

Building Networks for Waste Management for Agriculture and Environmental Sanitation

Minutes of the WASPA Learning Alliance Meeting

26th September 2006



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Contents

1	Aims and Objectives	1
2	The Concept and the WASPA Asia Project	1
3	Practical Action Project	3
4	Questions and Suggestions	5
5	WASPA Asia Activities	5
	Mapping and Data Collection	5
	Awareness Raising	5
	Surveys and Focus Group Discussions	5
	Water Quality Monitoring	5
	Learning Alliance	6
6	Group Discussions	6
	Networks and Learning Alliances	6
	Why do we need a network?	6
	How should we do it?	6
	Who should be involved in a LA?	7
	Structure of the network	7
	Wastewater in Agriculture	8
	Waste, fertilizer and flooding	8
	Keeping the community interested	9
	Wastewater Management, Sanitation and Hygiene	9
	Points raised.....	9
	How can the waste be better managed?.....	10
	What tested solutions are effective and why?.....	10
	Hygiene practices	10
	Engaging wastewater producers	11
7	Conclusions	11
	References	12

Accronyms and Abbreviations

CBO	Community Based Organization
COSI	Community Self Improvement
DCC	District Coordinating Committee
DS	Divisional Secretariat
FGD	Focus Group Discussion
GPS	Global Positioning Systems
NG	<i>Grama Niadhari</i> (local government official)
IRC	International Water and Sanitation Center
ITDG	Intermediate Technology Development Group
IWMI	International Water Management Institute
LA	Learning Alliance
MC	Municipal Council
NGO	Non-governmental Organization
NGOF	NGO Forum for Drinking Water and Sanitation
NWP	North West Province
NWSDB	National Water Supply and Drainage Board
PA	Practical Action
SEPA	Social Services Participatory Development Foundation
SEI	Stockholm Environment Institute
UDA	Urban Development Authority
WASPA	Wastewater Agriculture and Sanitation for Poverty Alleviation
WHO	World Health Organization
<i>Ela</i>	Stream
<i>Anicut</i>	Weir

1 Aims and Objectives

The aim of the meeting was four-fold:

- To introduce the project and the project team to the organizations and individuals with whom the project team had not yet met; and to strengthen the understanding of those who had already been briefed about the project.
- To discuss the modalities of the project, particularly the Learning Alliance (LA) concept and the development of the Intermediate (Kurunegala) Platform.
- To share ideas on the key issues that the city of Kurunegala is facing in relation to wastewater agriculture and sanitation, and to consider possible options for interventions.
- To make it known that two projects are now working together and to discuss how this relationship may be taken forward, particularly in relation to LAs and networks, and the development of participatory action plans. These two projects are the “Wastewater Agriculture and Sanitation for Poverty Alleviation in Asia” (WASPA Asia) Project conducted by the International Water Management Institute (IWMI) and Community Self Improvement (COSI); and the project “Integrated Approaches to Improving the Urban Environment in Asia” conducted by Practical Action.

2 The Concept and the WASPA Asia Project

WASPA Asia, which is undertaken in Sri Lanka and Bangladesh, is conducted by IWMI, COSI Foundation, the International Water and Sanitation Center (IRC), the Stockholm Environment Institute (SEI) and NGO Forum for Drinking Water and Sanitation (NGOF), with the first two of these partners having primary responsibility for the work in Sri Lanka. It is funded by the European Commission under its Asia Pro Eco II Programme.

The project was conceived because of the enormous quantity of wastewater being produced in cities around the world, and the issues of managing that waste, particularly in cities that are growing in an unplanned way. As a result of this large scale production of wastewater and the need to deal with it, the World Health Organization (WHO) has stated that: *“wastewater use in agriculture is increasingly considered a method combining*

water and nutrient recycling, increased household food security and improved nutrition for households. Interest in wastewater use in agriculture has been driven by water scarcity, lack of availability of nutrients and concerns about health and environmental effects” (WHO 2006, p. vii).

