MALINYA MUKTA KERALAM

Action Plan

LOCAL SELF GOVERNMENT DEPARTMENT
GOVERNMENT OF KERALA
Ist November 2007

Chapter I

THE CONTEXT


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I-1. INTRODUCTION

Sanitation is a critical component of human well being. For the fundamental right to life to be realized in the fullest sense, sanitation is a mandatory ingredient. Basically sanitation is both an obligation and a right. As it is closely linked to the way of life, it has to come from within the people; as it is absolutely essential for a healthy life, people have to be facilitated to attain it. Sanitation is directly related to four out of eight Millennium Development Goals (MDGs)

The following elements define the package of practices which together constitute sanitation.

(i) Safe disposal of human excreta

(ii) Solid waste management

(iii) Liquid waste management

(iv) Safe handling of drinking water

(v) Home sanitation and food hygiene

(vi) Personal hygiene

(vii) Community environmental sanitation

These are universally accepted as the seven components of sanitation. The guiding principles for sanitation programme compiled by UNICEF highlight the importance of hygiene, safe drinking water, waste management and latrine coverage with emphasize on appropriate technology and gender sensitive social engineering. Over the years the State has taken various initiatives to improve latrine coverage and waste management through intensive IEC campaign. However, these initiatives are yet to catch up with increasing population, emerging challenges and evolving environment.

Guiding principles for sanitation programmes compiled by UNICEF

- *From an epidemiological point of view, sanitation is the first barrier to many faecally transmitted diseases, and its effectiveness improves when integrated with improved water supply and behaviour change. However, improvement in hygiene behaviours alone can result in disease reduction and can serve as a valid programme objective.*
- *Sanitation comprises both behaviours and facilities, which should be promoted together to maximize health and socio-economic benefits.*
- *From an implementation point of view, sanitation should; be treated as a priority issue in its own right and not simply as an add-on to more attractive water supply programmes. Sanitation requires its own resources and its own time frame to achieve optimal results.*
- *For sanitation programmes to be effective, political will at all levels is necessary. Communities are more motivated to change when they know political will exists.*
- *Communities are bio-cultural systems. A sanitary environment is a successful interaction of the key parts of that system: the waste; the natural environment with its unique physical chemical and biological processes; local cultural beliefs and practices; a sanitation technology; and the management practices applied to the technology.*
- *Sanitation programmes should be based upon generating demand, with all of its implications for education and participation rather than on provision of free or subsidized infrastructure. Government should be responsible for the protection of public health. Government sanitation policy should be one of creating demand for services, facilitating and enhancing partnership among the private sector, NGOs (community) based organizations, and local authorities, and removing obstacles in the paths of each of these and of households in the achievement of improved sanitation.*
- *Sanitation programmes should equally address the needs, preferences, and behaviours of children, women and men. Programmes should take a gender-sensitive approach but, learning from the mistakes of other sectors, should guard against directing messages only to women or placing the burden of improved sanitation primarily upon women.*
- *Sanitation programmes should be approached incrementally, based on local beliefs and practices and working towards small lasting improvements that are sustainable to each step, rather than the wholesale introduction of new systems.*
- *User ownership of sanitation decisions is vital to sustainability. Empowerment is often a necessary step towards achieving a sense of ownership and responsibility for sanitation improvements.*
- *Good methods of public health education and participation, especially social marketing, social mobilization, and promotion through schools and children exist to promote and sustain sanitation improvements.*
- *Sanitation services should be prioritized for high-risk, under-served groups in countries where universal coverage seems unlikely in the foreseeable future. Hygiene promotion should be targeted to all.*
- *Latrines are consumer products; their design and promotion should follow good marketing principles-including a range of options and designs attractive to consumers and therefore based upon consumer preferences, affordability, and suitability for local environmental conditions. Basic marketing research and participation in design will likely be necessary to good programmes. Market forces are best understood by the private sector.*
- *As in all other public health programmes aimed at preventing disease, the promotion of sanitation should be a continuous activity. This continuous promotion is necessary to sustain past achievements and to ensure that future generations do not become complacent as diseases decreases.*

[Source: A Sanitation Handbook – UNICEF (1997)]

I-2. BACKGROUND

Kerala has been in the forefront of achieving sanitation both in the rural and urban areas. The history of sanitation began in the country, as an integral part of the freedom movement, focusing on liberation of scavengers. Kerala achieved the distinction of being the first State to fully do away with the dehumanizing practice of scavenging as the culmination of a people's movement for basic human dignity.

