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Solid Waste Management in Trincomalee I

Reconnaissance Mission

INTEGRATED FOOD SECURITY PROGRAMME
TRINCOMALEE

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ABBREVIATIONS

CBO	Community Based Organisation
CEA	Central Environmental Authority
DS	Divisional Secretary
GO	Governmental Organisation
IFSP	Integrated Food Security Programme Trincomalee
MOH	Medical Officer of Health
NGO	Non Governmental Organisation
PHI	Public Health Inspector
PNA	Participatory Needs Assessment
PS	Pradeshiya Sabha
RACLG	Regional Additional Commissioner of Local Government
SWM	Solid Waste Management
T&G	Town & Gravets
UC	Urban Council
UDA	Urban Development Authority

Introduction

The Integrated Food Security Programme Trincomalee (IFSP) has been in operation since August 1998 in the Trincomalee District. Its explicit objective is to support those people at food risk and affected by the conflict to diversify and strengthen their food and income sources and to improve their diet and health care.

The initiatives of the IFSP aim at sustainable improvement of nutrition and food security, better access to services, better health care and finally social integration. These are considered preconditions for peaceful co-existence and cooperation of the ethnic groups¹.

In this, the IFSP has been following a three pronged institutional approach aiming at (a) facilitating participation of the individual beneficiary in decision making, project planning & implementation, (b) capacity building & institutional strengthening of CBOs, as well as (c) governmental (GO) and non-governmental organisations (NGO) considered as “service providing agencies”. This approach – at its three institutional levels – is realised through the implementation of projects, that means “on the job”.

The IFSP defines three main categories of projects for implementation; (1) poverty projects for individual families (2) community projects for infrastructure (3) water and sanitation projects. Complementing cross-sectional programmes address health education – including garbage disposal, nutrition education and village home gardening promotion. The process of prioritising projects has two distinct components (a) selection of villages for IFSP intervention based on poverty & conflict affectedness criteria by IFSP (b) ranking of problems & definition of specific projects through Participatory Needs Assessment (PNA) by villagers of selected villages².

Interventions of the IFSP include the promotion of personal and public health and hygiene. The state of waste disposal and sanitation in the town of Trincomalee and in the larger regional centres and villages is considered critical by the IFSP management³; thus may be detrimental to initiatives supported and/ or implemented by the IFSP.

1 Objective of the “Reconnaissance Mission”

This mission was a reconnaissance mission (12th – 16th February 2001). Its purpose was not to explore issues in great detail but to gain an initial insights into the prevailing situation, people’s attitude, interest and position of respective – mainly governmental - institutions.

The objectives of this mission are to

- (a) Review systems of SWM in Trincomalee District - especially Trincomalee Town and selected larger centres, including attitudes and practices of individual households
- (b) Advise IFSP management on the preparation of a pre-feasibility on SWM in Trincomalee District
- (c) Advise IFSP management & partners on immediate measures on how best to address SWM in the ongoing program.

For detailed tasks of this consultancy refer to Terms of Reference attached (Annex 1).

¹ Dr. Dedo Geinitz; “Conflict Mitigation through Food Security?”; December 2000

² Christine Bigdon, Antonia Engel: “Social Mobilisation Concept for IFSP”; Working Paper 28; April 2000

³ TOR; Annex 1

2 Approach/ Methodology

The objectives of this mission were approached in the following way

(a) Visits to

- Waste disposal site(s), the markets, the slaughterhouse, commercial & residential areas in Trincomalee UC area together with public health & technical staff of the UC; households and a hotel at random (without the presence of local authority officials)
- Proposed location for new landfill site, several relocated settlements in more rural environment, beach village in PS Town & Gravets area and refugee camp with public health & technical staff of the respective PS; households at random (without the presence of local authority officials)
- Commercial & residential neighbourhoods in Sinna Kinniya, Kinniya PS (without the presence of local authority officials)
- Trincomalee Base Hospital

(b) Meetings & Discussions with

- Central government officials
- Health Ministry officials
- Local government officials
- NGO representatives
- Citizens of Trincomalee District
- & management and staff of the IFSP Trincomalee

(c) De-briefing meeting with a SWOT analysis (by participants) on solid waste management in Trincomalee

For details on the schedule of the mission & people met refer to Annex 2; for list of participants of the de-briefing meeting refer to Annex 3.

