussed on the contentious issues in the proposed water policy. This includes issues in relations to ownership of water, water rights, entitlements, transfer of entitlements and institutional reforms. Activities of the civil society to contest the propose water policy also covered.

These two presentations were followed by a question and discussion session where the participants were able to come up with different issues related to water policy and integrated water resources management and contributed their inputs in order to prepare a national water policy in the future.

The participants were provided with available documents with regard to the national water policy.

#### ***Activity 2.5: Dialogue and training workshop on water policy***

At present two drafts water policies, not formally approved by the authorities, exist in Sri Lanka. It appears that both parties who led and has ownership of these two sets of policies have basically lost enthusiasm and abandoned the follow up activities. However, those who were interested in the water sector in Sri Lanka kept the discussions alive and organized several dialogues (formal and informal) during last few years.

In the meantime, some of the policy principles, such as polluters pay principle, have been approved under non-water sector institutions. Sectoral water policy drafts, such as policies on water supply and sanitation have been prepared and published for public comments. These developments indicate that “water policy process” is a dynamic subject and will continue to appear at different times under different context.

With this developments, this workshop has been postponed to February 2009 since it requires more communications and preparations.

#### ***Activity 2.6: Training on low cost wastewater treatments for water pollution control***

Two training workshops on ‘Effective Wastewater Management Systems’ was held on 25<sup>th</sup> of July and 22<sup>nd</sup> September 2008 in Kandy and Matara. This type of workshop was organized as a result of the continuation of last year training workshops that has been successfully conducted in finding suitable remedies and practices to control water pollution.

The main objective of this training program was to educate the field level staff incharge for implementation of acts, guidelines and ordinance in Health & Sanitation and environment on cleaner production concept and low cost techniques for wastewater treatment and encourage/ guide the water users to adopt those treatment techniques.

The main target group of this workshop was Public Health Officers (PHI) and Environmental officers of Kandy and Matara Municipal Council. Sixty three (63) officers were trained in both programmes.

Dr. Ashoka Senerath, MOH - Kandy Municipal Council was invited as the Chief Guest and Prof E.R.N Gunwardana, Former Director of Sachi Waters, India, Prof A.L.T Perera , Director, PGIA were the special invitees presented at the inaugural session. The technical sessions included the following lectures conducted by the resource persons:

- ❖ “Application of Cleaner Production Principles in Wastewater management– by Dr. D.A.N. Dharmasena
- ❖ “Constructed wetlands-Potential applications in wastewater management’ - by Dr M.I.M.Mowjood
- ❖ “ Use of constructed wetlands in wastewater management systems”- by Dr. M.M.M. Najim
- ❖ “IWRM in wastewater management- by Dr. L.W Galagedara
- ❖ ‘Conflict resolution in wastewater issues’ - by Mr. Aruna Jayathilaka

Participants were also provided with the opportunity of participating to a field demonstration at the university wastewater treatment site and the interactive session conducted during their field visit helped them to gain a practical understanding of the function and maintenance of constructed wetlands. Also at the discussion, held after the group work, they were able to discuss their issues and problems related to the wastewater management with the expert panel and share each of their views and ideas to minimize the water pollution. At the end of the training, participants were awarded with a certificate, as a means of appreciating their participation and to motivate them to have more concern on wastewater management. The workshop served to successfully achieve the output of convincing the participants to practice wastewater treatment techniques.

### ***Activity 2.7 a: Evaluation of Gender & Water Dialogue***

Workshop on “Gender and Water Dialog (GWD)” that was held at the Panorama Hotel, Kalutara on 24-25 July 2008 was the 7<sup>th</sup> in the series of workshops organised by NetWwater (Network for Women Water Professionals) in collaboration with Cap-Net Lanka and Sri Lanka Water Partnership to create awareness on the importance of IWRM at various levels with especial emphasis on gender issues. GWD programs have already been carried out in Ratnapura, Anuradhapura, Hambantota, Kurunegala, Kegalle, and Matale with the co-sponsorship of Cap-Net Lanka, a capacity building network for IWRM in Sri Lanka.

As the co-sponsor to the program, Cap-Net Lanka has entrusted Dr. S. Pathmarajah to assess the effectiveness of the program in planning and executing and the impact/s that the programs had or can have in the respective districts. The summary of the report is given below. A detail report is available for further information.

#### **Summary:**

Nearly 50 officials from various government and non government organisations participated in the above two day non-residential workshop. The composition of participants in terms of gender and age were well balanced. However, the number of participants was little more than the expected number (40) by the organisers.

The workshop was held at a convenient location for the participants. The sessions had been chosen accordance with the need of Kalutara district (eg. flood, land slid, drinking water problem, etc.). The resource persons were drawn from relevant government departments and Universities.

A questionnaire survey was conducted among the participants at the end of the workshop to assess the various aspects of the workshop. Out of the (nearly) 50 participants 36 responded to the survey.

Given below is the extract from the workshop assessment form on the overall learning as felt by the participants.