From the late 50's, Kerala led the nation in the provision of household toilets. In the initial days, through successful extension, single leach pit latrines with water seal bowls known as ESP latrines were constructed on an extensive scale. Later under the Central Rural Sanitation Programme launched in 1986 and People's Plan launched in 1996, the coverage increased manifold reaching 96% as per the latest estimate (NFHS - 3rd round: 2005), the highest in the country and far above the national average of 44.5%. It is significant to note that the coverage is more or less the same in urban areas (98.3%) and rural areas (94.9%), showing the equitable spread.

Out of the 999 Village Panchayats in the State 226 have won the Nirmal Grama Puraskar along with six Block Panchayats. Now an additional 543 Village Panchayats are ready to claim the honour along with seven out of the 14 District Panchayats, which are in the final stage of achieving full coverage.

Also, historically, the State has been ahead of others in providing toilet facilities to schools and anganwadis. Kerala is again the acknowledged leader in the country in reduction of water-borne diseases and sanitation-related vector-borne diseases like malaria and filaria. These successes have contributed to the high human development of the State. They have been achieved mainly through literacy, public action, responsive Government and, in the last ten years, active Local Governments.

Recently, Kerala has started exploring the potential of Local Governments for the management of solid and liquid wastes. Though there are technological and organizational hindrances, many of the urban centres and rural areas have realized the importance and initiated action towards improved management of solid waste.

Human resources flourished in a context of rich diverse and abundant natural resources which helped attain a physical quality of life comparable to the best in the world. However the assimilative capacity of environment in Kerala is fast declining due to inadequate attention to environment, in general and sanitation, in particular. Thus sanitation has emerged as a critical factor in the sustainability of Kerala's attainments.

I-3. CURRENT STATUS

The present status of different aspects of sanitation is summed up below:

I-3.1. Coverage of Sanitary Latrines

The following table gives the progressive achievement in provision of household sanitary latrines.

Table I-1: Household sanitary latrines: Access to Sanitation facilities

Time Line	1991(1)	1995(2)	2001(3)	2005(4)
Rural households with toilets (%)	44	73.4	81.3	94.9
Urban households with toilets (%)	73	90.0	92.0	98.3

Source – (1) Census of India, 1991, (2) NSSO 1995 (3) Census of India 2001 (4) NFHS 3rd round - 2005

The above figures reveal the extensive coverage of sanitary latrines in the State. They show that the coverage increased exponentially in the 90's backed up by a well organized programme and commitment of funds.

Status of school sanitation is given below:

Table I-2: School Sanitation status

Item	LP	UP	HS	Total
Number of Govt. schools	2565	960	986	**4511**
Number of schools having toilets	1785	759	790	**3334**
Percentage of schools having toilets	69.59	79.06	80.12	**73.90**

As per the latest estimate the remaining target, which also includes replacement of existing latrines which are in extremely poor condition or unsafe, is as follows:

- Household latrines : 3,14,000
- School toilets : 2,220
- Anganwadi toilets : 5,000

I-3.2. Solid Waste Management

Solid waste is a mixture of organic and inorganic waste generated by domestic or commercial activities. By source solid waste can be categorized as per the table below

Table I-3: Sources of solid waste and rate of generation

Sl.No.	Source	% to total
1.	Household Waste	49
2.	Hostels, Marriage halls, Institutions,	17
3.	Shops & Markets	16
4	Street sweepings	9
5.	Construction	6
6	Slaughter house, Hospitals	3

By composition, solid waste in Kerala can be classified as follows

Table I-4: Composition of Solid Waste

Sl.No.	Component	% to total
1.	Biodegradable	71-83
2.	Paper	3.5-5
3.	Plastic, rubber, glass, metal	5-9
4.	Inerts, earth, domestic hazardous	4.9-11.5

In urban areas all the five Corporations have land for waste treatment but adequate facilities for collection, transport and treatment exist only in Thiruvananthapuram, Thrissur and Kozhikode.

Out of the 53 Municipalities, only 17 have land and treatment facilities. 33 more Municipalities have land but not enough treatment facilities. Three Municipalities have neither.

Out of the 999 Village Panchayats, only 126 Village Panchayats have land for waste treatment. Full-fledged treatment facilities are available only in

seven Village Panchayats. Partial facilities are available in 105 Village Panchayats in the form of biogas plants and vermi compost units. 35 Village Panchayats have recently set up resource recovery centres for collection of recyclable materials especially plastics.