The project therefore aims to address these issues by taking a holistic approach to sustainable wastewater management that involves *“interventions in the whole chain of improved sanitation, contaminant reduction, waste treatment, disposal, use in agriculture and promotion of hygiene behavior”* (IWMI et al. 2005). The project will ultimately test solutions for sanitation and decentralized wastewater management for its use in agriculture in two pilot sites: Kurunegala in Sri Lanka and Rajshahi in Bangladesh.

Central to the methodology for developing and testing these interventions is

the involvement of local stakeholders. *“The project will therefore establish ‘learning alliances’ in each site, that bring together the main stakeholders: communities; local authorities; community organisations; NGOs; and experts, to work on this issue. In each site the project team will conduct participatory assessments of the current situation with the LAs, and facilitate the development and implementation of participatory action plans to test technologies for safe waste management and application in agriculture. Experiences will be shared through LAs at different levels and learning events”* (IWMI et al. 2005).

The need for a concept such as LAs is that, though there are many good experiences in participatory research, there is often limited scaling-up. Learning Alliances allow sharing of knowledge and ideas that improve research, results, scaling up and scaling out. The nature of a LA is that it is made up of a series of “learning platforms” at four levels:

- **Community** – end-user, local men and women; rich and poor; domestic users; productive users; and producers of waste.
- **Intermediate** – local government, offices of line ministries, extension officers, local non-governmental organizations (NGOs), donor projects, mechanics, local banks, industries and local private sector.
- **National** – national government, donors, international NGOs, line ministries, universities, industry bodies, banks and

companies.

- **Global** – donors, multilateral organizations, learning organizations and advocacy organizations.

Consequently, a LA is understood to be a *“process undertaken jointly by research organisations, donor and development agencies, policy makers and the private sector through which good practices in both research and development, are identified, shared, adapted and used to strengthen capacities, improve practices, generate and document development outcomes, identify future research needs and potential areas for collaboration, and inform both public and private policy decisions”* (Lundy and Ashby, 2004). Moriarty et al. (2005) argue that *“probably the most important element of a successful LA is a shared understanding of the problem to be solved and a set of common objectives to which each participant can contribute from a different perspective”*.

It is also important to remember that LAs are required at various interlinked levels, often corresponding to national administrative levels, and it is therefore necessary to identify LA partners at all levels to improve knowledge sharing and sustainability (Figure 1). In many cases networks already exist and the project will identify networks to link with, such as STREAMS, EcoSanRes and RUAF, and will try to fill gaps in existing networks where necessary.