	<b>Very good</b>	<b>Good</b>	<b>Satisfactory</b>	<b>Poor</b>	<b>Very Poor</b>
<b>Overall, did the event meet your learning needs?</b>	6	16	14	-	-

It indicates that, on the one hand, the workshop has achieved one of its major objectives of making the participants aware of the IWRM issues and its applicability in their own context. Majority of the participants (61%) indicated the outcome of workshop as more than satisfactory in meeting their learning needs.

On the other hand, gender was felt as the least important issue in IWRM (please see section 4), indicating a serious laps in the approach towards the second major objective of the workshop.

The participants are keen in applying their new learning. They indicated that they are planning to take the following actions as a result of this workshop:

- Prepare an awareness program on water management for *grama niladharis* and *samurdhi niladharis* (grass roots level officials of the local government).
- Prepare an awareness program for people.
- Use the knowledge in project planning.
- Hoping to start a dialogue including gender and water management within the office community.
- Use the knowledge gained to modify our awareness program on minimizing the effect of flood to avoid disasters.
- Hoping to start program like this for villagers to improve their knowledge.
- I will try to improve the villager’s knowledge to minimize environmental pollution.

- I will try to share this information with people who living around me.
- I will give my maximum contribution to supply clean water.
- By giving this information to my office members, I will try to reduce water pollution.
- As a field officer I can use the knowledge to aware the people on IWRM.
- I will try to give this information to my people to reduce disasters.
- I can spread this information via department training program.
- This information can be used in my office work.
- Try to change the awareness program according to information given by this program.

Additional observations made:

- The audience was mixed in all aspects (discipline, age, gender, etc.) to provoke active participation.
- The, group was too big for the sessions to be audible. Particularly, the session on drinking water was not audible.
- Learning materials were high in quality and distributed in Sinhala.
- Session on gender was placed 5<sup>th</sup> in this workshop. It must be placed next to the session on IWRM.
- Gender issues were not incorporated in most of the sessions. Only the session on land slide made deliberate attempt to bring in gender issues.
- Method of delivery of certain sessions could be improved to be attractive and participatory. The session on flood was little monotonous.

### ***Activity 2.10: Training for School Teachers***

As preparatory work for the training workshop on Integrated Water Resources Management for school teachers, a discussion with the selected school teachers was held on 18<sup>th</sup> of February 2008, at PGIA, board room in order to identify their training needs. Eight teachers along with Dr B.V.R Punyawardana and Dr. M.I.M Mowjood were presented at the meeting. During the meeting, the present teaching curricular were analyzed and their needs were taken into consideration for planning the training sessions.

A Training workshop on Integrated Water Resources Management for school teachers was organized with the collaboration of Postgraduate Institute of Agriculture, Department of Agriculture and NWSDB on 12<sup>th</sup> of March 2008 at In-service Training Institute, Gannoruwa. The program coordinator was Dr. B.V.R Punyawardana.

The main objective of the training program was to expand and update the knowledge in the concepts of IWRM of school teachers in order to use them in teaching of water related subject matters for advanced level students. 67 school teachers representing the schools in the central province participated. The lectures were conducted under following topics:

- Water Resource development in Sri Lanka
- Status of Surface water & ground water in Sri Lanka
- Watershed management
- Irrigation
- Water quality & Role of Wetlands in water
- Institutional issues in Water Management

Dr. S. Pathmarajah, Dr. B.V.R. Punyawardana, Dr. Mrs. N.D.K. Dayawansa, Dr.M.M.M Najim, Dr. M.I.M. Mowjood and Prof. E.R.N. Gunawardana served as resource persons. In addition, a demonstration on water purification was conducted by the NWSDB, which helped participants to gain a practical understanding on water purification methods. At the end of the training, participants were awarded with a certificate as a means of appreciating their participation. Two of the publications of Cap-Net Lanka, “Water Pollution in Sri Lanka” and “Jalaya Lokaye Jeewayai” also distributed among the participants for their further reference.

### ***Activity 2.13: Training workshop for DOA***

Two days training workshop on Integrated Water Resources Management was held on 23<sup>rd</sup> and 24<sup>th</sup> of January 2008 at In-Service Training Institute, Gannoruwa. This program was organized by Cap-Net Lanka with the collaboration of Postgraduate Institute of Agriculture, Department of Agriculture and NWSDB. The program was coordinated by Dr. B.V.R. Punyawardana.

The target group of the training was lecturers of School of Agriculture and Extension Officers of Dept of Agriculture. The main objective of the training program was to make aware them of the problems in water management and to disseminate their knowledge on water management among students and farmers who are working with them. 57 participants were participated to the training program.

Day 1:

- Water: Global, Regional and Country Perspective by Prof. E.R.N Gunawardana
- Introduction to IWRM by Dr. M.I.M Mowjood
- Conflict management in water by Dr. S. Pathmarajah
- Demonstration on Water quality was conducted by the NWSDB .

Day 2 :

- Water, Health and Sanitation by Dr. L.W Galagedara
- Water and Eco System by Dr. N.D.K. Dayawansa
- Finance in Water by Mr Sunil Thrikawala
- Water Policy by Prof. E.R.N. Gunawardana

The knowledge gained from the above lectures helped the participants to refresh their understandings of various approaches and techniques which can be used in water productivity improvement within their working environments. At the end of the training, participants were awarded with a certificate as a means of appreciating their participation.