

# “Water is Life, Sanitation is Dignity”

WTO Sri Lanka Mission 2  
sponsored by Lien Foundation

World Toilet Organization & Habitat for Humanity  
Sri Lanka, July 13<sup>th</sup> to July 30<sup>th</sup>, 2005

Elisabeth-Maria Huba-Mang  
Thilo Panzerbieter



This final report includes slides from the debriefing meeting with HFH-SL National Director, Tony Senewiratne, in Colombo on Friday, July 29<sup>th</sup> 2005.

The WTO Team thanks

Ina Jurga, Heinz-Peter Mang, Christopher Kellner, Johannes Selke, Stefan Reuter, Pedro Kraemer, Jack Sim, Alan Wellington, the ACCT-Singapore Volunteer Team and the HFH-SL staff for their support, fruitful feedback, discussions and advice during our second mission in Sri Lanka.

We are grateful to GTZ-ecosan programme and BORDA for providing us with information and demonstration materials.

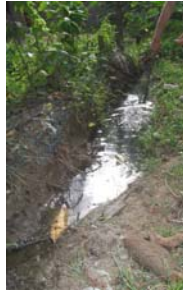
We greatly appreciate the financial support from the Lien Foundation, Singapore and their commitment to supporting WTO in its mission to reach the United Nations' Millennium Development Goal for sanitation.



# Thotagamuwa



High groundwater



Stagnant greywater



Toilets shared among 4 – 6 families

Explaining sustainable, ecological sanitation and the toilet system design to authorities and future users



The site poses great problems to conventional sanitation approaches, due to a high groundwater level approximately 75 cm below the topsoil. The topography of the area is extremely flat, preventing the economic use of a small gravity sewer system; it would require pipe depths of at least 2.4 meters leading to an even lower treatment plant.

A resident survey revealed that none of the eight HFH families have their own private toilet. They either share with other families or have none at all and go to the jungle or beach. The existing toilets in the 27 community households are simple pit latrine which lead excreta directly into the ground water.

Drinking water is only available from a tap line about 10 minutes walking distance from the community. Wells are located very close to various pit latrines. Due to this contamination, the two wells in the village are mainly used for washing and cleaning purposes.

Since the tsunami, the families no longer have gardening areas, due to direct destruction or the fact that the new permanent houses were built on these gardening areas. The construction of temporary and permanent houses has led to a very dense settlement structure.

The WTO Team engaged in awareness raising concerning hygiene and the health risks of the current sanitation systems. As a result, an interest in new sanitation concepts has evolved. The questions that arose from residents of all ages were answered in depth.

The local authorities were invited to visit the site and were taught about possible technical solutions to the current sanitation problems. They assured their support of these concepts.



# Thotagamuwa



The ACCT-Volunteer Team from Singapore joined the ongoing construction work in Thotagamuwa. They assisted with masonry work, plastering, excavation and cement mixing for the construction of the first WTO toilet, sponsored by the Lien Foundation Singapore. Instructed by the WTO Team, they worked closely with the local community members.

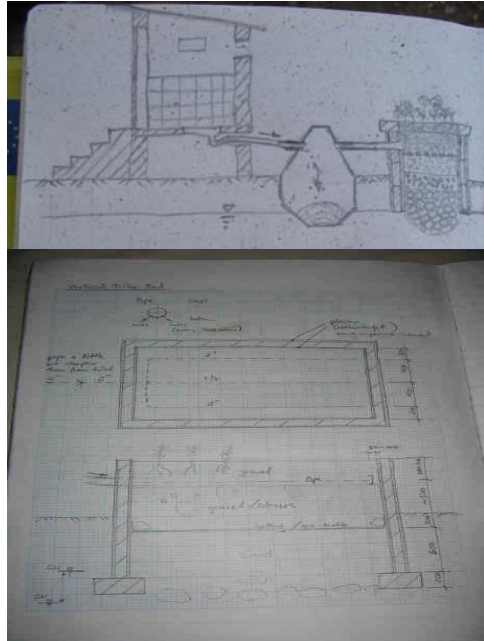
The residents' excitement about constructing toilets made the need for health, privacy and dignity in sanitation apparent. All ages participated in the team work of constructing the first on-site sanitation system.

A plastic, water-tight 1000 litre septic tank was installed to protect the groundwater. The tank is equipped with an influent pipe to the lower part and effluent is withdrawn in the top third. The tank fulfils treatment in the form of settling and decomposing. To prevent smell, the produced biogas is led through a pipe in the lid of the tank above the roof of the toilet house.

The whole community participated actively in placing of the tank.



# Thotagamuwa



This picture shows the building status of the first WTO toilet at the departure of the WTO Team.