Recommendations are based on

- (a) insights gained in the above activities
- (b) information obtained through selected IFSP working & technical papers and the general understanding gained on the approach and functioning of the IFSP
- (c) my experience in this country and - to a lesser extent - in other countries in working with local authorities and people on solid waste management and sanitation

My aim is – and this is part of the approach followed in this re-connaissance mission – to make people and organisations start thinking about solid waste, management of solid waste and reflecting on their roles, responsibilities and also opportunities in this.

And finally: to act, to jointly manage waste.

Therefore, visits were not just visits by me but joint visits with those responsible for solid waste management in the areas visited. This way their there was time and opportunity to discuss specific problems and concerns. And, naturally, issues become visible during visits, they cannot be hidden. **A photo documentation is supplementing this paper with “snapshots” of these visits.**

The de-briefing meeting was used not only to give a feed-back on the mission but was an opportunity to jointly analyse the strengths, weaknesses, opportunities and threats (SWOT) of the present situation. This could be the starting point of a co-ordinated approach to solid waste management in Trincomalee.

Initially, this report was to be based on individual observations made during a five day “re-connaissance mission”. With the enthusiasm shown by people met and the need for urgent action, it was felt that this report should outline a specific course of action – even if it has gone beyond the expected length and scope.

It is hoped that this paper would be a useful tool in the approach and process outlined.

3 Solid Waste Management

This chapter combines (a) an introduction to solid waste management (SWM) with (b) an overview on the situation in Trincomalee.

It basically follows the structure used in the de-briefing meeting.

3.1 SWM Policy Sri Lanka

In June 2000 the Government of Sri Lanka established its policy on SWM, the “National Strategy for Solid Waste Management”.

The general directive on how to handle waste material is prioritised as follows;

- 1. Reduce**
- 2. Re – use**
- 3. Re – cycle**
- 4. Dispose ... in sanitary way**

It further promotes energy recovery and bio gas utilisation.

This policy has to be translated into action. To date no town in Sri Lanka can claim to implement SWM in line with this policy. Nevertheless, it provides direction for those bodies responsible for SWM to develop and implement approaches accordingly. Experiences systematically exploring these possibilities will help to identify factors hampering its implementation. This would be a first step in better understanding the frame conditions for policy implementation and could be a stepping-stone for addressing (and re-dressing) those frame conditions.

Further, this policy is gazetted – it is legally binding. This puts those responsible for SWM in a position where action is required.

3.2 SWM Responsibility

The responsibility for SWM is clearly assigned to the **local authority** in the Local Government Acts as e.g. the Urban Council Ordinance. It is part of their responsibility to maintain healthy sanitary living conditions. Local authorities are supported in this through officials of the Ministry of Health, the Public Health Inspectors (PHI) attached to the local authority.

This means that the local authority has to

- (a) co-ordinate and establish what to do with the waste material produced in its area following the guidelines provided in the policy
- (b) develop approaches on how to do it (incl. how to finance it).

It does, however, not mean, that the local authority has to

- (a) do it itself and with their own labour, nor
- (b) fund these activities out of the general budget as it is.

The Urban Council Ordinance specifically provides the power to the local authority to introduce rates and service fees as considered necessary to maintain healthy living conditions.

Local authorities are generally “doers” rather than “co-ordinators” or “supervisors”. As governmental bodies with elected political leadership and operating in every day matters which are everybody’s concern, a change may not be that easy to achieve and – sometimes - not even be encouraged by the political leadership.

3.3 Development & Implementation of SWM Concept & Strategy

Only a process involving the different stakeholders – including citizens - with their specific responsibilities, concerns and also resources has the potential to facilitate the development and finally, implementation of feasible and affordable area and society specific approaches to solid waste management.

The following table outlines basic questions to be answered and decisions to be taken in establishing such a SWM concept and strategy.

SWM CONCEPT	SWM STRATEGY
<p>↳ What? (what waste material is produced?)</p> <p>↳ How much? (how much of each material is ...)</p> <p>↳ What to do with it? (what are the options? what option is presently implemented? what would be the preferred option?)</p>	<p>↳ How to do it?</p> <p>How hazardous? ... for the environment? ... for the health of people?</p>

- (a) “**What**” has several qualities (1) classification by **origin**, e.g. market waste (2) classification by **quality**, e.g. organic waste; packing; which might need further qualification depending on the options under consideration for handling, e.g. short digestible organic material, long digestible organic material and paper, cardboard, polythene packing.
- (b) “**How much**” needs to be established in detail for each type of waste. Note: Amount of waste “Produced” > “Collected”!
- (c) “**What is done with it**” is a crucial aspect of SWM concept and also strategy. Here the qualifying & guiding “**How hazardous**” facilitates evaluation of options.

