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Solid Waste Management II

Concepts and Strategies for Villages in Trincomalee District

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1.0 INTRODUCTION

Improvements to Solid Waste Management (SWM) in selected villages in Trincomalee is the second part of the present study. As in other parts of the country, the villages in Trincomalee come under the jurisdiction of LAs for all aspects of sanitation and “public services”. In general, villages, however, do not receive any regular “public service” such as SWM and, those in Trincomalee are no exception.

While there are numerous definitions to a village, the term villages is used here to identify settlements in the LAs that do not receive any SWM services, irrespective of the location or densities of population, some common characteristics used in other situations to distinguish villages and urban areas. For example, Vaddam, a settlement at the boat pier at Muthur, though situated at a busy road and boat transport link and within the PS Muthur area, it can be termed a village, since PS Muthur does not provide any SWM services at Vaddam.

Though coming under LAs, almost all the inhabitants of the villages do not pay the taxes levied by PS. Since the tax collection system is extremely weak, the reason for not providing SWM services cannot be attributed to nonpaying of taxes by local authorities. While the level of tax collection in residential areas around some market centers in PS areas are as low as those in villages, the former enjoy higher level of SWM services which can be mainly attributed to their proximity to the market centres and to the main roads served by the LAs. (personal comm. with LA officials, 2001).

In addition to the inability of LAs to provide SWM services, civil disturbances and ethnic conflict in the district have further compounded the health and sanitation situation in villages. The large majority of villages are situated at remote locations more often than not have become theatres of conflict. It has affected the health and sanitation conditions in villages due to (a) weakening of own capabilities to maintain even basic standards by the inhabitants and (b) reduced ability by service providers such as LAs and other governmental agencies to reach the village populations.

In this context, the collective role of NGOs, both local and international, in assisting in the improvement of basic conditions and promoting the revival of the socio-economic process in villages has become increasingly important. As mentioned above, this exercise has been initiated with the premise that SWM is a key aspect in health and sanitation in villages in the Trincomalee district. This has been initiated with a view to assist the village communities, the donors and IFSP itself in formulating coherent strategies in improving SWM in villages.

1.1 Scope of the Study

As mentioned in section A (MAIN INTRO), the entire exercise on villages were founded on the key guiding questions “what”, how much”, and “what to do with it”. For the elaboration of concepts, the village of Periyakulam in Kuchcheveli was selected as a case study and, its community leaders, office bearers of the Rural Development Society (RDS) were invited to participate in the study and the workshop sessions. One of the key reasons for selecting Periyakulam as the participating village was its familiarity and experience with the interrelated issues of public health and infrastructure services such as water supply and disposal of human waste. Periyakulam has been engaged in a community water supply project in association with IFSP/GTZ and national water supply and drainage board (NWSDB) in obtaining a pipe borne water supply system with a network of water standposts for the village while meeting substantial capital costs and the total operating costs. (personal communication with IFSP staff, 2001)

During the exploration of the present SWM systems in the villages the team of consultants together with the IFSP staff and representatives of other stakeholders also visited a series of

villages in the Pradeshiya Sabhas of Town & Gravets, Kantale and Muthur. This enabled the team to obtain first hand information on the SWM situation in the villages, as information on SWM in villages has not been well documented so far.

Considering the differences in the geographical, socio-economic as well as ethnic and cultural contexts of the villages in the Trincomalee district, the main scope of the component on villages was identified as outlining broad concepts and strategies for SWM. It is expected that the broad outlines provided here will provide a useful base to formulate specific instruments and strategies to suit the specific village contexts. As the emphasis was on outlining broad contours of approaches, no specific studies involving waste analysis, number of households and inhabitants in settlements and their population patterns were carried out. Instead the focus was on initiating and guiding a dialogue among the main stakeholders, namely, the inhabitants through the community leaders, governmental and non governmental service providers such as public health inspectors and community mobilisers.

1.2 Approach and Methodology

As in the component for participating local authorities, the approach to the assignment was based on the following principles:

- **Responsible involvement of stakeholders** in fact finding, discussions and – finally - decision making throughout the process to facilitate “ownership” among the stakeholders for concepts and strategies developed.
- Continuous **visualisation** of facts, ideas and the overall process of concept development to facilitate a well founded and structured participatory process.
- Only a process involving the different stakeholders - including the inhabitants – with their specific responsibilities, concerns and also resources has the potential to facilitate the development and finally, implementation of feasible and viable area and society specific approaches to SWM.

1.2.1 SWM Concept and Strategy for Villages in Trincomalee

The process of “development of SWM concept and strategy” has to be understood in relation to the above. The term “concept” here refers to an overall “vision” of developing approaches that has to be taken as a whole. With the emphasis on creating a sense of “ownership” of the SWM concept among the main stakeholders, it is expected that basic mechanism has been initiated for a regular exchange of ideas and views on specific projects and strategies based on the jointly developed SWM concepts.

The diagram below illustrates the basic issues to be addressed and decisions to be made in formulating such a concept and strategy.