The system consists of a toilet house, plastic septic tank and vertical filter.

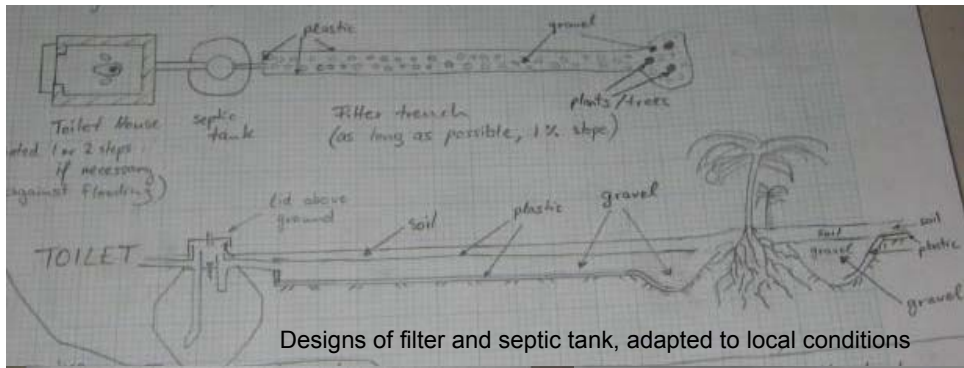
The toilet house is elevated by four steps to gain distance from the groundwater level to provide adequate treatment in the vertical filter.

The septic tank was installed as described above.

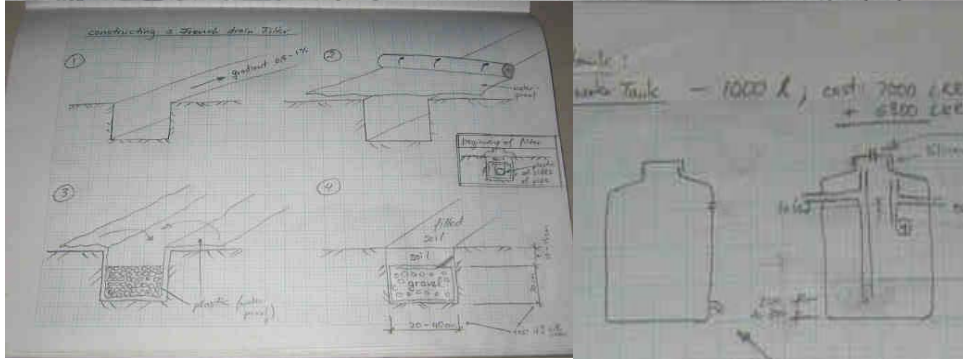
The vertical filter has a surface area of 1.2 by 2.2 meters and a depth of approximately 1.25 meters to the groundwater level. The walls are made from concrete blocks with a water-proof layers of plaster on inside and outside. Water is distributed to the filter through three perforated pipes. Thirty centimetres of gravel cover the distribution pipes to prevent smell. The filter bed is composed of rocks and gravel in the top half, separated by a geo-textile from the sand in the lower half.

The completion of the construction will be carried out by the site HFH site-supervisor, after detailed instructions received from the WTO Team. Any problems can be communicated by email.





Designs of filter and septic tank, adapted to local conditions



An alternative design to the vertical filter was developed for areas with even higher groundwater tables.

For this design, the toilet does not need to be elevated, since the filtering of the septic tank effluent is performed in a long gravel bed, embedded in the top layer of the soil.

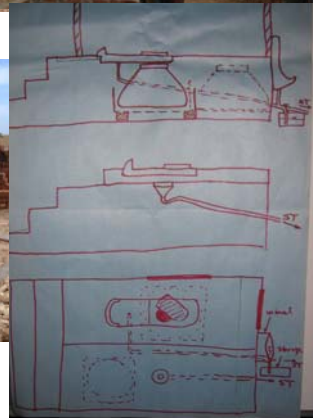
To prevent infiltration of this water before treatment in the filter, the gravel bed is wrapped in plastic sheets from bottom, sides and top. This also prevents flooding during rain.

The filter bed leads to an infiltration point, where large plants withdraw some of the water and nutrients for growth.

The design is flexible, since the course of the filter can be adapted to the available space and landscape.

To reduce the high costs of the plastic Greentec septic tank (18900 LKR), drinking water tanks can be altered to serve as septic tanks. This reduced the cost by approximately 40%. These septic tanks will be installed in future sanitation systems in Thotagamawa.

# Mandana



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In Mandana, the first HFH house has been completed.