Note:

This framework was used in the de-briefing meeting to briefly present & understand the present systems of solid waste management in Trincomalee (Refer to Annex 4 for details).

3.4 SWM in Trincomalee

3.4.1 Trincomalee UC

3.4.1.1 Introduction

The Trincomalee UC area is the most urbanised area in the Trincomalee District. It is the district capital and a main administrative centre of the province. It has approximately 87,500 inhabitants and covers an area of 7.5 sq.km.

It is also the commercial centre of the district and has 4 markets including a fish market with a present throughput of 10 t of fish per day.

2/3 of its roads are tarred. The buildings are mainly one or two storey with some exceptions.

The commercial areas are more densely built up in terms of ground coverage than the residential areas. Open areas or gardens are a common feature in residential areas.

3.4.1.2 Solid waste composition

The composition of solid waste is similar to that of other medium size rural towns in Sri Lanka.

More than 80 % of the waste material is biodegradable. Tree cuttings and other garden waste constitute the major share. Plastic material, though very visible, constitutes a very small waste fraction (refer to Annex 5 for survey SWM 1999⁴).

3.4.1.3 Solid waste collection service

The Trincomalee UC provides a solid waste collection & disposal service.

Basically two levels of service can be distinguished (refer to Annex 6 for service coverage)

- Daily collection (80% of UC resources for SWM employed⁵)
- Weekly collection (20% of UC resources for SWM employed)

The daily collection service covers all markets, hospital and slaughterhouse. It seems to be implemented with a fair routine.

The weekly collection service is implemented with less routine according to people's comments.

It is evident that a considerable part of the solid waste produced in the UC area is not handled by the local authority.

3.4.1.4 Solid waste disposal

Waste material collected in the UC area is disposed presently at a site called Alesgarden. The site is located in the neighbouring local authority area (Trincomalee Town & Gravet PS) approximately 4 km north of the UC limits.

The site is operated as an uncontrolled landfill and is located in the upper arm of a lagoon. Waste is directly disposed in this water body. Recently the material was levelled and it is proposed to cover the site with a 9" gravel layer (material is already ordered by UC) to control odour and fly nuisance caused by the site. Smouldering fires are a permanent and far visible feature – though the UC states that the burning of waste is not their objective and not initiated by their organisation.

⁴ Accuracy of this information can't be confirmed. The general waste composition seems adequate, though the fraction of short term digestible material can be assumed to be smaller while the fraction of long term digestible material can be assumed to be bigger. The total amount of waste produced seems to be high.

⁵ Trincomalee UC: 1999 records

In ecological terms and also in terms of human health the site could hardly be at a worse location: It directly pollutes the water of the lagoon and it is obvious that leachate filters into the groundwater. The direct pollution of the lagoon water provides an immediate entry point to the food chain through plants and fish harvested from the lagoon. The burning of waste material adds the problem of uncontrolled release of toxic gases into the air. Considering this, the spreading of small pieces of plastic bags all over the surrounding area by the wind is a minor problem – though the definitely the most visible one.

A new location for a landfill site is proposed and would definitely provide more favourable conditions for the operation of a controlled landfill.

3.4.1.5 Re-use & Recycling

The Trincomalee UC collects cow dung at their slaughterhouse and uses it at the park for landscaping.

After the cyclone end 2000 the UC cleared the town of up-rooted trees and broken branches. This wood was cut and stapled for use on road construction (heating of tar).

Apart from these very commendable initiatives of the UC, no structured approach is followed in terms of recycling. Individuals scavenge material at the landfill site to make a meagre living (approximate income Rs. 50 per day).

3.4.1.6 Budget & staff allocation

Trincomalee UC is engaging 76 labourers, 14 supervisors and Kanganies and 4 PHI in their SWM activities. SWM services are financed by the general budget. Service related fees are not levied. For more details refer to Annex 7.

3.4.2 Pradesheya Sabhas: The example of Trincomalee Town & Gravets PS

3.4.2.1 Introduction

Note:

This PS may be typical for rural centres in the Trincomalee District. Budgets of these local authorities are very limited. Provision of SWM services may rather be oriented along the transport facilities available (made available through central government allocations) than actual requirements.

Though, there may also be two distinct differences (a) centres of other PS may be more urban in their characteristics than the settlements belonging to Town & Gravets, which due to their proximity to Trincomalee do not function as major market places (b) other PS may not have identified disposal sites at all (... though this is a questionable advantage in the case of Towns & Gravets).