In relation to population, Kerala has the highest number of hospitals. It is estimated that solid waste and liquid waste generation per hospital bed ranges from 1.5 to 2 kg and 200 – 350 litres respectively. About 85% waste generated in hospitals is general waste and can be handled as other solid wastes. The remaining 15% constitutes infectious and toxic wastes.

Table I-5: Composition of Hospital Waste

Type of waste	Quantity (%)
Infectious waste	10%
Toxic waste	5%
General waste	85%

As of now the Indian Medical Association has set up a common treatment facility with a capacity to process 129 MT of bio medical waste per month at a single point in Palakkad catering to the needs of 1129 hospitals including 70 Government hospitals, with a total bed strength of 32,918.

I-3.3. Liquid Waste Management

In urban areas of the State, sewerage facilities have extremely low coverage probably the lowest in the country. Only 30% of Thiruvananthapuram Corporation and 5% of Kochi Corporation areas have proper underground sewerage facilities. The other municipal areas and rural areas do not have such facility.

The present system of clearing and removal of septic tank waste is unscientific. The waste is now collected by vacuum suction into tankers which are then emptied into open spaces and even water bodies. This pollutes soil and water bodies. This dangerous system is operated by unscrupulous private agencies.

The naturally undulating lie of the land and high rainfall patterns help in flushing out liquid waste regularly. But high density of population, changed consumer habits and human intervention in the natural drainage lines have increased stagnation of water leading to serious unhygienic situations. The outbreaks of chikun gunya in 2006 and 2007 can largely be attributed to this relatively recent phenomenon of stagnant water leading to prolific breeding

of mosquitoes. The situation is particularly bad near market places, slaughter houses, animal farms and other areas of waste dumping.

I-4. EMERGING CHALLENGES

The emerging challenges in sanitation are listed below:

I-4.1. Coverage of Sanitary Latrines

- After attaining high coverage the remaining target mostly consists of landless people or those having very low extent of land. Here construction of toilets poses a major challenge.
- High water table areas particularly in the coastal region and in low lying areas like Kuttanad pose a technological challenge.
- A good number of the tribal people living in forest areas and forest fringes are yet to take to toilet use.
- Many of the latrines constructed in the first generation were not of appropriate technological design. Also, in the initial years, several latrines overhanging water bodies were constructed. These needs upgradation.
- With the increasing coverage of sanitary latrines there is a threat to drinking water wells which needs to be abated, failing which the achievements could turn out to produce harmful effects.
- New concepts like baby-friendly, women-friendly and disabled-friendly toilets are yet to be developed adequately and converted into practical applications.
- Toilets in public places require further expansion in view of the floating population, especially tourists and migrant workers.

I-4.2. Solid Waste Management.

I-4.2.1. Generation

- Per capita generation of waste in Local Governments in Kerala is higher than those in other States due to the peculiar consumption pattern in the State.
- Segregation of waste at source of generation is still in early stages and is operational only in Thiruvananthapuram and Kozhikode Corporations, Quilandy Municipality Chunakkara Village Panchayat and a few other Local Governments
- The practice of household level composting of waste which was very common earlier has now fallen into disuse and needs to be restarted.
- Plastic waste and e-waste are on the increase.
- Storage of waste at source is also limited to a few cities and towns.

I-4.2.2. Primary collection, street cleaning and disposal

- Primary collection is limited to urban local governments. Even here a significant portion is uncollected and spills over to streets and public places.
- The fleet of transportation vehicles now available is not sufficient for the task in the case of many Local Governments. More than 70% of the vehicles have served more than their economic life of ten years. Even in urban areas, about 25% of the vehicles are off road.
- Most of the vehicles are open thereby spreading bad odour.
- For street cleaning, norms and worker out turn have not been standardized for the State.
- All temporary storage points are not cleared on a day to day basis.
- Barring 176 Local Governments, others do not have land for solid waste management. For final refuse and inert waste there is not even one sanitary land fill site.