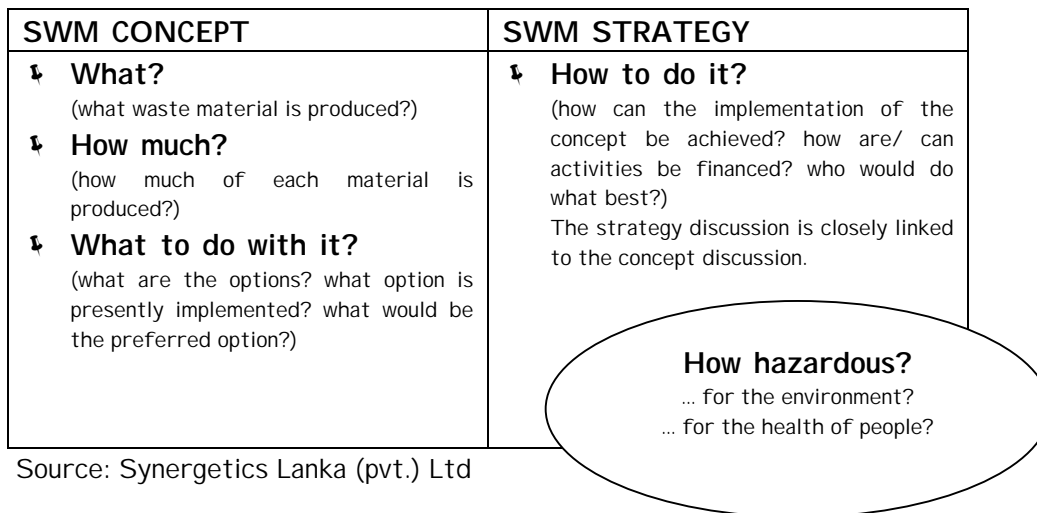


Fig.1.1 SWM Concept & Strategy

In the component for SWM in village, however, the issues around “how much” were not addressed in detail. This was primarily due to non availability of trained staff or volunteers in villages to work together with the consultancy team to carry out waste sampling and analysis within the time period allocated for the assignment.

1.2.2 SWM in Villages as a Service

In parallel with the guiding questions of “what”, “how much” and “what to do with it”, a number of other aspects have also been taken into account. In the approach and methodology adopted, to analyse the present SWM situation in villages in Trincomalee and formulate improvements, “SWM as a service” was a central feature. SWM as a service means, it is a service that has to be produced with human and material inputs. Viewed in this context, it was possible to identify and bring to focus (a) the way in which SWM is produced in villages, especially in the absence of formal agencies such as local authorities (b) how and what interlinks production of SWM services have with other dimensions such as the general health and environment and (c) what are the underlying reasons for relative successes and drawbacks in the present SWM systems in villages.

Taking SWM in villages as a service, it was possible to outline the activities in different components of its production.

Scenario 1: garden waste within homeplots

Activities:

1. Sweeping of garden area in homeplot
2. Collection and Carrying the waste to dumping pit within the homeplot
3. Covering the waste after dumping in the pit

Scenario 2: waste from common open spaces in the village

Activities:

1. Sweeping of the common area
2. Collection and Carrying the waste to dumping pit in or around the village
3. Covering the waste after dumping in the pit

It is clear from the above scenarios, these activities have to be “produced”, in order to carry out SWM. As LAs do not provide SWM services in villages, inhabitants have to produce these activities themselves.

In discussing the issues related to way in which SWM is organised in villages, the characteristics of SWM as a public good was also taken into account. Considering the way in which SWM is carried out in the villages in Trincomalee, it is possible to identify that it shows many characteristics of a public good.

Based on some of the main characteristics of public goods such as (a) high cost of exclusion and (b) non rival consumption as outlined in section A, its relevance to SWM in villages in Trincomalee can be illustrated as shown in the fig.1.2

As the diagram shows, two major criteria used here have been (a) exclusion from obtaining the services and (b) rival and non rival consumption. As examples from a typical village reveal, it is relatively easy to exclude a person from obtaining the benefits of an individual toilet than a common toilet. Similarly, obtaining the services of an individual toilet by some may affect the chances of some others enjoying the same, which is termed rival consumption. Compared with that, waste collection in common areas can be identified as a service which is (a) relatively infeasible to exclude any inhabitant from enjoying and (b) non rival in consumption making it the one with most characteristics of a public good.

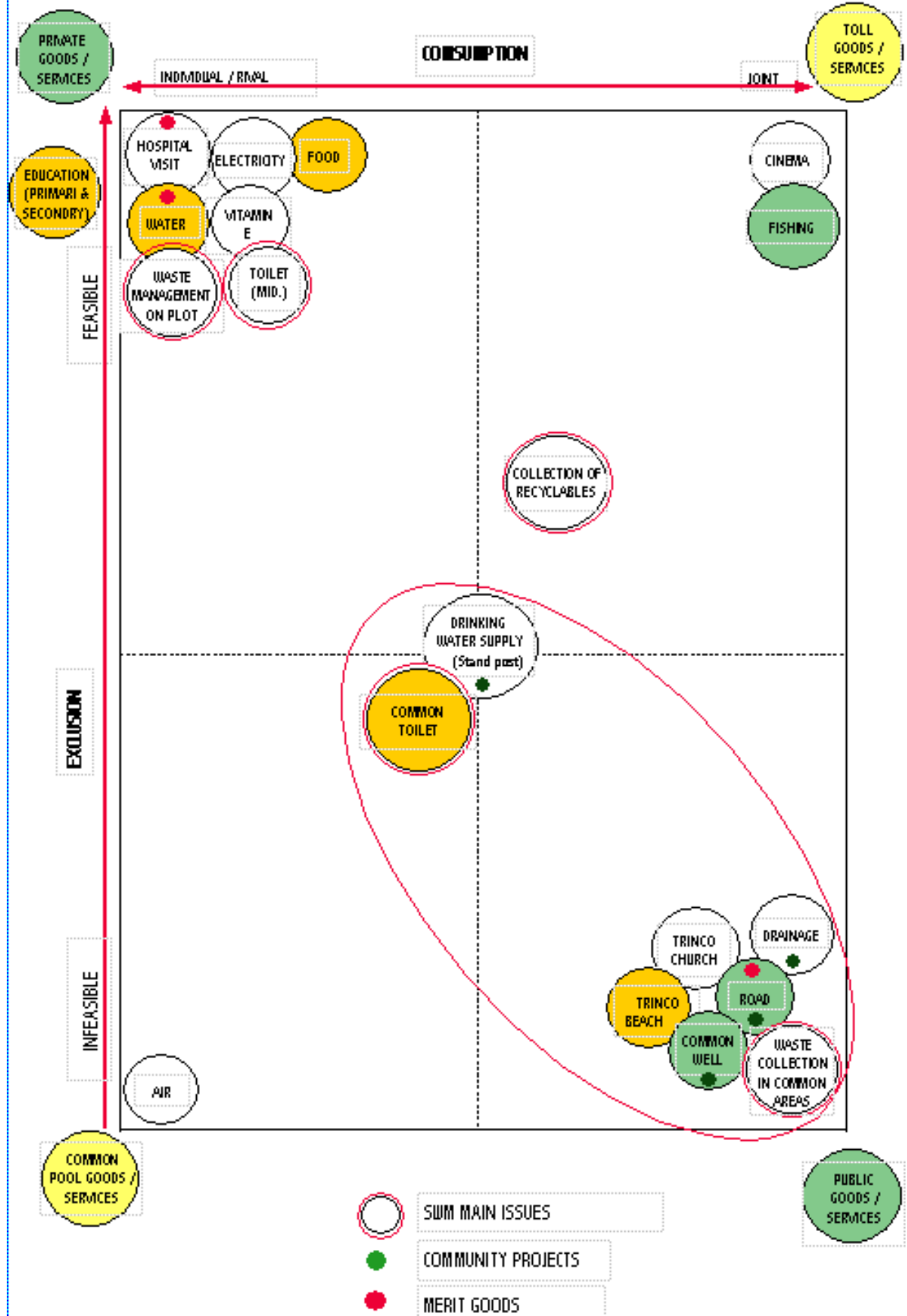
In the approach to the study, the implications of SWM in villages as a public good have been examined, especially in the absence of a general service provider such as a local authority. In examining the implications, the concept of “Collective Action” was adopted as an instrument. As Hardin observes, the concept of collective action is based on the premise “individual actions are motivated by self interest affecting collective outcomes”. (Hardin, 1982) This becomes especially relevant for SWM in villages for two main reasons. They are (a) it is difficult to exclude individuals and groups in villages who are not actually producing the services, commonly referred to as “free riders”, from enjoying the benefits and (b) to obtain benefits from SWM, both in terms of reducing the impact on people’s health and the environment, it is important that the village as a whole is participating.