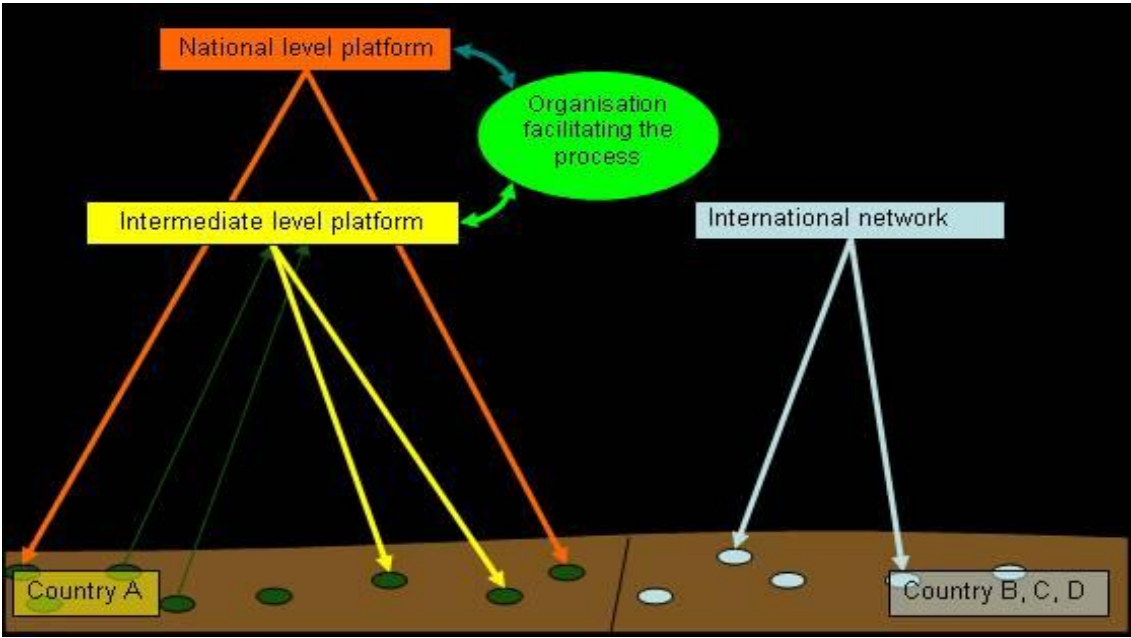


Figure 1: Structure of Learning Alliances at different levels

Source: Moriarty et al., 2005

Identification of partners, who have a “vested interest” in the process, is therefore the initial step in developing a LA. Determining who will be involved is critical for both the effective start-up and information gathering phase of the work, and also for the dissemination and scaling-up activities. However the process is not static and partners can join as and when necessary, especially if partners are identified later as the work progresses and additional skills or inputs are needed. Furthermore, whilst project partners will have to take the initial step in identifying possible LA partners, this must be followed by a phase of introducing the work and encouraging

involvement, which will lead to LA stakeholders engaging fully in the process and identifying their own members.

This process is therefore being initiated in this meeting and will be followed by further events to build the LA. In order to implement this concept there is a need for action research, capacity building, process documentation, dissemination and sharing, and process facilitation. It is hoped that the LA will lead to changing paradigms, attitudes and practices. To enable this to happen, the LA must have legitimacy and the possibility to institutionalize change.

3 Practical Action Project

Practical Action, previously the Intermediate Technology Development Group (ITDG), is the lead project partner for the “Integrated

Approaches to Improving the Urban Environment in Asia” Project. This is a regional project and aims to reduce

environmental threats to the health and livelihoods of the urban poor, thus helping to reduce poverty in four towns in Nepal, Bangladesh and Sri Lanka.

Practical Action was established 40 years ago through the funds allocated by Nobel Prize Winner Dr. EF Schumacher who was the famous author of the book “Small is Beautiful.” His concept was to create innovative developments through smaller, appropriate technologies. As a result, Practical Action is involved in various technological areas like energy, transport, shelter, agro-processing and waste management. Over the past six years, Practical Action has handled several waste management related projects in many countries.

The current project has the following main objectives:

- Developing neighborhood plans for improving the environment and livelihoods; and helping to embed the plans and processes within the work of local authorities and other stakeholders.
- Supporting the creation of partnerships between community-based organizations (CBOs) and other stakeholders to help deliver the plans.

- Developing innovative and appropriate waste management, water and sanitation facilities, and raising the capacity of the communities to manage the facilities themselves.
- Increasing access to other services and improved housing for residents, and raising awareness regarding how to influence policies on environmental issues.
- Raising awareness and influencing policies on environmental issues at community, town, national and international levels

The majority of the work under this project focuses on waste management (household refuse, sanitation and waste water). It also addresses issues of urban environmental planning and governance as it seeks to build the capacity of CBOs, and create strong partnerships between local authorities, communities and NGOs in the implementation of neighborhood plans. It will therefore contribute to the programme’s expected results of enhanced capacities to improve the existing environmental quality in urban contexts, and the involvement of local urban populations in environmental management and planning.



4 Questions and Suggestions

The presentations of the two projects and their methodologies for implementation resulted in a number of questions and suggestions from the participants. It was clear that a narrow focus on certain waste streams would not be satisfactory and that hospital, chemical and industrial wastes are also major problems for the city. It was suggested that the two projects take experiences from other cities such as Kandy, where the hospital waste has been effectively managed. The involvement of clubs and village societies was also considered to be a useful means to address the waste problem on an issue by issue basis, for example, starting with separating waste.