The first workers' toilet has been constructed. It has the conventional squatting pan and brick work septic tank design. The second workers' toilet will be a dry urine diversion system. The delay in its construction is due to the unforeseen departure of the instructed mason and future HFH house owner. The construction will be begun upon his return. Thirteen Chinese urine diversion squatting pan models have already been donated by the Lien Foundation through WTO.

A tree nursery has been started, creating fertiliser demand.

**WORLD TOILET**  
ORGANIZATION

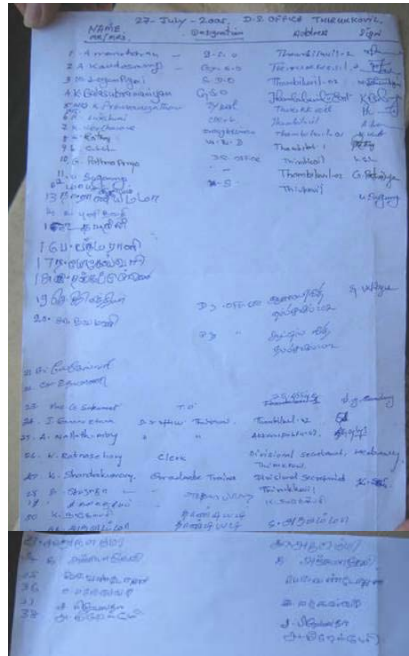
# Mandana

July 26<sup>th</sup> 2005

- Appointment with the Divisional Secretary of Thirukkivil in order to receive the permission to inform the local population and decision makers about the concept of sustainable and ecological sanitation and the possible sanitation options for Mandana

July 27<sup>th</sup> 2005

- Information event with 38 participants: Divisional Secretary, Sub-Divisional Secretaries, staff of Divisional Secretary Office and local population (list on the right)



# Mandana

## Possible Technical Options

- Urine diversion dry toilets
- Household septic tanks with or without biogas production, French-drain-filters for irrigation purposes
- Small treatment plants with/without biogas generation, connecting the houses with a small sewer network
- Water and air tight septic tanks per household, emptying service (truck), treatment plant with/without biogas



# Batticaloa

July 27<sup>th</sup> 2005

- Instruction event at the Boys' Orphanage of Ramakrishna Mission, Batticaloa
  - Participants: more than 60 boy and 20 girl students, Swami Ajaratmananda, 5 Masters, President of HFH-community-Batticaloa, local HFH-staff
  - Discussion about the need of improving their toilet and gardening situation, request for assistance



WTO was introduced to the Ramakrishna Mission by the A.S.R. Thavarajoah, President of the local HFH-office.

The Ramakrishna Mission in Batticaloa is the largest Buddhist center on the east coast of Sri Lanka.

After the tsunami, the number of orphans at the mission greatly increased.

The capacity of the sanitation facilities was not adapted accordingly. Seventy-five boys, from three to twelve years of age, live here together with about 25 workers and supervising personnel.

Several sons of former Habitat house owners are among the orphans.

A similar institution for girls exists across the road.



# Batticaloa

July 28<sup>th</sup> 2005

- Site visit: Boys' Orphanage of Ramakrishna Mission
- Discussion and decision for design improvements
- Detailed cost calculation
- Preparation of implementation to begin next week with assistance from HFH-Batticaloa and WTO



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The Mission produces vegetables and fruits for their own consumption on their grounds.

Urine is collected at a centralised place to be used as fertiliser. The ten "urinals" consist of a concrete platform with indentations which lead the urine into an open channel. The channel leads into a partly covered collection pit.

Not much urine can be collected, due to evaporation resulting in the almost 10 metre long channel. The collection pit was apparently also used to dump other waste. The facility smells.

The design will be improved as follows (sponsored by Lien Foundation through WTO and with support from the HFH-staff in Batticaloa):

A wall, to which ten porcelain urinals will be fixed, will be constructed on the place of the channel. The urine will be led to air-tight collection containers (10 to 20 litre jerry cans) through a pipe. Adequate storage times will be regarded before use as a liquid fertiliser.

The facility will be roofed to protect the pupils against sun and rain during use.

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## Market research for improved sanitation system components

July 15th onwards

- Greentec
- Radiant Concrete Works, Colombo
- Radiant Concrete Works, Balapitiya
- Lanka Hume Pipes Company, Matara
- National PVC Company
- Blue Star Marine Fibreglass Manufacturer



During the second mission to Sri Lanka, the WTO Team contacted local contractors and manufacturers with knowledge about local sanitation system components which can be used or adapted to fit the requirements of sustainable and ecological sanitation systems.

Awareness raising and close cooperation with these partners should lead to the availability of improved and affordable ecological sanitation system components on the market.