In approaching villages as “households acting in self interest”, it was observed that a widely held theory – group theory of politics – that a group of people with a common interest will take action to further that interest (Hardin,1982) – lacks validity in this context, as it does not match with the actual situation in villages. It is especially relevant to SWM in villages, as it is a commonly held view that since improving solid waste management benefits the village as a whole, it is natural to expect every inhabitant to actively support and participate in it.

1.3 Structure of Assignment

The structure of the assignment, based on the above framework, had the following major components: (a) identifying the present SWM system in a typical village in Trincomalee (b) formulation and operationalising of alternative options (d) identification and formulation of preliminary proposals for priority areas of improvements in SWM in villages. The structure of the assignment has many similarities to the component for the local authorities. For the two parts of the study, namely (a) local authorities and (b) villages to be used as independent volumes, some technical explanations mentioned in the section on the local authorities are reproduced here.

FIG. PUBLIC & PRIVATE GOODS IN SWM IN VILLEGES



2.0 THE PRESENT SWM SITUATION IN VILLAGES IN TRINCOMALEE

Examining the present SWM system in villages was a key step in assessing its key aspects and formulate concepts and strategies for improvements.

As mentioned in 1.2.1 it was carried out with the help of the following guiding questions (a) what (b) how much and (c) what to do with it. This was especially useful in joint establishment of the present situation of SWM with the participation of the representatives of the main stakeholders.

2.1 What, How Much and What to Do With It?

With the help of the question “what are the types of waste generated in typical villages?” the participants of the workshop identified the following waste types generated in villages. With the guiding question “Are they in large quantities or in small quantities?” it was possible to obtain a basic idea on the quantities of the main types of waste. “What is presently being done with the waste?” was used to identify the main features of the different waste streams in the village including the way in which they are disposed.

Type of waste	What is presently being done with the waste ?
<i>In large quantities</i>	
Tree branches & leaves	Dry branches used as firewood leaves not collected in common areas leaves partly burnt
Dead animals (dry season & wet season)	Buried by owner (in own land or private land) goats, dogs, cats buried close to lime trees (by village leaders in close by house)
Animal waste e.g. cow dung	Goat dung & cow dung used as a fertilizer cow dung used for house repairs
Human waste	Toilets available 50/90 (in Periyakulam) buried in village (Muslim custom) ? left in or outside village
Coconut husk	Used as firewood and fertilizer
Coconut shells	Used as firewood used for making spoons
Scraped coconut waste	Used as chicken feed & cow feed collected by chicken farmers used for 'kolam' decorations ? dumped at backyard or on road
Onion green leaves after harvesting (seasonal)	Partly used for vegetable curry left in land as fertilizer burnt if brought to village
Dust... brick making, etc (seasonal)	Nothing is done with it ? (asthmatic problems)
Paddy husk & straw (seasonal)	Straw- cow feed, roofs, fertilizer husk- poultry, farming burnt

<i>In small quantities</i>	
Used tyres & tubes	Bicycle tyres are burnt used as weight for roof sheets
Tins	Used for kitchen purpose Burnt
Plastic bottles	Used for kitchen purpose poison plastic bottles are burnt ? hanging around all over the place
Shopping bags	Reused & burnt flying & hanging around all over the place eaten by dogs (with fish & meat items)
Cooked food	Used as animal feed (crows eat)
Used paper, soiled paper	Throw outside, later sweep & burn burnt daily in some places
Fish & meat waste (depends on village)	Used as crab feed fish etc is cleaned outside the house & eaten by animals
Used vehicle oils	Used as impregnation for foundation & wood burnt with other waste
Empty chemical bottles (pesticides)	Reuse for refilling just leave it in the field kerosene lamps
Broken bottles, glasses	Buried in pits
Kadjan waste	Reused for fencing burnt dumped at backyard
Construction debris	Used for filling purposes reused in buildings (mud walls)
Ashes from kitchen	Apply on pots used as pesticides dumped at backyard