I-4.2.3. Other issues

- Social issues like dilution of civic consciousness, lack of awareness / willingness in respect of waste reduction and wide spread **Not-In-My-Backyard** (NIMBY) syndrome call for concerted response.
- Managerial issues related to poor work culture, absence of strategic planning of the collection, transportation, and disposal network and financial issues of raising resources to meet the capital and running costs also have to be addressed.
- Human resource development issues necessitating capacity building at various levels

I-4.3. Liquid Waste Management

The major issues related to liquid waste are;

- Local use of appropriate methods for disposing grey water and liquid waste is very limited.
- Drainage facilities near markets, hotels, Kalyana Mandapams and other bulk generators of liquid waste are not adequate.
- Indiscriminate construction of buildings and roads and filling up of traditional drainage channels have resulted in high levels of water stagnation and breeding of disease causing vectors.
- In the absence of appropriate storm water drains, incidence of flooding, especially in the coastal urban areas has become frequent leading to increased morbidity.

Chapter II

THE RESPONSE

II-1. INITIATIVES LAUNCHED

II-1.1. General Initiatives

II-1.1.1 People's Plan

Sanitation which has emerged as an important agenda in the development discourse of the State needs to be pushed into the action phase so that the needs and priorities of the people can be translated into concrete projects and implemented in a time-bound manner. For this to happen, it is necessary to generate a people's movement involving citizens, elected leaders, officials, professionals and activists. Only Local Governments can bring together such people for sustained local action. So their leadership is of prime importance.

People's Plan in the XI Five Year Plan has been restructured to focus on specific issues. Along with watershed management, sanitation has been given the highest priority. The following is the extract from the policy guidelines related to sanitation.

> *Preparation of total sanitation plans has already started with effect from 2nd October 2006. This process would be carried to the final stage. All Village Panchayats, Municipalities and Corporations should have a sanitation plan consisting of the following elements:*
>
> - *Solid waste management*
> - *Liquid waste management*
> - *Household toilets - to ensure full coverage in 2007-08 itself.*
> - *Environmental sanitation of homesteads and campuses*
> - *Sanitation of drinking water wells*
> - *Toilets in public institutions*
> - *Market waste management*
>
> *Since sanitation is a mandatory function of Village Panchayats, Municipalities and Corporations, a comprehensive action plan is to be prepared. It should also include setting up of hygienic slaughter houses and opening of burial grounds and crematoria. The DPC may facilitate synergy and partnership among Local Governments in order to optimize investments in respect of different elements of sanitation.*

II-1.1.2. Mission Approach

Institutionally, a Mission approach has been adopted. The Clean Kerala Mission focuses primarily on urban areas and the Total Sanitation and Health Mission focuses on rural areas. The functioning of these two Missions has been revitalized and a policy decision to merge them has been taken.

II-1.2. Specific Initiatives

The "Malinya Mukta Keralam" (Waste-free Kerala) Campaign was launched on Gandhi Jayanthi day in 2006. The important activities taken up under the Campaign include: -

- Four phases of intensive cleaning were conducted in the last one year – in October 2006, May 2007, July 2007 and October 2007, with the objective of mobilizing the people for local action. These focused on cleaning of public institutions like schools, hospitals and anganwadis, cleaning of colonies, cleaning of markets and other public places, removal of stagnant water and awareness building among Self-Help Groups, students and elected local government representatives. It is estimated that three million people participated in the cleaning drive.
- Extensive surveys of generation of waste from different sources were conducted in all the 999 Village Panchayats and data compiled in 996 Village Panchayats.
- After compiling data, the Panchayats arranged visioning meetings of key stakeholders in which about 150 to 250 persons participated and prepared Approach Papers, all of which have been printed and disseminated.
- Grama Sabhas were then held to discuss the *Approach Paper* on sanitation and adopt them after incorporating suggestions emanating from the Grama Sabhas. It is estimated that 1.6 million people took part in these special meetings of Grama Sabhas focusing solely on sanitation.
- Technical Support Groups (TSGs) have been formed in each of the fourteen districts to guide the Local Governments to move on from the Approach Paper to an Action Plan. Altogether 420 experts are functioning, with each district having a team of 20 to 35 members.
- Health Promotion Teams (HPTs) have been set up in each of the Village Panchayats drawing one male and one female volunteer from each ward, capable of working as barefoot sanitation experts.
- Popular committees are being set up in every ward of the Village

Panchayats and also at the level of the Village Panchayat. It is estimated that nearly 40% of this process is over.