Since most of the manufacturer are based in Colombo, it should be encouraged to start local production in distant areas. Alternatively, the manufacturers could be invited to future training courses for local craftsmen. This will hopefully cut transport costs and increase reliable supply and create new jobs.



## Promotion of HFH and WTO's initiative for improved sanitation

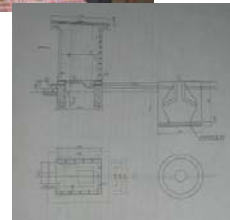
July 19<sup>th</sup> 2005 - onwards

- Alan Wellington, HFH-UK requested assistance with sanitation system design, will construct 9 WTO toilets following the Thotagamuwa pilot design



July 20<sup>th</sup> 2005

- CISP  
Discussion of CISP sanitation system design



## Promotion of HFH and WTO's initiative for improved sanitation

July 22<sup>nd</sup> 2005

- Consortium of Humanitarian Agencies – presentation of HFH-WTO initiative for improved sanitation at CHA operational meeting, approximately 80 participants from over 60 NGOs
- Jeevan Thiagarajah – CHA is supportive of HFH-WTO initiative and requests a general proposal to be formulated by WTO for building local capacity in sustainable sanitation concepts and construction
- Intermediate Technology Development Group (ITDG) – future cooperation in networking for biogas developments and dissemination for on-site sanitation
- Red Cross – expressed interest in capacity building within their organization and for hired contractors



## Promotion of HFH and WTO's initiative for improved sanitation

July 24<sup>th</sup> 2005 - onwards

- Asian Disaster Foundation – will construct future toilets following the Thotagamuwa pilot design
- Salvation Army – expressed interest in capacity building within their organization and for hired contractors
- SARAVA Village (Contractor for Misericordia di Firenze) – interested in WTO designs and will establish contact to Misericordia di Firenze and Italian Civil Protection
- World Vision International – requests offer from WTO team for consultancy



**WORLD TOILET ORGANIZATION**

## Promotion of HFH and WTO's initiative for improved sanitation

July 25<sup>th</sup> 2005

UNDP-organized coordination meeting for house constructing NGOs and donors in the Ampara District. Presentation of HFH-WTO sanitation concepts.

Participating (amongst others):

- MAS Holdings
- UNDP
- TAP Office, Ampara
- Islamic Relief
- Finnish Red Cross
- German Red Cross
- CARE International
- LEADS
- Samaritarian Purse
- Sewalanka
- World Vision International

Many contacts were established.



**WORLD TOILET ORGANIZATION**

## Closing discussion with Tony Senewiratne, HFH-SL National Director, July 29<sup>th</sup> 2005

### Location of the 50 toilets sponsored by the Lien Foundation

- General situation of land distribution to NGOs
- Future cooperation between HFH and WTO

The government is in the responsibility of distributing land for new settlement areas and construction for tsunami affected families to the NGOs. As HFH is not an emergency relief organisation – and instead focuses on long-term impacts – they are not easily assigned lands intended for relief projects.

The work done by WTO (awareness raising, promotion, assessment, design, implementation and knowledge transfer) is greatly appreciated by HFH-SL and will lead to sustainable sanitation solutions within the Lien Foundation's houses. Furthermore, the financing of the Lien Foundation has already contributed to the improvement of sanitation facilities constructed by HFH and other NGOs in the tsunami affected regions.

HFH-SL hopes to continue the successful cooperation with WTO, in regard to their own programme as well as spreading the message to a broader audience in Sri Lanka.



## Closing discussion with Tony Senewiratne, HFH-SL National Director, July 29<sup>th</sup> 2005

### Capacity building and training sessions for HFH and other NGOs

- Who?
- When?
- Financing?

HFH-SL is interested to receive an offer from WTO for a training programme of its staff in sanitation issues, as soon as possible. This training will be financed by HFH's own international funds.

Support will be given by HFH to organise and establish contacts for further capacity building and training sessions for other NGOs.



## Closing discussion with Tony Senewiratne, HFH-SL National Director, July 29<sup>th</sup> 2005

### Development of proposals with estimated budgets

HFH-SL requests the development of sanitation proposals with estimated budgets:

- 1) Urine diversion, dry toilet system
- 2) Urine diversion with septic tank for faeces treatment and wash water, with or without biogas production; urine storage for fertiliser reuse by house owners and/or external farmers.
- 3) Pour flush toilets with septic tanks and different filter options for groundwater recharge and/or irrigation purposes
- 4) Pour-flush toilets with gravity sewer network and treatment plant, with or without biogas production
- 5) Pour-flush toilets with vacuum sewer network and treatment plant, with or without biogas production