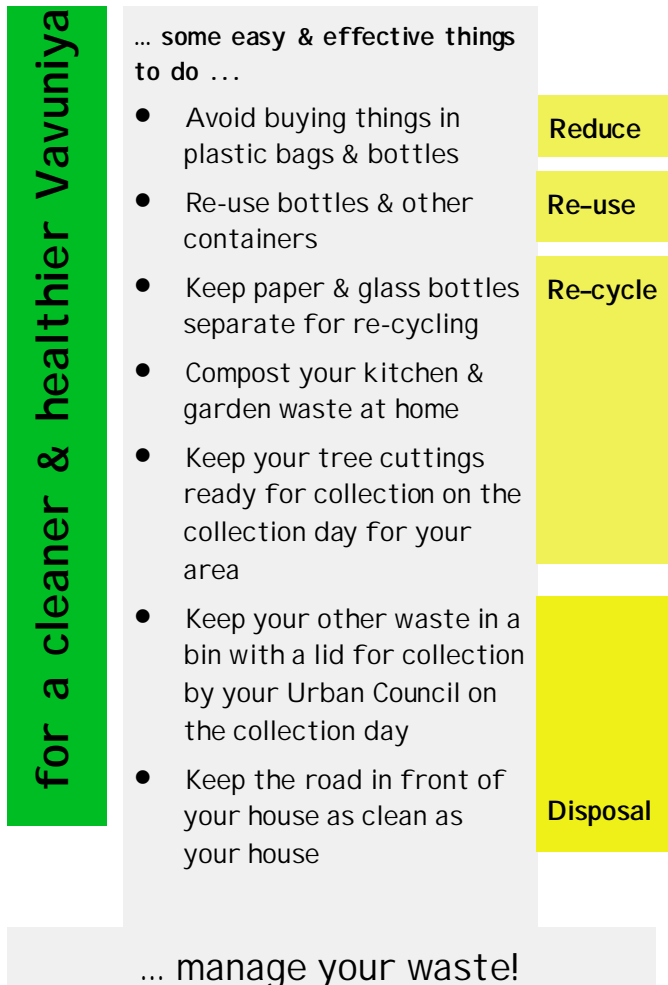
Fig.2.1 Types of waste generated in villages jointly identified with the stakeholders

Based on the above, the following observations have been made during the workshop.

- (a) Several practices found in villages (e.g. burning leaves and branches) are harmful to health of inhabitants and environment
- (b) Human waste was a main waste type found in villages.
- (c) Village inhabitants manage substantial part of household waste themselves
- (d) The waste streams from the sources of waste generation to final disposal is relatively short as almost all the waste is retained within the village
- (e) Major waste types found in large quantities were not waste such as chemical waste that required special treatment

3.0 TOWARDS A SWM CONCEPT FOR VILLAGES IN TRINCOMALEE: ALTERNATIVE PROPOSALS FOR SWM

The alternative proposals for SWM in villages were formulated taking the following main aspects into account: (a) how to adopt 3Rs in SWM, namely, reduce, reuse and recycle (b) how to reduce the impact on public health and environment and (c) who is responsible for managing the different waste types?



The key reasons why reduce, reuse and recycle of waste become important in alternative options are that they result in less waste to be handled in collection, transport and final disposal. These aspects become important because by reducing the amount of waste (a) impact of waste on people and environment as well as (a) the cost of managing waste can be lowered. While reducing the amount of waste generated at source is common to each category of waste, reuse of glass bottles and polythene bags and recycling of plastic and polythene can be termed as examples of the other two.

The extent to which the impact on public health and environment is reduced is another important aspect. Special attention was paid on management of human waste in villages, considering its serious and widespread impact on inhabitants' health and the environment.

Source: Synergetics Lanka (pvt.) Ltd (prepared for Vavuniya)

Fig.3.1 3Rs...alternative options of managing waste

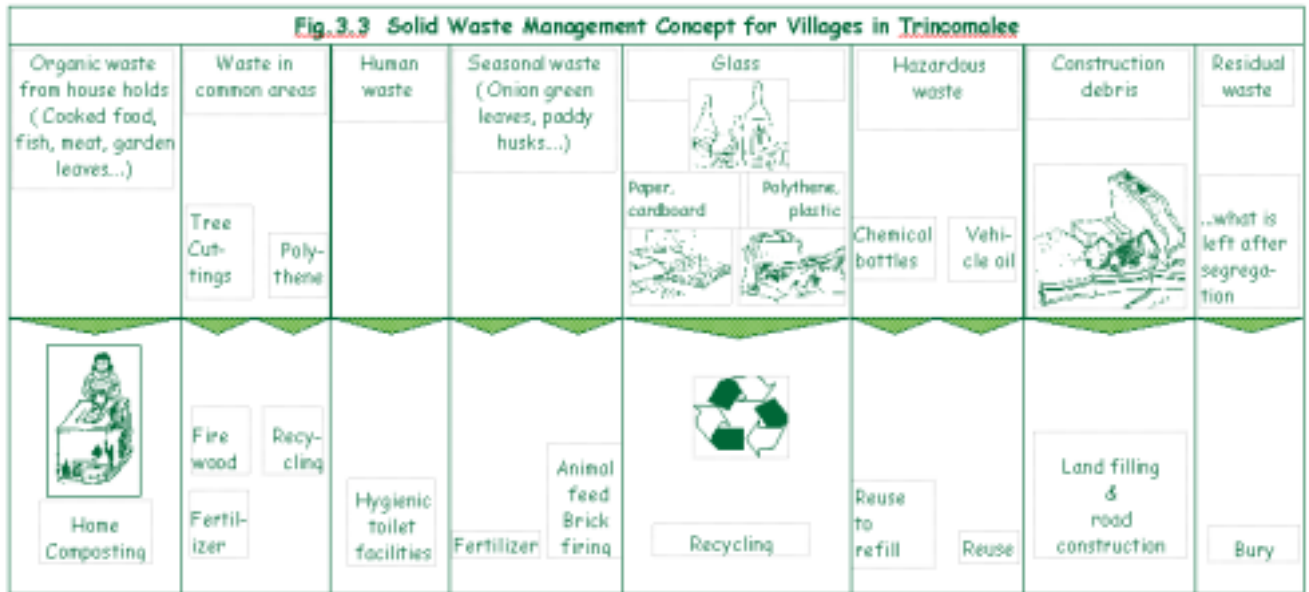
The fig.3.2 shows the observations by the workshop participants on the current practices on SWM in villages. Fig.3.3 show how the waste from the main sources has to be handled to ensure that the impact on public health and the environment is minimal as developed by the workshop participants.