Some advice was provided about how to identify the waste problems as one Gramasevakas had undertaken a survey on waste disposal and they encountered many problems while surveying the town shopping areas, as the waste was a major issue there. It is hoped that a better understanding will be gained of the waste being generated within the city centre by the WASPA Asia project, as the IWMI team is currently undertaking a survey of all the commercial and small-scale industrial units in the city.

The WASPA Asia project also works with farming communities on the fringes of the city and should perhaps think more about the waste and sanitation issues in the border villages. It was also felt that the work should be extended in the future to cover adjoining provincial areas because the waste from Kurunegala town is taken to Sundarapola to be disposed of. It was

recommended that this could be achieved through LAs.

It was clear to the workshop participants that waste generation from Elugoda, Werugala and Enderugala communities was a particular issue. Fortunately these areas are covered under the Practical Action project.

Water quality and quantity were two other issues that the workshop participants were interested in discussing. There was some concern that drainage water from the city is wasted when it could be used productively for agriculture if it was better channeled and managed. The National Water Supply and Drainage Board (NWSDB) is currently working on a project to treat wastewater and to dispose of it to an irrigation canal. This fits perfectly with the work of the WASPA Asia project which is designed to better manage the water in the canals by improving its quality and ensuring its availability for agriculture. The project will therefore test the quality of the water in Beu Ela and Wan Ela, and will report on this to the LA members (including the current workshop participants, community members and other stakeholders). It is intended that the work by the two projects on sanitation, industrial and commercial waste management, and solid waste management will over the period of the projects (up to December 2008) result in an improvement in water quality. The WASPA Asia project will also work with the farmers to try to ensure that this water reaches their fields at the required times.

5 WASPA Asia Activities

Mapping and Data Collection

The project team made a concerted effort in the initial stages of the project to collect basic information about the city and to record key features using global positioning systems (GPS). This work includes:

- Collection of GPS relevant features and development of a preliminary map;
- Identification of the project and administrative areas; and
- Collecting and collating secondary information on water resources, demographics, sanitation, wastewater management, agriculture and industries.

Awareness Raising

It was particularly important at the outset of the project to raise awareness about the project within the communities where the project team would be working. The team therefore developed simple flyers in English, Sinhala and Tamil explaining the key features of the project and providing contact details. They also produced a simple but eye catching poster and established a website for the project.

Surveys and Focus Group Discussions

The project has selected two pilot sites within Kurunegala; these are Wilgoda Line area and the farming communities just beyond Wilgoda Anicut. Work with the farming communities proceeded smoothly, as they could readily appreciate the possible benefits to them from

the work. It was also possible to get good background information about the *Grama Niladhari* within which these communities were located. However, information on Wilgoda line was less readily available and consequently the project team decided to conduct a very simple house-to-house survey to: introduce the project to every household in Wilgoda; and to collect some basic demographic information about the community. The results of this survey have been written up into a report (see Nishshanka et al. 2006) and will be translated and made available to the community.

In both areas a series of focus group discussions (FGDs) have been held with community members to initiate the process of involving them in the project and establishing the local platform of the LA; and to obtain a more detailed understanding of relevant issues in the communities, particularly in relation to formal and informal institutional relationships. The findings from these FGDs will be compiled into a report and will be the basis on which the participatory action plans for the pilot areas will be developed.

Water Quality Monitoring

A baseline survey was conducted of the quality of the water in the Beu Ela, the Wan Ela, the field canals and the ground water near Wilgoda Anicut. The results of this survey have only just been made available and are being written up in a report that will be shared with the LA members and on the project website later in the month (see Dissanayke et al. 2006). The purpose of the survey was to obtain a baseline of the water quality against which any improvement could

be measured, and to determine whether or not it was suitable for agriculture, in terms of nutrient loads and salt content.