The Trincomalee Town & Gravets PS area is a belt of smaller centres and villages around Trincomalee UC area. It has approximately 54,230 inhabitants.

Settlements are fairly dispersed. This area is mainly used for residential purposes and has no important markets. Two major import based industries are located in the PS area; a cement packing plant and a flour plant, which are by far the biggest industries in the area.

Main roads are tarred while many roads connecting smaller settlements are earth roads. Agricultural land intersperses the settlements. Buildings are mainly one and two storey. Open areas around houses and gardens are common features. The overall character of area is rural.

The waste disposal site used by the Trincomalee UC is located in Trincomalee Town & Gravets PS.

3.4.2.2 Solid waste composition

It can safely be assumed that more than 80 to 90% of the waste material is organic. Tree cuttings and other garden waste constitute the bulk of waste produced here (refer to Annex 5 for survey SWM 1999⁶).

Visits to households and inspection of a load of waste transported by the PS tractor reveal an unusually low availability of fresh kitchen waste. e.g. vegetable & fruit waste. This would be in line with observations made by health & nutrition experts that the common diet is unbalanced and lacks fresh vegetables & fruits.

Waste produced at the two major industrial plants, Prima and Mitsui Cement, is not known in terms of quantity or quality.

3.4.2.3 Solid waste collection service

The service of solid waste collection by the Trincomalee T&G PS is provided weekly to the main centres. Service seems to be irregular.

3 loads of waste material are collected daily.

Considering the number of inhabitants it is obvious that most of the waste is not handled by the PS.

3.4.2.4 Solid waste disposal

Waste material collected by the PS is either disposed at the landfill site at Alesgarden (refer 3.4.1.4) or – on request by respective land owners – disposed on private land for filling purposes.

3.4.2.5 Budget & staff allocation

Trincomalee T&G PS has presently engaged 1 tractor with labour crew in their SWM activities.

SWM services are financed by the general budget. Service related fees are not levied.

For more details refer to Annex 7.

3.5 People & SWM

3.5.1 The obvious

By simply driving through a town or area the basic attitude of people living in that area to solid waste becomes obvious: Do people litter? Are roadsides clean or do we find waste scattered all along?

Leaving aside shortcomings in collection and disposal practices of the local authorities for a moment: **No authority can keep a town clean while people litter!**

The sad side in this is also, that a few people not littering do not make the big difference. And, littering becomes so much “easier” if the area is already dirty.

People litter in Trincomalee.

3.5.2 SWM - a question of knowledge and awareness?

People have a general knowledge on relationships between handling of solid waste, environment and health. Basics are taught in school. Conversations with people of different walks of society clearly show their awareness that solid waste is not handled responsibly – including by themselves.

⁶ Accuracy of this information can't be confirmed.

Specific dangers/ impacts of hazardous solid waste handling may not be known by everybody. The fact that “knowledge” does not have an impact on the way waste is handled, is illustrated by the Trincomalee Base Hospital - an institution run by doctors (refer chapter 3.7).

3.5.3 SWM – a question of attitude

More than “knowledge” attitude determines a person’s behaviour in handling waste.

Apart for a very personal attitude towards an issue – that may then actually have its roots in “knowledge”, attitude is formed and experiences reinforcement in groups: Families, neighbourhoods and other formal and informal organisations – which in the end make up society.

Attitudes also have a good potential to spread between groups of society as everybody is member of a number of “groups”. Naturally, “no care & do nothing” attitudes” have an advantage over “care & do something attitudes”.

This explains why positive examples of waste handling cluster, as for example in a neighbourhood visited in Sinna Kinniya (random visit).

3.5.4 People’s approaches

Some general observations ...

People rely heavily on services of the local authorities – however inadequate they may be.

- Waste is disposed at the roadside for collection – even if areas are only serviced irregularly.
- People litter in streets and rely on somebody to clean it.

... and positive initiatives

People also take a pro active attitude and try to manage their waste within their limitations. Both examples were found in one neighbourhood in Sinna Kinniya.

- Household buries all organic kitchen and other waste that quickly decomposes (composting) and plants a banana plant in the pit once it is filled. Residual waste is burnt.
“What is the advantage of collecting all waste and dumping it at all in another place? That is even worse for the environment.”
(Alauwi Moulana, citizen, Sinna Kinniya)
- Several households keep their waste material ready for collection in big bags in their plot – though waste is collected only approximately once in 4 weeks.