This shows that waste from same source, if they are of different types, have to be taken through separate waste streams. For example, organic waste and old newspapers coming from the same household have to be directed to different systems, the former for composting and the latter for reuse or recycling.

Type of waste	Good & Bad Options
Tree branches & leaves	<ul style="list-style-type: none"> ✓ Dry branches used as firewood ✗ Leaves not collected in common areas ✗ Leaves partly burnt
Dead animals (dry season & wet season)	<ul style="list-style-type: none"> ✓ Buried by owner (in own land or private land) ✓ Goats, dogs, cats buried close to lime trees (by village leaders in close by house)
Animal waste e.g. cow dung	<ul style="list-style-type: none"> ✓ Goat dung & cow dung used as a fertilizer ✓ Cow dung used for house repairs
Human waste	<ul style="list-style-type: none"> ✓ Toilets available 50/90 (in Periyakulam) ✓ Buried in village (Muslim custom) ? ✗ Left in or outside village
Coconut husk	<ul style="list-style-type: none"> ✓ Used as firewood and fertilizer
Coconut shells	<ul style="list-style-type: none"> ✓ Used as firewood <p>Used for making spoons</p>
Scraped coconut waste	<ul style="list-style-type: none"> ✓ Used as chicken feed & cow feed ✓ Collected by chicken farmers ✓ Used for 'kolam' decorations ? ✗ Dumped at backyard or on road
Onion green leaves after harvesting (seasonal)	<ul style="list-style-type: none"> ✓ Partly used for vegetable curry ✓ Left in land as fertilizer ✗ Burnt if brought to village
Dust... brick making, etc (seasonal)	<ul style="list-style-type: none"> ✗ Nothing is done with it ? (asthmatic problems)
Paddy husk & straw (seasonal)	<ul style="list-style-type: none"> ✓ Straw- cow feed, roofs, fertilizer ✓ Husk- poultry, farming ✗ Burnt
Used tyres & tubes	<ul style="list-style-type: none"> ✗ Bicycle tyres are burnt ✗ Used as weight for roof sheets
Tins	<ul style="list-style-type: none"> ✓ Used for kitchen purpose ✗ Burnt
Plastic bottles	<ul style="list-style-type: none"> ✓ Used for kitchen purpose ✓ Poison plastic bottles are burnt ? ✗ Hanging around all over the place
Shopping bags	<ul style="list-style-type: none"> ✓ Reused & burnt ✗ Flying & hanging around all over the place ✗ Eaten by dogs (with fish & meat items)
Cooked food	<ul style="list-style-type: none"> ✓ Used as animal feed (crows eat)
Used paper, soiled paper	<ul style="list-style-type: none"> ✗ Throw outside, later sweep & burn ✗ Burnt daily in some places
Fish & meat waste (depends on village)	<ul style="list-style-type: none"> ✓ Used as crab feed ✗ Fish etc is cleaned outside the house & eaten by animals
Used vehicle oils	<ul style="list-style-type: none"> ✓ Used as impregnation for foundation & wood ✗ Burnt with other waste
Empty chemical bottles (pesticides)	<ul style="list-style-type: none"> ✓ Reuse for refilling ✗ Just leave it in the field ✗ Kerosene lamps
Broken bottles, glasses	<ul style="list-style-type: none"> ✓ Buried in pits
Kadjan waste	<ul style="list-style-type: none"> ✓ Reused for fencing ✗ Burnt ✗ Dumped at backyard
Construction debris	<ul style="list-style-type: none"> ✓ Used for filling purposes ✓ Reused in buildings (mud walls)
Ashes from kitchen	<ul style="list-style-type: none"> ✓ Apply on pots ✓ Used as pesticides ✗ Dumped at backyard

Fig.3.2 Good & bad options of handling waste in villages jointly identified with the stakeholders

Fig. 3.3 Solid Waste Management Concept for Villages in Trincomalee



DESIGNED BY: VIGNANATHAN & ASSOCIATES (PVT) LTD., COLOMBO, SRI LANKA.

It would be useful to explain why certain waste types have to be “directed” to different waste streams, as mentioned in the alternative options.

Why do we have to “direct” waste to different waste streams?

Any waste, not just chemicals or polythene, even organic or residual waste in large quantities such as those of a neighbourhood with 50 houses cannot be just allowed to be mixed with the environment, i.e. soil and water. Even organic and other wastes in large quantities produce (a) toxic liquids such as leachate (dark brown thick liquid coming out of waste) and (b) toxic gases such as methane. In addition to these substances, depending on the composition of waste when they are just allowed to mix with each other and also with the outside environment, they lead to various chemical reactions emitting gases and chemicals into the environment.

Burning these waste types also lead to similar results as it produces gases, noxious smokes and toxic chemicals that will be released to the environment.