Learning Alliance

The development of the local and intermediate platforms of the LA has been an ongoing activity for the project team and has been integral in all the activities that they have conducted. The initial stage of this was to list the stakeholders, which include: farmers; shanty dwellers; government institutes; NGOs; and commercial or industrial unit

owners.

This led to the second phase of the stakeholder analysis which included four components:

- Stakeholder problem perception;
- Understanding the environment in which the stakeholders live and operate;
- Prime movers amongst stakeholders; and
- Relationships and conflicts between stakeholders.

The findings of the stakeholder analysis will be compiled into a report and made publicly available.

6 Group Discussions

Participants were divided into three groups to enable them to have more detailed discussions about key aspects of the two projects. These groups were:

- Networks and Learning Alliances.
- Wastewater in Agriculture.
- Wastewater Management and Sanitation.

Networks and Learning Alliances

Why do we need a network?

It is necessary to have a network in order to up-date relevant institutions that are involved in the ongoing development work in the area and to provide a reference point so that all those interested in this area of work can refer to it for information. It is also important that a common platform is created on which both village and urban level organizations can meet, thus reducing current misunderstandings between the parties.

Finally it was felt that a network or LA

could strengthen the coordination between the Divisional Secretariat (DS) and the Municipal Council (MC).

However, the sustainability of any Network depends on the service provided to the community.

How should we do it?

The team identified two options for forming the LA:

1. Utilize the existing institutions as the base; or
2. Form of a new setup for the project.

All were in agreement that option one should be pursued but a decision has to be made as to which existing network is the best to utilize. Currently, two obvious networks exist that may be suitable:

- The District Coordinating Committee (DCC) which coordinates all development programs in the District. There are currently

25 committees and it is felt that it would be advantageous to join up with these.

- The Coordination Body formed by the Asia Foundation within the North Western Province (NWP), which covers a variety of activities.

One suggestion was that the projects form a new group and then gradually combine this with the DCC after winning the trust of the partners as well as the community; but it should bear in mind that the DCC does not spend much time on one subject area. Therefore, the DCC is better for announcement purposes.

Understanding how these committees (and perhaps others) operate and discussing with their members how the projects may become involved with them is an important next-step.

Who should be involved in a LA?

The following were considered key partners in a LA or network:

- The DS.
- The MC should play the main role in ensuring public participation.
- Field level government officers, who deal directly with the community, should be given the responsibility of coordinating between the higher level committee (Intermediate Platform) and the community.
- At the beginning NGOs will have a key role until the formation of the LAs.
- At the community level, since it is practically difficult to bring all the community into the network, it should be organized in such a way that office bearers of local organizations are members of the LA.

Structure of the network

The main emphasis was on the necessity of defining the methodology. It was considered important to address the following factors:

- Identifying geographical areas. It may be practical to select the *Grama Niladhari* (GN) level as the lowest level and then the DS.
- Identify the main actors of the GN Divisions such as Farmer Organizations, Agrarian Research and Production Assistant, NGOs, women's organizations, Death Donation Associations and village development associations.

Initially, this committee should consist of approximately 10 institutions that deal mostly with project related issue and should have the responsibility of maintaining the network to a large extent.

Usually, these types of processes attract potential issues within the political structure. Therefore, including some political leaders in advisory positions in the network could be an advantage. These could number a total of four picked from the following:

Co-chairs – DS, Kurunegala Commissioner, MC.

Advisors – Mayor, Opposition leader of the MC, Chief and Opposition, *Pradeshiya Sabha*.

Members – Leaders of trade organizations, NGOs, CBOs, Urban Development Authority (UDA), NWP Provincial Environment Authority.

Feedback received from this committee should be taken into account during formation of other similar committees.

It is important too that the main responsibility remain with the MC as the convener since it has the responsibilities within both the *Pradeshhiya Shabha* administration and the DS administration. The main concern was that the convener should have the authority to work in all administrative area.