3.6 Recent SWM Project Proposals and Initiatives (GO & NGO)

Correspondence on SWM in Trincomalee over the last 1 ½ years reflects the official considerations and proposals made (refer Annex 8).

- | | |
|--------|--|
| 9/1999 | Project proposal to IFSP by DS Trincomalee Town & Gravets – in the capacity of Authorised Officer for UC and PS T&G Trincomalee – for improving basically all aspects of SWM; incl. proposal for manufacture of bio-gas and compost (annexed). |
| 4/2000 | Request by CEA to DS Trincomalee Town & Gravets to identify new landfill site and issue of recommendations on the operation of the present landfill site (annexed). |
| 6/2000 | Proposal by IFSP to fund prefeasibility study on SWM on the condition to receive inputs from responsible government bodies for TOR (annexed) |

- 6/2000 Request by UDA, Eastern Provincial Office, to Chief Secretary, Trincomalee for feasibility study SWM incl. suggestions for improvements and items to be included in prefeasibility study (annexed).
- 6/2000 Proposal by RACLG, Trincomalee sent to Chief Secretary on improvements in SWM (annexed).

Observations:

- (a) No comments were made by the responsible local authorities – nor were local authorities involved (in a documented way) by any of the correspondents.
- (b) Proposals by several Governmental Organisations reflect the lack of a structured approach to SWM in Trincomalee.
- (c) CEA and - to a lesser extent - UDA correspondence have a directive character. How to implement these proposals and achieve the goals outlined remains to a large extent undefined.

Further, it seems that compliance with CEA requests was not further followed up by CEA (For example, it was requested to cover solid waste disposed at landfill site daily with soil. Though solid waste at the landfill site is not covered, CEA did not further pursue this matter.)

Further special initiatives and project proposals by local authorities and NGOs are;

- (a) Two street program by UC Trincomalee (Pilot project to be started now): After clearing all waste from households in two streets (Moor Street & Sarah Street) specified size bins will be given to households and waste material kept in these bins collected regularly. Any additional waste will be collected against a fee.
- (b) Awareness program by UC Trincomalee through announcements on the beach during weekends on segregation of waste at source, composting and recycling.
- (c) Project proposal submitted to Community Environmental Initiatives Facility (CEIF) under the Ministry of Forestry & Environment by Ghandi Sevai Association (with strong individual support by responsible staff of PS) on SWM in T&G Trincomalee (home composting with marketing of compost, operation of scavenging on landfill site & operation of landfill site).

3.7 Trincomalee Base Hospital

Trincomalee Base Hospital is a 342 bed facility catering to an additional number of on average 500 – 600 OPD patients daily. It employs 32 doctors and related supporting health staff (85 nursing officers, 8 midwives, lab technicians, etc).

The hospital further employs 90 sanitary labourers (attendance rate 90%) in 3 shifts throughout day and night for cleaning and maintenance of the hospital. For comparison: This is more than the entire cadre of the Urban Council.

3.7.1 Solid waste production & management: The standard ...

Waste produced at a hospital can basically be classified in two categories

- (a) Household like waste ... produced in kitchens of the hospital, by patients and their families in the wards of the hospital and the hospital staff
- (b) Hospital waste, which can be pathogen and toxic (hazardous) ... originating from operating theatres, treatment and possibly cleaning of patients, medicaments and other chemicals used

While waste of the category (a) can be disposed with the general municipal waste, waste of category (b) has to be disinfected and rendered harmless, which is generally achieved by incineration.

An alternative solution to at least disinfect the pathogen waste would be the controlled burning of waste material if incineration is not feasible due to for example financial constraints. The issue of toxic waste handling could not be addressed this way.

3.7.2 ... and the practice at the Trincomalee Base Hospital

Waste is not segregated into the two waste categories above.

All waste is kept for collection by the UC – partly in half-barrels partly dispersed on the ground and smouldering. A very small amount of waste (maximum 1 wastepaper bin) is partly burnt in a pit. This is obviously not done regularly as there are hardly any ash residues.

The former incinerator – rather a controlled burner - is not operated (reason unknown).

Waste material is also scattered in the back of the hospital.

Waste material including pathogen and other hazardous hospital waste is, together with the common municipal refuse disposed at Alesgarden site, an environmentally extremely sensitive site.

3.7.3 Wastewater & sewage disposal

Sewage lines and drains are not maintained at the hospital. A sewage manhole overflows into wastewater drains that directly drain into the sea. These problems remain unattended (clearly visible by the deposits of human waste).