It is clear that the most suitable treatment for different waste types is based on their composition and source. To treat different types of waste in the most suitable manner with minimum impact on public health and the environment, it is important to separate them as early as possible in the waste stream. It is for this reason, directing waste to separate waste streams is important. For example, directing organic waste to composting, without mixing with other types of waste make (a) proper treatment of organic waste avoiding impact on health and environment with a useful end product and (b) the process of composting easier without impurities or having to remove impurities down the waste stream to obtain the expected quality of compost)

Box 3.1 Why waste has to be directed to different waste streams

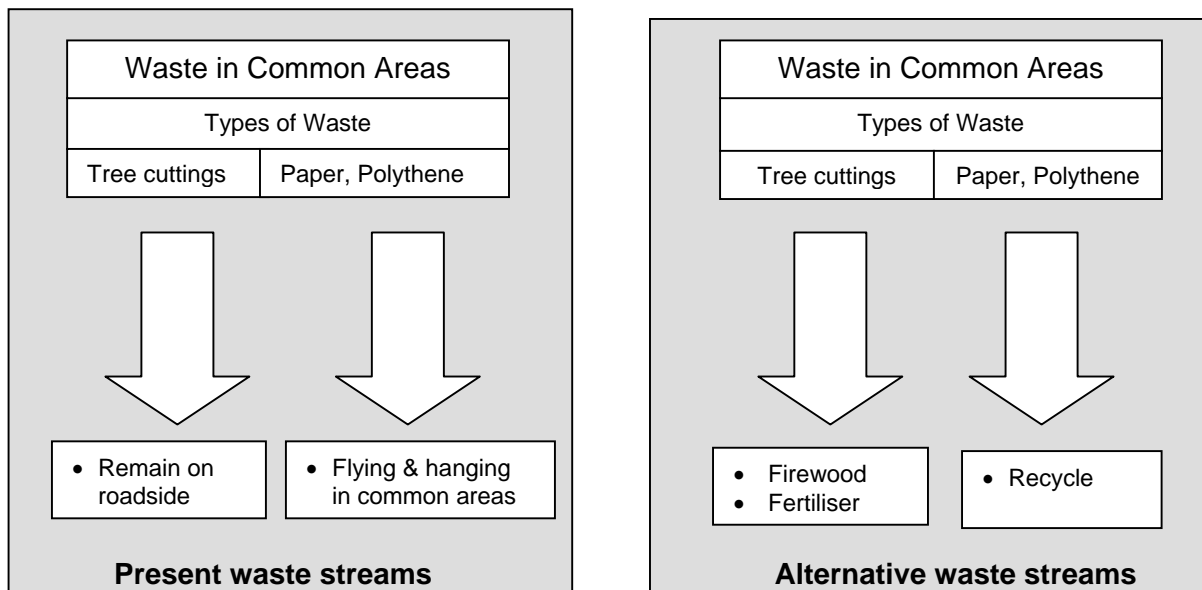


Fig.3.4 Present and alternative waste streams for waste in common areas in villages

Since different waste types have to be directed to different waste streams and processed, the issue of “who is managing waste?” comes into focus. It is clear that the present SWM system in villages has not followed the systematic handling of different waste types, In the alternatives proposals, directing different waste types to suitable processing systems, number of additional inputs would be required.

For example in the fig.3.4 above, it is possible to identify that in the alternatives developed by the stakeholders, branches and leaves of trees in common areas is mainly directed as fertiliser and firewood. As the source – common areas - and the final treatment of the waste – used as fertiliser and firewood - is at households, and handled by the homeowners, this treatment will avoid all the steps in the SWM services otherwise will be required, namely collection, transport and proper disposal. While using green waste as fertiliser will reduce the amount of waste to be managed, it will require households in villages assuming new responsibilities in managing the waste.

This reveals that, the implementation of the alternative options, in keeping with the expected standards will require major contributions in material and human resources and a high level of public participation and cooperation. It was considered useful to examine whether it is possible to implement these options considering the socio-economic dynamics and institutional strengths and capacities of villages. This was conducted for the priority areas for SWM improvements in villages as jointly identified by the workshop participants. The priority areas are discussed in the next section.

4.0 PRIORITY AREAS FOR IMPROVEMENTS IN SWM IN VILLAGES IN TRINCOMALEE DISTRICT

In this section, proposals are outlined for the “priority areas” jointly identified by the stakeholders for improvements in villages in the Trincomalee district. The priority areas identified are as follows.

- Human waste
- Waste in common areas
- Polythene and paper items
- Used tyres and tubes

It was decided to examine the first two in detail. As mentioned in 1.2.2, in examining the issues related to the priority areas in villages the following were taken into consideration. In addition to the widely accepted lack of resources and awareness among village inhabitants, the following factors hamper organising themselves to adopt scientific SWM approaches with minimal impact on public health and the environment. They are (a) characteristics of SWM as a public good and (b) in the context of villages in Trincomalee, without formal institutional framework for implementation of SWM, the way in which SWM as a public good become subject to collective action. The latter can be explained as individuals and groups primarily acting in self interest taking advantage of the fact that it is infeasible to exclude them from enjoying the benefits of improved SWM situation in villages for not contributing or, for being “free riders”.

The outline of the proposals and the issues related to their implementation jointly identified at the workshops are given below. The outline covered the following aspects (a) objective (b) project description and approach (c) implementing agencies (d) cost aspects (e) people’s participation and (f) options for funding.

4.1 MANAGEMENT OF HUMAN WASTE IN VILLAGES

4.1.1 Objective

The objective was identified as reducing the impact of human waste on (a) people's health and (b) environment (e.g. surface water bodies, groundwater).

4.1.2 Project Description

The main component of the project was to introduce affordable and hygienic disposal methods for human waste in villages.

4.1.2.1 Approach




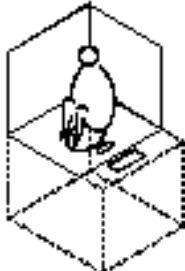
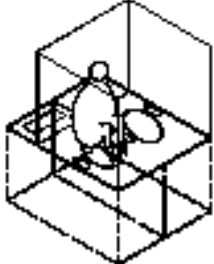
In formulating the relevant approach, it was identified that avoiding human waste coming into direct contact with the inhabitants (scattered around in gardens and common areas in villages) is a major initial step in achieving the objectives. It was also found that fresh and dried human waste scattered around in villages pose a threat to adults (as they step on them inadvertently) and children (as they touch them due to ignorance) alike, in addition to the dangers of mixing into sources of water.