The set up established under this process should be institutionalized to make it sustainable. If the new setup is successful due to a certain individual (i.e. due to personality), then there is a greater possibility for its success to diminish with the absence of the main personal characters.

Secretarial support and initial costs for meetings and other activities will need to be borne by the project. The financial means to support the learning platform beyond the duration of the projects should however be considered. Committee meetings should be held bi-monthly.

Wastewater in Agriculture

Waste, fertilizer and flooding

The group members felt that the community lacks the understanding of health impacts due to wastewater use in agriculture. However the people are concerned about diseases spread by mosquitoes, such as Filariasis. The farmers, to a limited extent, complain about skin diseases or rashes but they do not complain about any other health problems. Records of worm (helminth) infections were not high in the area and there have not been any major outbreaks of diarrhea.

The farmers do not like to clean the canal which takes water to paddy fields. Not only are there aesthetic problems with it but the canal is also full of solid waste, some of which is dangerous waste such as hypodermic

needles and pieces of glass. Consequently farmers have reported accidents arising from cleaning the canal. This is a particular issue for the project especially if it is suggested that solid waste traps should be built, as it will be necessary to consider who will clean these.

Representatives in the meeting explained that farmers have differing opinions on the nutrient value of the wastewater. Despite their opinions on the nutrient content of the water, they continue to add chemical fertilizers at the application rates suggested by the Agriculture Department. It was therefore suggested that it is important that they are provided with better information so that they can modify the application of nitrogen, phosphate and potassium (N, P and K), depending on the quality of the wastewater, to get an optimal yield. It is also necessary to find out about any negative effects on the growth of paddy plants and their yield resulting from wastewater use. Some other crops apart from paddy are also grown to a small extent in the area, such as chilies and vegetables. This might expand in the future due to low market prices of paddy and these should therefore be considered in the project.

Inundation of paddy fields versus inundation of Wilgoda Anicut area is another major problem that was identified by the group. This is one situation where the farmers and the residents near the *anicut* come into conflict. Therefore management aspects should be looked into in order to provide a solution. When there is excess water for agriculture other solutions should be considered such as watering and landscaping in upstream areas, which can reduce inundation of the *anicut* area.

The major polluters should be identified through an industrial survey and the problems addressed. In particular, problems in implementation of regulations should be

investigated and co-ordination should be promoted through the LA.

Keeping the community interested

It was considered that the first step should be to do something about the solid waste problem in the irrigation canal which leads to the paddy field, for example installing a solid waste trap or a screen. This would of course have to be managed and a management system would need to be put in place before the infrastructure, to ensure that it worked and did not get blocked and worsen the problems, by causing flooding for example.

Promoting composting in the low income areas was also considered a useful option, linked to developing markets for the compost produced. This need not be limited to low income areas, as wealthier households often have gardens where they can store the compost bin and use the compost produced, thereby reducing pressure on the existing waste collection and dumping system.

Separation of waste at source should be introduced to facilitate glass and paper recycling. This could be promoted by providing business opportunities.

Enhancing coordination among various government bodies and showing the community that their problems are being taken care of could be a valuable step.

Wastewater Management, Sanitation and Hygiene

The discussion started with a brainstorming session in which all participants wrote their suggestions on cards. All the points were discussed among the participants and the issues raised were noted on the flip chart.

Points raised

The main types of wastewater being produced and flowing to Beu Ela and Wan Ela are:

- Domestic, service station (oil and grease), industrial (printing effluents), sewerage (when there is heavy rain and in some cases people empty their cesspits into the drains at night).
- Solid waste of various types is also included as it is thrown or washed into the *elas*. This could potentially be a source of heavy metal contamination of the wastewater.

Points of concern raised were:

- Who is responsible for the regulation and monitoring of waste?
- What is the monitoring mechanism?
- How do different agencies interact?