Wastewater and stormwater drains are not cleaned and water (wastewater partly mixed with raw sewage) stagnates in the drains throughout the hospital premises.

The former sewage treatment and disposal system - a septic tank followed by a horizontal infiltration system – is out of operation for several years.

3.7.4 Views of hospital staff on the sanitary conditions of the hospital ...

Prior to visiting the premises of the Base Hospital the Acting MOH responsible for the Hospital and a supervisor were asked to (a) judge the overall sanitary conditions of the hospital and (b) outline main reasons.

Their judgements on the sanitary conditions were “ ... clean, but could be better “ and “...moderately clean, can improve a lot”.

The underlying problems/ reasons identified were (a) disposal of waste (b) sewage system (c) underutilisation of manpower (d) poor attitude of labourers (e) limited overtime payment (f) present military situation (g) no close supervision (h) no gardeners.

3.7.5 ... on knowledge and awareness and the fact that there are no links to responsible handling of solid and liquid waste ...

Hospitals are run by doctors, health professionals who can be considered a part of the more knowledgeable section of society on health and sanitation issues.

Without doubt, doctors can also be considered aware of the health and environmental consequences and dangers of (a) hazardous solid waste management practices, (b) the disposal of untreated wastewater and sewage into the sea and (c) stagnating waste- and also rainwater. Also during this mission health professionals never failed to stress the dangers of mosquito breeding in these waters, the uncontrolled disposal of waste at roadsides and at the landfill site.

The management of solid and liquid waste could hardly be worse. The hospital management has almost totally neglected these two important issues. What is most alarming is that nobody

feels responsible for the operation and maintenance of liquid and solid waste at the hospital. It must be mentioned that, it is naïve to expect to solve these problems merely by installing an incinerator. The problems have to be addressed as (a) hygiene and (b) waste management issues at hospitals.

3.8 SWOT Analysis

During the de-briefing meeting the solid waste management situation in Trincomalee was jointly analysed (refer Annex 3 for list of participants).

Solid Waste Management in Trincomalee	
<p style="text-align: center;">strengths</p> <ul style="list-style-type: none"> ↳ Increasing no. of NGOs is concerned ↳ Some kind of “system” is in place/ functioning ↳ Infrastructure & institutional set-up already in existence ↳ People’s awareness ↳ Proposals & ideas on local authority and people’s part ↳ Local authority (UC Trincomalee) managed to cope-up tremendous work after cyclone (dedication of workers) ↳ Existing standard bye-laws of local authorities 	<p style="text-align: center;">weaknesses</p> <ul style="list-style-type: none"> ↳ Disposal of waste in existing manner ↳ Lack of staff, equipment and funds (local authority) ↳ People don’t care. They expect government to do it free of charge. ↳ Lack of concept & strategy ↳ Lack of proper knowledge about garbage. People to be educated. ↳ Lack of communication (between local authorities & local authority and sectoral agencies)
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>↳ “lifestyle” of people</p> </div>	
<p style="text-align: center;">opportunities</p> <ul style="list-style-type: none"> ↳ Meeting of official stakeholders (today’s meeting) ↳ UC can practice existing rules & regulations ↳ Establish contact/ dialogue with Vavuniya UC ↳ Privatisation <p>... year 2001</p> <ul style="list-style-type: none"> ↳ Concept development ↳ Implementation of pilot projects ↳ Explore options (technical, financial,...) 	<p style="text-align: center;">threats</p> <ul style="list-style-type: none"> ↳ Unco-ordinated & uncontrolled activities & action ↳ Political interference ↳ Privatisation [remark: this is a local authority contribution] ↳ “departmentalised” views (nobody feels responsible) ↳ people are not ready – protests (e.g. against new landfill site) ↳ no disposal site ↳ security problem

4 Sewage and Wastewater Management in Trincomalee

Trincomalee has no central sewage and wastewater disposal system.

Sewage (effluent from toilets) is treated on the individual plot in septic tank systems. Septic tank effluent – according to the regulations – has to be disposed of by infiltration into the soil. It can be assumed that most systems adhere to this.

Septic tanks have to be de-sludged regularly. This service is provided by the UC which then disposes of the sludge at the waste disposal site at Alesgarden.

Wastewater (effluent from baths, kitchens, etc) is often disposed into open road side drains, where possible. Water is finally drained to the sea surrounding Trincomalee. The local authority tolerates this way of handling wastewater. It should be either (a) treated with the sewage in the septic tank (optimum option, not made a regulation) and subsequently infiltrated into the soil or (b) infiltrated into the soil without treatment.