- The whole campaign was backed by an elaborate capacity building effort; the important achievements of which were the following,
  - Three day training for 200 State level Resource Persons in September, 2006.
  - Two rounds of two-day training for the District level Resource Teams in February 2006 and July 2007.
  - Two-day training for 30,000 HPT members at the Block level.
  - A Technical Manual has been developed on Solid Waste Management to educate local governments about technology options.
  - A Handbook has been published for assisting Local Governments in developing detailed Action Plans on sanitation.
  - A status study on the solid waste management situation has been done focusing on urban areas.
- As part of the Malinya Mukta Keralam Campaign, Government decided to ban plastics of up to 50 microns in thickness. Later, based on a High Court direction the ban was made effective for all plastics up to 30 microns in thickness. Elaborate consultations with all stakeholders and Local Government leaders were held in September 2007 to make the ban effective. This has received all round support of the public and the media.

Special priority has been given to solid waste management and sewerage in mega projects under the ADB assisted Kerala Sustainable Urban Development Project and the Government of India assisted JNNURM and UIDSSMT.

In the rural areas under Total Sanitation Campaign (TSC) all the projects have been restructured to include a solid waste management component at least to the tune of 10%.

II-2. BEST PRACTICES

With the onset of decentralization several best practices have emerged, both in rural and urban areas. These have become models and provide learning experience for adaptation and replication in different local governments in the State. To illustrate, some of the best practices are encapsulated in the brief case studies outlined.

Case study No.1

Solid Waste Management in Mangalapady Village Panchayat in Kasaragode District - An example of multi-Village Panchayat Partnership

The Clean Kerala Mission assisted Mangalapady Village Panchayat in establishing a waste processing plant using vermi composting and bio methanation. As the plant had sufficient capacity, adjoining Panchayats of Kumbala and Mugral-puthur have joined with Mangalapady. These Panchayats send their waste to the processing plant in Mangalapady paying Rs.0.70 per kg. as fee. In return they get 25% of the organic manure generated by the waste supplied by them.

Another innovation is the contracting out of the management of the Plant to Kasaragode Social Service Society, a local NGO of repute which takes 30% of the profit generated by sale of organic manure.

This is an excellent example of what Village Panchayats can do in future – to come together to set up common facilities and share the costs as well as the benefits.

Case study No.2

Decentralized Solid Waste Management in Chunakkara Village Panchayat in Alappuzha District – An example of Panchayat – NGO – Community Partnership

Chunakkara is a backward Village Panchayat of Alappuzha district with 14 Wards covering 5411 households within an area of 17.32 kms^2. Management of Solid waste emerged as a major problem with waste piling up in all public places inviting the protest of the public. The water bodies got polluted and the canals became clogged. At this juncture, when the Village Panchayat was desperately searching for solutions, the Socio Economic Unit Foundation (SEUF), a leading NGO in the sanitation sector entered into a partnership with the Village Panchayat and decided to promote decentralized waste management with focus on the household through a process of intensive awareness building and community education.

A trained resource group called the Programme Support Group (PSG) was set up. The expert members interacted with the community and convinced them about the issues related to waste management. The PSG and the Village Panchayat focused on localities within Wards. Each Ward was divided into 6 – 7 localities and from each locality two members were identified and a Ward Level Committee was constituted, headed by the elected member from the ward. By drawing three members from each Ward Committee a Panchayat Level Committee was also set up. These popular committees played an important role in mobilizing the public and converting their enthusiasm into action.

A step by step process was adopted consisting of the following steps.

- *Detailed base line study and plan formulation*
- *Grassroots level mobilization and education of all stakeholders*
- *Demand generation by the public*
- *Community-based institution building*
- *Capacity building of the community with focus on women*
- *Involvement of school children*
- *Dissemination of information on cost effective technology*
- *Regular community based and Panchayat level monitoring*

Now Chunakkara has become a model for decentralized waste management in rural areas. Out of the 5411 households, 4980 have started vermi composting in the compound and the manure is used to feed the kitchen gardens which have been set up in all the houses. All schools have been motivated to segregate, store and process waste in situ. A community level vermi compost plant has been set up to deal with market waste.

Chunakkara Village Panchayat is proud of its achievements and presents a model of Panchayat – Professional – People partnership.

Case study No.3

Decentralized Solid Waste Management in Alappuzha Municipality - an example of community based Solid Waste Management in an urban situation

Alappuzha Municipality having 50 Wards and 32,203 households is spread over 47 kms^2. With only about 50% of the 65 to 75 tonnes of waste generated every day being transported to the dumping yard in the adjacent Panchayat, the remaining waste spilled over into the beautiful ancient Venice like canal system of the town converting it into one of the most insanitary towns in the State.