The Provincial Council are responsible for regulation and monitoring, whilst the UDA are responsible for the regulations relating to new constructions. Sanitation is the responsibility of the MC Health Department and Ministry of Health. Various NGOs have also been involved in this area and Social Services Participatory Development Foundation (SEPA) has studies that they can make available.

It was felt that subsidies for drinking water resulted in greater water usage and ultimately in greater wastewater production, although the per capita wastewater production varies depending on the location. It was also felt that there is a lack of knowledge amongst polluters regarding wastewater management systems and the effects of mismanagement.

The issue of the Sundarapola open dumping site was raised as it creates all kinds of hazards; with the residents living around the site suffering from the nuisance of the bad

smell and the spreading of litter. It was also noted that animals that consume the waste suffer with health problems.

Public dustbins were considered inadequate for solid waste disposal since people throw garbage without control within the city limits. Polythene is the biggest problem as it is not biodegradable. The participants felt that there should be legislation to prohibit its use and awareness programs to reduce use and promote reuse. Such a campaign could involve targeting major supermarkets, to ask them to reduce the number of polythene bags that they pack customers groceries in.

A key area of concern for both the projects was Wilgoda Anicut, which is often blocked with solid waste. Several solutions were proposed for addressing this problem including:

- An education campaign for those responsible for littering that highlights the negative effects for others as well as for themselves;
- The informal sector, which included waste collectors, should play a key role in managing the waste properly;
- Waste separation into biodegradable and non-biodegradable waste should be done at the point of generation.
- The MC could introduce public collection points or recycling points;
- Environmental audits and sanitary surveys should be conducted to identify potential risks;
- Information collection from the two projects should be used as a baseline to monitor environmental improvements;

How can the waste be better managed?

- Litter traps in identified places - but cleaning mechanism must be established.

- Service station wastewater should be separated and reused.
- Relocation plans for unauthorized settlements (main pollution area within the city limits) – the MC and UDA have developed such plans but they lack funds to implement them.
- The MC has two gully suckers and buries the waste – can this be improved?
- Kurunegala – UDA plan just been approved.
- Polluter pays system should be introduced and then the concern about disposal of waste may increase.

What tested solutions are effective and why?

ISB has had a project to try to reduce and manage waste from service stations. They established treatment plants at no cost at the service stations but it appears that they are not functioning effectively because the service stations are not willing to manage them and have not allocated someone to manage the treatment facilities. This highlights the importance of not only the technologies but also the management arrangements.

ISB studies on wastewater could be shared and would provide some important knowledge to others in the sector.

As part of the NWSDB proposal for a sewerage treatment plant a baseline survey of water quality and sources of pollution will be conducted. This can be shared amongst the LA partners.

Hygiene practices

Hygiene practices are poor in Wilgoda Line, for example: open defecation along the channel by children; people have to queue for at least an hour in the morning because of inadequate latrine facilities; people use polythene bags for defecation and throw them into the *e/a*; and

the latrines are not clean because there is no water supply nearby and people are not willing to carry buckets of water there.

Hygiene education activities and sanitation awareness programs should be conducted. Currently the Public Health Inspectors are responsible for this but NGOs could also become more involved.

Engaging wastewater producers

Dealing with polluters in this waste management concept is a big issue. It is important to win their confidence, maintain a dialog and try to obtain their cooperation. The projects must create a link between

government institutes and polluters; to do this they must seek affordable, appropriate solutions, rather than just blaming the polluters for the problems and not providing alternatives.



7 Conclusions

It was agreed that there is a major challenge ahead that actually goes beyond the scope of both of the projects put together. However, with the cooperation of all those present at the workshop and hopefully with other relevant people who were unable to attend, these issues and more could be effectively addressed.

Some of the workshop participants were already keen to show their support with, for

example, the Director of the Industrial Services Bureau, explaining that they have the facilities for water testing and inviting the project to use whatever facilities are available in Kurunegala itself.

It was agreed that the development of the LA platform or a network was the first step and that another workshop should be held within six months to evaluate the progress of this.

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Annex I: List of Participants

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