Several **stormwater drainage systems** cover major parts of Trincomalee town. These systems are heavily used for wastewater disposal. The dry-weather-flow (100% wastewater) is steady and substantial in most areas. Cleaning of drains is handled by the UC and seems to be fairly good & regular.

Any planning in the field of stormwater/ surface drainage has to address the question of wastewater management.

5 Sketch approach to further work on SWM in Trincomalee

A practical approach to facilitate & foster the improvement of SWM in Trincomalee District could be outlined as follows:

5.1 General Considerations

(a) Management of solid waste is a complex issue that requires a co-ordinated approach to development and implementation of context specific concepts & strategies.

Therefore: A platform/ forum has to be identified or created that facilitates a broad based development of SWM concepts and strategies and that may later perform a steering function. It is of immense importance that strategies are understood and supported by all main stakeholders.

(b) Management of solid waste (& also liquid waste) gains importance with increasing concentration of population.

Therefore: Different approaches for different levels of population concentration are necessary & have to be identified.

(c) Management of solid waste involves different levels of actors & responsibilities

Therefore: Structures, approaches & instruments have to be identified that are best suited to reach/ involve the respective actors & to facilitate the taking over of their respective responsibilities.

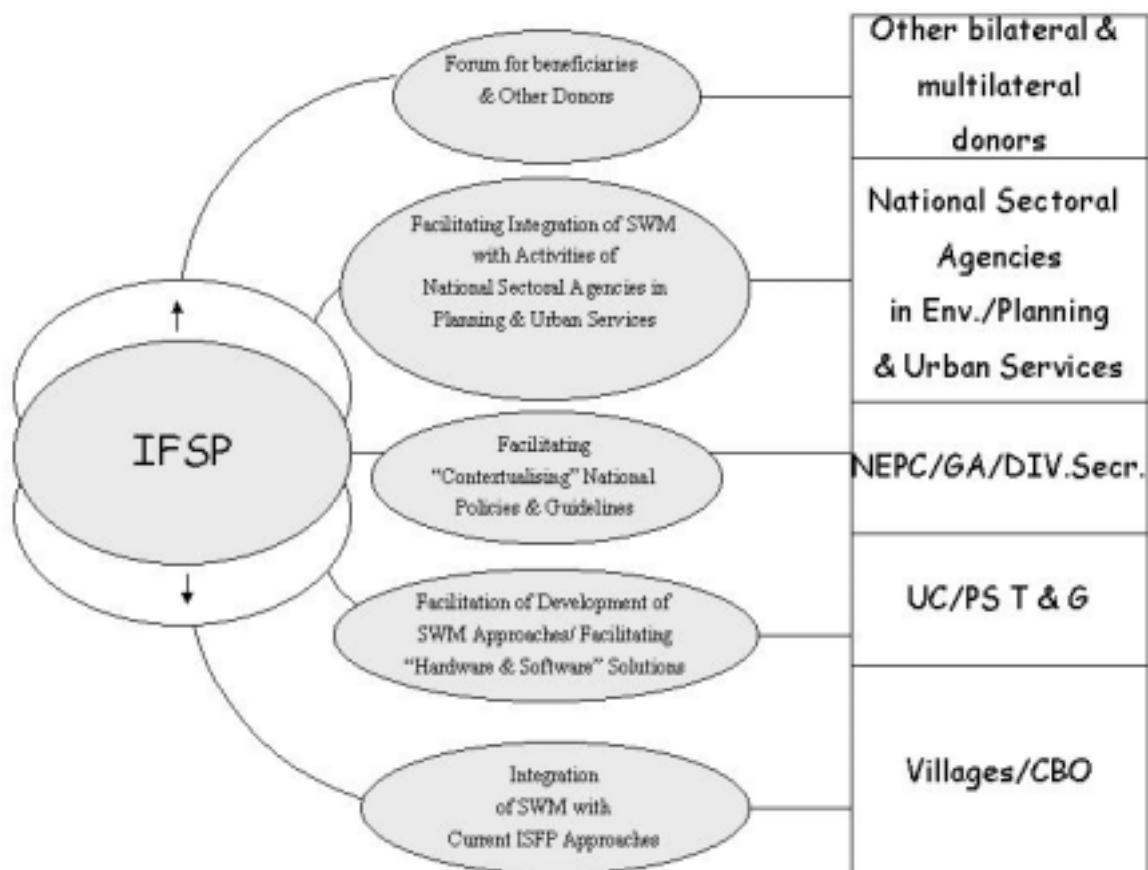
5.2 Proposed Approach for IFSP in SWM

The basic **overall approach to SWM in Trincomalee** could be outlined as,

- Develop SWM concept & strategy
- Commence implementation of SWM concept & strategy through pilot initiatives
- Research possible options for major key issues in SWM in Trincomalee - in the context of concept & strategy development - that would also require substantial investment, (a) controlled solid waste disposal (b) composting/ recycling of organic material (c) rehabilitation of existing landfill site(s) & raise funds
- Implementation SWM concept (incl. building, operation and maintenance of infrastructure)