Here again the Municipal Council and Socio Economic Unit Foundation an NGO got into a partnership and initiated an Action Research Programme called "Women, Wellbeing, Work, Waste and Sanitation (4 W-S). After a small pilot, six Wards were identified covering 5624 households. The baseline survey indicated that only 10% of the households segregate their waste; 58% of the households burned their waste, while 16% threw them into their backyards and 15% resorted to dumping them in public places. Thus the challenge was quantified.

Technical Committees and Popular Committees were set up and the strategy of participatory social engineering was employed. The elements of the programme included the following:

- *Reduction at source*
- *Segregation at source*
- *Collection and sale of recyclables*
- *Household level processing of organic waste*
- *Substitution of plastic bags with cloth and paper bags*
- *Community policing to prevent people from violating the code of clean surroundings*

In a short span of time, 3350 households started vermi-composting. In 35 places common vermi-compost units were set up. Nearly 2000 families started organic farming in their compounds. Three Paper Bag units have been started along with two Plant Nurseries. Through public action 8 kms of canals and 12 ponds have been cleaned and rejuvenated.

The Alappuzha experiment has shown that through social engineering involving committed professionals and elected leaders, even in an urban setting, community behaviour can be changed for the better.

Case study No.4

Introduction of door to door collection in Kozhikode Corporation - An example of a socially beneficial outsourcing to a Community Based Organization of poor women

Kozhikode city faced public uproar and even unrest over the overburdened dumping site, as waste of all kinds reached the end point, totally unsegregated. With a city having 72855 households and about 12,000 commercial establishments, the problem seemed insurmountable.

The City Corporation had the option of either increasing their staff or privatizing door to door collection. But it chose the third way of opening a business opportunity for the poorest of the poor. It decided to outsource door to door collection to the Kudumbashree network of women below poverty line. 75 micro enterprise groups were set up with each group having 10 members. They were trained and provided a total subsidy of Rs.90 lakh and bank finance of Rs.187 lakh which was utilized for purchase of auto-rickshaws and other equipment. To motivate the households two bins one white and the other green were given to each household for keeping the waste segregated. A user charge ranging from Rs.15 to 30 per household per month was fixed, which the households gladly gave as it went to poor persons.

Now 35% of the households and commercial establishments have been brought under this door-step collection system. Kozhikode town has become visibly cleaner and waste reaching the treatment site has increased by 25 to 30%.

The initiative of Kozhikode Corporation has proved that, even in a big city, the Corporation can ensure proper door to door collection, if a socially sensitive approach of enhancing the livelihood of the poor is followed.

Case study No.5

Zero waste campaign at Kovalam
- An example of citizen demand leading to constructive action

Kovalam is an international tourist centre. As the place was getting degraded with all kinds of waste, the Tourism Department decided to set up an incinerator. This proposal was vociferously opposed by local people fearing the emissions of the incinerator. At this point of time 'Thanal'- a local NGO, intervened and mobilized the people for finding out local solutions so that an alternative to the incinerator could be developed. After a preliminary study, discussions were held with different local groups and it was decided to wholeheartedly ensure that garbage disappeared from public places and to sustain this, create economic incentives for the waste generators as well as those involved in solving the problem. The main components of the project were: -

- *Biogas plant for biodegradable waste*
- *A resource recovery centre for non-biodegradable discards*
- *Material substitution programme promoting products made of paper, jute, cloth and coconut shell*
- *Poison free farming*
- *Water conservation*
- *Community capacity building*

The project now has to be expanded and sustained – but it is a good model for channeling the benefits of waste management in a big tourist centre to the local people through local action.

II-3. ILLUSTRATIONS

The varied initiatives of Local Governments especially in the last few years instil confidence about the capacity of Village Panchayats, Municipalities and Corporations to move on to scientific management of waste. The photographs given in the next pages illustrate this point.