Considering the above, it was found that the approach should address managing human waste in the entire village rather than selecting a section of the village or individual households. Its rationale can be explained with the following example. In the village of Vattam in Muthur, section of the households are provided with water sealed toilets (about 20 plots) while the many families in the village do not have any toilet facilities leading to the situation where the common area at the southern edge of the village is scattered with human waste. This clearly shows that even the households that have relatively modern toilet facilities are not free of danger to their health, as some parts of the village have human waste scattered around it. This also reveals that, though the household toilet is a private good (see 1.2.2), giving direct benefits to the household, the externalities involved reduce the expected benefit (village free of human waste), unless other households also take steps to improve their toilets. This can be understood in relation to the concept of collective action mentioned in 1.2.2.

It was proposed that the strategy centred around the approach **“human waste not in my backyard”** at household level and at village level to be introduced to overcome the above issues.

It was decided to adopt an incremental approach in raising (a) hygienic & environmental standards. Making a range of technical options for toilets available to choose from, depending on the access to resources by inhabitants, was considered as practical steps in this direction. For example, a simple pit in the ground, away from a source of water, to deposit human waste itself would make a major reduction in both in transmission of diseases and environment. With the “human waste not in my backyard” approach, it was expected that households, working on their individual interests, would not only seek to improve their own toilets, but exert social pressure on other households not to scatter human waste in the village.

The diagram below (fig.4.1) shows the different options for toilets and the way in which they improve the hygiene and environment.

Impact of Human waste...			
	Human Waste Scattered	... Affecting Public Health	... Affecting Environment
	Open Pit Toilet	... on Public Health Reduced	... on Environment Remains
	Sealed Pit Toilet	... on Public Health Reduced	... on Environment Reduced
	Remark: Toilet top has to be demolished or build a new toilet when the pit is full		
	Improved Sealed Pit I	Remark: Sealed Pit extended to enable emptying	
	Improved Sealed Pit II	Remark: Double Pit Latrine facilitating decomposing of human waste before emptying (with access (a))	

Prepared by Synergetics Lanka (pvt.) Ltd for IFSP(SL) - GTZ

Fig.4.1. Technical Options for Disposal of Human Waste in Villages

4.1.3 Implementing Agencies

The agencies identified for the implementation were Community Based Organisations (CBO), Samurdhi Task Forces, Village Health Committees, Department of Health, NGOs and donors. They are expected to work closely at both village and household level.

4.1.4 Cost Aspects

The cost aspects would vary depending on the technical options adopted. For example, the cost may vary from “no costs” for a simple pit latrine with a minimum basic shelter (with own labour and thatch shelter material freely available in villages) to around Rs: 23,000.00 IFSP/GTZ has made available to the toilets in Vattam. (personal communication with IFSP staff, 2001).

4.1.5 People’s Participation

It was clearly established that, people’s participation was a key precondition for successful implementation of the project. It was also agreed that people’s participation could be increased by making it possible to choose the technical options for managing human waste at household level (with different toilet types) according to the affordability and preference.

4.1.6 Options for Funding

Households, NGOs and Governmental Agencies and donors were identified as possible sources of funding for the implementation. In this, it is expected campaigning and awareness creation components of the project to be funded mainly from the sources other than the households.

4.2 MANAGEMENT OF WASTE IN COMMON AREAS

4.2.1 Objective

The main objective of the project was to reduce the impact of solid waste on (a) people’s health and (b) environment.

4.2.2 Project Description

The approach identified for the project was similar to 4.1 on managing human waste. Considering the solid waste in villages is generated in household level, the approach to the project is based on the premise that improving SWM in homeplots will result in better management of solid waste in common areas.

It was found that the approach should address the entire village. Its rationale can be explained as follows. As in the situation with human waste, households that keep their homeplots free of solid waste are not free of getting their health affected as other sections of the village have solid waste scattered in it. This also reveals that, though keeping the homeplot free of solid waste is relatively a private good (see 1.2.2), giving direct benefits to the specific household, the externalities involved reduce the expected benefit (village free of

solid waste), unless other households also take steps to improve waste management in their plots. As in 4.1, this can be understood in relation to the concept of collective action mentioned in 1.2.2.

To address this issue, a strategy based on the approach “**no scattered solid waste in my backyard**”, “**no scattered solid waste in my neighbors’ backyards**” and “**no scattered solid waste in my village**” at household level and at village level to be introduced to overcome the above issues.

As practical measures, it was decided to (a) develop joint approach to SWM at village level and (b) making options of solid waste management available to households. Parallel to these measures, village inhabitants becoming vigilant about each other’s SWM behaviour based on “no scattered solid waste in my village” can be termed as an indicator of successful change in attitude towards SWM in village.

4.2.3 Implementing Agencies

The agencies identified for the implementation were Community Based Organisations (CBO), Village Health Committees, Department of Health, NGOs and donors. They are expected to work closely at both village and household level.

4.2.4 Cost Aspects

It was proposed and also agreed by the workshop participants that costs of implementation at village level are expected to be minimal. In order to do that, it was proposed that campaigning and awareness creation to be borne by external agencies (donor agency / GO).

4.2.5 People’s Participation

It was clearly established that, people’s participation was a key precondition for successful implementation of the project.

4.2.6 Options for Funding

NGOs and Governmental Agencies and donors were identified as possible sources of funding for the implementation. In this, it is expected campaigning and awareness creation components of the project to be funded mainly from the sources other than the households.

4.3 IMPLEMENTING STRATEGIES AND ORGANISATIONAL STRUCTURE

Considering the similarities in the issues and the approaches it was decided to address the strategies and organisational structure for implementation together for both projects.

4.3.1 Implementing Strategies

The following matrix shows (fig.4.2) the way in which the workshop participants jointly developed the implementing strategies. As the matrix shows the guiding questions posed to them were (a) are the projects feasible (b) what are the general problems encountered in implementing common village projects and how to overcome them in implementing these

projects (c) who are the partners in implementation (d) what are the additional inputs required?