In this the **IFSP could play a facilitating role**. A number of strengths of IFSP could be used to foster improvements in SWM in Trincomalee. The three pronged institutional approach of the IFSP, to support development at (a) target group, (b) CBO and (c) “service provider” level could also be adopted in the approach to SWM.

The diagram outlines the different roles IFSP could assume, especially with different stakeholders operating at different “levels” to support improvements in SWM in Trincomalee.



While some of the above roles will develop only gradually, the following points outline those **initiatives that could commence immediately**.

The SWOT analysis carried out and the general readiness to address SWM demonstrated by the participants of the de-briefing session indicate the feasibility of the proposed approach.

- **Facilitate consultative approach for development of SWM concept & strategy.**

It is important that no individual or single organisation develops concept or strategy. Parties that would be involved in this process have their statutory responsibilities in respect to SWM. IFSP would not take over any responsibilities in SWM but, support the process with, for example, moderation of the process.

This would happen at basically two different levels.

- (a) Trincomalee UC and T&G PS: These would be local authorities with whom IFSP, so far, has had hardly any contact due to IFSP criteria for village selection.
- (b) Other PS and individual villages: In IFSP selected villages and clusters support of development of joint SWM approaches as part of cross sectional program on health.

- **Facilitate implementation of pilot initiatives in SWM**

All organisations involved would steer their project implementations according to concept & strategy developed. Also here, IFSP would not take over anybody's responsibilities but, only assume the role of a facilitator.

IFSP would be in a position to facilitate pilot initiatives in the following way.

- (a) In PNA villages and other IFSP intervention areas: incorporation of SWM projects into community infrastructure projects or water and sanitation projects.
- (b) In Trincomalee UC and T&G PS:
 - relaxation of IFSP selection criteria to facilitate support of local initiatives also in the more urban areas – which are affected most
 - conceptually support other agencies in their project development, implementation, M&E

- **Facilitate pre-feasibility study (or studies) for infrastructure projects**

IFSP has offered the funding of a pre-feasibility study on SWM under the condition that Terms of Reference are developed by the responsible bodies. The approach proposed here - including the participative process of SWM concept and strategy development and the implementation of relevant pilot projects – addresses major issues to be explored in a pre-feasibility. Nevertheless, there are issues that have to be addressed in the more “traditional” and less participative form of studies.

These would include at minimum – more areas may be identified during the development of SWM concept,

- i. Sanitary landfill site
- ii. Composting of organic municipal waste material
- iii. Rehabilitation of existing landfill site(s)

Aspects covered in these studies would include,

- Technical feasibility incl. site selection, proposal for standards and environmental monitoring
- Conceptual design
- Financial and economic project analysis

5.3 Proposed Time Schedule

It is important to start with the development of concept and strategy to structure the other two main areas of initial activity: pilot projects and pre-feasibility studies.

Especially discussions and other activities in respect to a new sanitary landfill site have to be introduced in the context of a SWM concept. Otherwise a high level of resistance by especially people residing or owning land in relative proximity to the proposed landfill site has to be expected. This could be a severe hindrance to the implementation of the entire concept.

The implementation of pilot projects also has the effect of **building trust that a change in approaches to SWM is actually taking place**. Emphasis here should be on local initiatives promoting the avoidance of waste, recycling of organic and other material and clean neighbourhoods in general.

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
SWM concept & strategy	X	X	X	X			X			X		
Pilot initiatives	X	X	X	X	X	X	X	X	X	X	X	X
SWM Infrastructure Dev.												
• Construct plant			PF	PF	D (2); T (2); C (6)							
• New landfill site			PF	PF	PF	D (3); T (3); C (9)						
• Rehab. landfill site(s)			PF	PF	PF	PF	D (4); T (3); C (??)					

PF pre-feasibility study



fund raising

D design & (duration in months)

T tender & (duration in months)

C construction & (duration in months)

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