Seggregated storage at source

Domestic

Commercial

Primary collection

Primary collection

Primary transportation

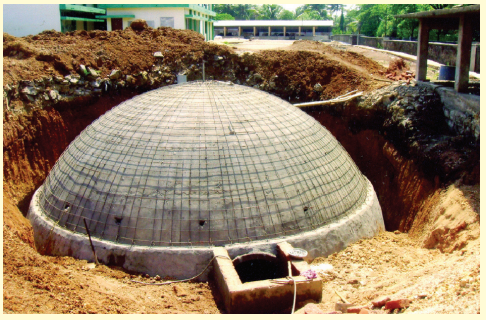
Street sweeping

Transportation in closed compartmentalised trucks

Solid Waste processing plant of Thiruvananthapuram Corporation

Vermi Compost Plant - North Paravur Municipality

Processing plant
Attingal Municipality



Biogas Plant construction
Trichur Corporation

Biogas Plant
Chalakkudy Municipality

Solid waste treatment plant
Ajanoor Grama Panchayat

Chapter III

THE NEXT STEPS

III-1. ACTION PLAN

Malinya Mukta Keralam Campaign has succeeded in creating the right environment for a *Mission Mode Action Plan* to achieve the goal of Clean Kerala. This is being launched on 1st November 2007 by Her Excellency the President of India.

III-1.1. Overall Strategy

The Action plan would be informed by the well known strategy of 4 R's – Reduce, Reuse, Recycle and Recover. This strategy would lead to an interim scenario of barest minimum of waste generation that needs to be treated or rejected for land fill and ultimately to the concept of Zero Waste. Through IEC and provision of advice of technology, the message of waste minimization and segregation would be spread to households and institutions. This would be accompanied by maximizing recycling as well as recovery of energy and manure using appropriate technological interventions.

To start with, the focus has been on awareness building. Now it would shift to persuasion and observation. Simultaneously the regulatory framework would be strengthened through proper enforcement of existing laws and restructuring the existing laws to give more teeth for enforcement.

As a general strategy for implementation the vast network of Kudumbashree which consists of 1,83,744 Neighbourhood Groups (NHGs) of women below poverty line covering 36,34,724 families which are networked into 16,915 Area Development Societies (ADS) of the level of Village, Municipal Corporation Ward and further federated into 1059 Community Development Societies (CDS) in Village Panchayat, Municipality and Corporation would be utilized for outreach and feedback. Also business opportunities for poor women would be developed wherever waste collection and treatment are required.

III-1.2. Operational Strategy

The different elements of the operational strategy are outlined below:

III-1.2.1. Coverage of Sanitary latrines

- Identifying and upgrading unsafe latrines.
- Introducing appropriate technologies for coastal and water-logged areas.
- Designing, field testing and propagating child-friendly, gender-friendly and disabled-friendly toilets.
- Moving on to individual latrines with common pit in congested areas.

III-1.2.2 Solid Waste Management

(i) Management Plan for Household Waste

- House to house campaign for segregation at source
- Providing separate bins for segregated storage and collection in Corporations, Municipalities and urbanized Panchayats.
- Setting up of household level / community based vermi-compost units / bio gas plants, based on informed choice of technology.
- Networking with Community Based Organizations (CBOs) for collection and disposal of recyclables.
- Promoting disposal of domestic hazardous waste through a special collection system leading to secured burials / sanitary land fills created at regional/district levels.

(ii) Management Plan for disposal of Waste from Septic Tanks

- Putting in place a regulatory regime with strict licensing norms.
- Strengthening institutional capacity of Local Governments
- Introducing appropriate technology for final disposal

(iii) Management Plan for Wastes from Community Halls

- Promoting segregated collection of waste at source by the owners
- Discouraging the use of disposable cups and plates
- Setting up of bio gas plants/ vermi compost units within the compound
- Collecting tipping fee for non-degradable waste at Resource Recovery Centres and landfills

(iv) Management Plan for Waste from Institutions

a) Public offices

- Banning use of plastic carry bags / cups / flex boards
- Discouraging the use of disposable cups and plates
- Promoting the use of steel tumblers and plates for serving refreshments
- Ensuring that the waste paper generated in the offices is properly managed.
- Installing bio gas plants in office complexes and staff quarters
- Providing sufficient number of gender friendly and disabled friendly toilets
- Establishing Waste Management Committees

b) Educational institutions

- Banning use of plastic carry bags / cups / flex boards
- Discouraging the use of disposable cups and plates
- Promoting the use of steel tumblers and plates for serving refreshments
- Ensuring that the waste paper generated is properly managed.
- Installing waste paper bins in the class rooms
- Installing common waste bins for collection of bio degradable waste
- Installing bio gas plants / vermi-compost units
- Establishing school gardens/vegetable gardens to gainfully utilize the vermi compost/ bio gas slurry
- Training students in making paper bags, cloth bags as part of work experience.
- Including waste management in school curriculum
- Utilizing school Health Clubs effectively for imparting health, hygiene and sanitation education to the students.
- Providing sufficient number of gender friendly /child friendly toilets