Human waste & SWM

Is the project feasible?	Yes, should be tried			
General problems in implementing common village projects	Lack of coordination & cooperation between CBOs & NGOs	Lack of donor coordination Donors concentrate too much on constitutions	Discouragement of own engagement through external funding	
	NGOs (also IFSP) to consider LA.	Own mandate of NGOs		
Partners in Implementation	✓ Health Committee & PHI to initiate (requested by CBO)	✓ IFSP community mobilisers	✓ EHED how to use the toilets, awareness, no construction	✓ Department of Health awareness, "subsidies for poor", continue subsidy
	✓ RDS Preyarakulam PNA toilet program (limited)	✓ CLG p.c. allowing funds for construction (common toilets)	✓ UNHCR toilets, toilet education, common toilets (welfare centers)	
Additional Inputs Required?	Elaborate project "toolkit" Training of <u>multiplicators</u>			

✓ Participation possible in implementation

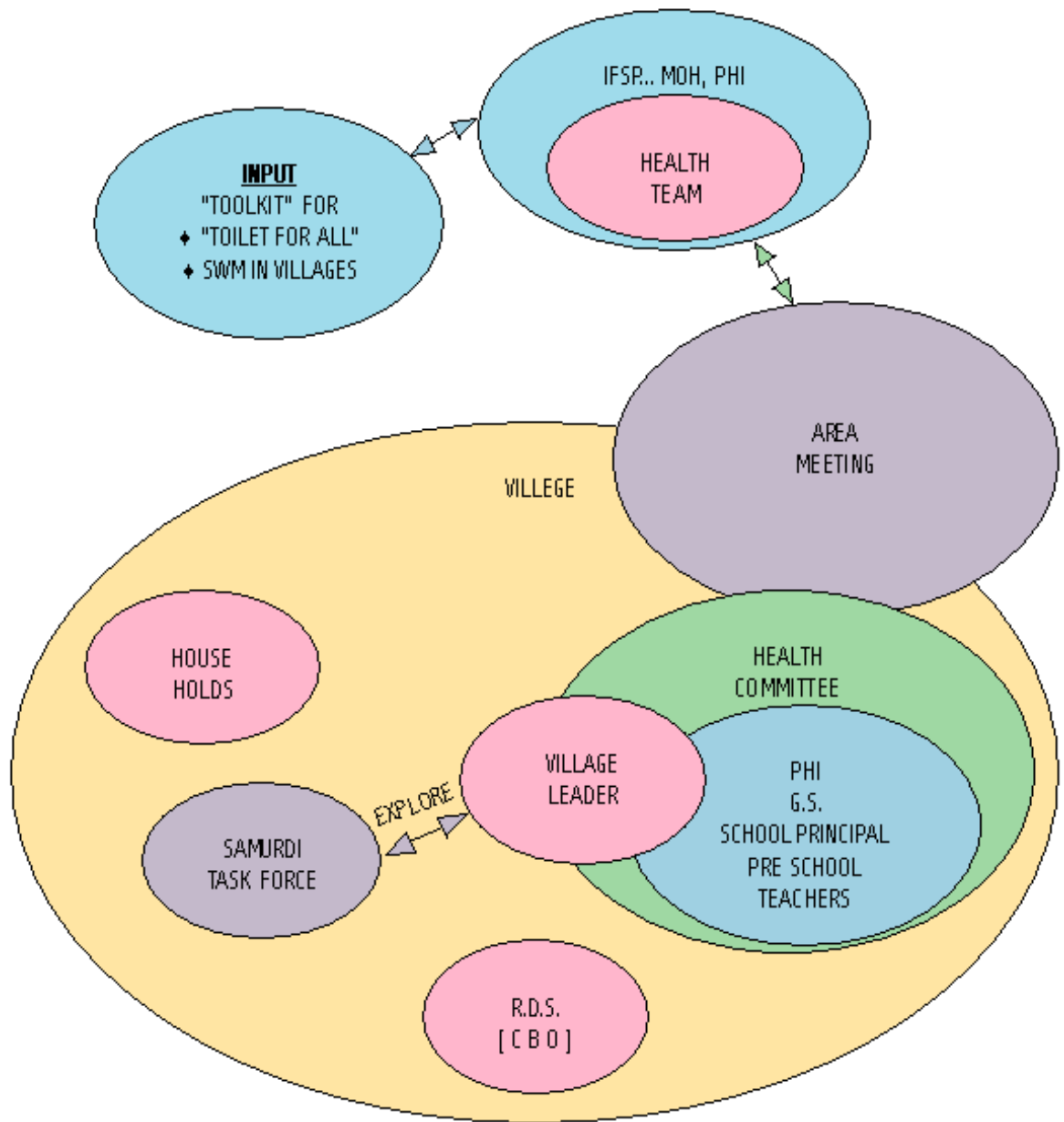
Fig.4.2. implementing strategies

As mentioned in the additional inputs required for the implementation, it was identified that a step by step "concept building tool kit" based on the approaches adopted for project formulation be made available. It is expected that this will be initially prepared for the purpose of training of multiplicators and social mobilisers.

4.3.2 ORGANISATIONAL STRUCTURE

The organisational structure proposed for the implementation of the priority projects in improving SWM in villages is given in fig.4.3. As the diagram illustrates, (a) the village consisting of households and its other institutions such as RDS and other CBOs, health volunteers and village leaders, and new yet active agents such as Samurdhi task force (b) village health committees that include representatives of the village and other key stakeholders and (c) external agencies such as IFSP, Department of Health and the health teams who are already active in villages are expected to play key roles. As mentioned in 4.3.1, however, additional inputs based on the approaches developed for the priority projects to familiarise the representatives of these agencies have been identified as vital inputs from external agencies in the organisational structure. This is especially relevant for those in CBO and health committees, staff members of GOs and NGOs and donor agencies who assume the roles of social mobilisers, multiplicators and change agents.

FIG.4.3 ORGANISATIONAL STRUCTURE FOR PROJECT IMPLEMENTATION



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