(v) Management Plan for Hospital Waste

- Banning use of plastic carry bags
- Discouraging the use of disposable cups and plates
- Promoting use of steel tumblers and plates while serving food in canteens
- Providing coloured bins for segregated collection of bio medical wastes

- Installing bio gas plants
- Installing common facilities for disposal of bio medical waste.
- Providing sufficient number of gender friendly toilets
- Installing effluent treatment plants in Medical Colleges (Govt and private), District Hospitals and other big hospitals
- Installing biogas plants in Ayurvedic Centres

(vi) Management Plan for Waste from Hotels and Catering Centres

- Discouraging use of plastic for wrapping food.
- Promoting bio gas plants.
- Conducting regular inspection by health staff
- Encouraging use of water harvesting, water saving and water recycling devices
- Training for management and staff

(vii) Management Plan for Market Waste

- Organising market level waste management committee comprising of traders , elected representatives and officials
- Ensuring segregated collection of waste at market level utilizing services of CBOs on payment basis.
- Setting up of community biogas plants/ vermi / windrow compost units
- Making arrangements for sending recyclables to Resource Recovery Centres to be set up with community participation

(viii) Management Plan for Slaughter Houses and Chicken Stalls

- Erecting and managing scientific slaughter houses with proper waste management facilities.
- Not permitting chicken stalls to function without proper waste management facility.
- Taking punitive action for polluting water bodies and public places with chicken stall waste.
- Issuing clear guidelines for keeping slaughter houses and vending places clean.

(ix) Management Plan for Factories and Industries

- Enforcing pollution control norms

(x) Management Plan for Streets

- Ensuring periodic sweeping of streets
- Providing waste bins for segregated collection of waste, if necessary
- Providing for regular clearing of bins
- Banning littering
- Imposing fine/penalty for violation

(xi) Management Plan for Wastes from Public places

- Intensifying IEC campaign against littering public places
- Installing attractive bins for segregated collection.
- Imposing spot fine / penalty on violators utilizing the service of Green Police
- Providing sufficient gender friendly and disabled friendly pay and use public toilets
- Ensuring timely removal of waste by Local Governments

(xii)Management Plan for Waste from Tourist Centres

- Establishing green check posts at tourist centres to collect plastic bags from tourists and substituting with cloth / paper bags for plastic at a nominal price. Such check posts may be run by volunteers
- Installing attractive bins for segregated collection.
- Providing sufficient gender friendly and disabled friendly toilets
- Installing multilingual boards highlighting the need for conserving the pristine purity of nature.
- Installing vermi compost units where ever necessary

(xiii) Management Plan for Pilgrim Centres

- Establishing Green check posts at pilgrim centres like Sabarimala, Guruvayur, Malayattur, Bimapalli etc. to collect plastic bags from pilgrims and substituting plastic with cloth / paper bags at a nominal price. Such check posts can be set up by the religious institution concerned.
- Installing attractive bins for segregated collection.
- Providing sufficient gender-friendly and disabled friendly toilets
- Installing multilingual boards highlighting the need to keep the place sacred and clean
- Installing bio gas plants.

(xiv) Management Plan for Beaches

- Ensuring periodic cleaning of beeches
- Launching locally specific IEC campaign for fishermen and women
- Providing facilities for storage, collection and removal of waste
- Banning littering
- Imposing penalty on violators

(xv) Management Plan for Water Bodies

- Ensuring that water bodies are clean of wastes
- Launching customized IEC
- Imposing penalty on violators
- Providing facilities for storage, collection and removal of waste from residents on embankments
- Ensuring periodic desilting and cleaning

(xvi) Effective enforcement of plastic ban

- Launching a multi-media IEC campaign at state /district and local levels.
- Ensuring cooperation of shop keepers in the use of alternative products such as paper bags, cloth bags, jute etc.
- Supporting small scale units producing alternative products through self employment schemes and providing forward and backward linkages for such units.
- Strict enforcement of legal provisions.

III-1.2.3. Liquid Waste Management

- Promoting no cost technologies like soak-pits for household sullage disposal.
- Preparing drainage maps and plans segregating storm water drainage and waste water drainage.
- Expanding coverage of sewerage in thickly populated areas adapting the beneficiary participation model developed by Alanthur Municipality in Tamilnadu.

III-1.3. Elements of the Action Plan

III-1.3.1 Organisational Reform

i. Clean Kerala Mission and Total Sanitation Mission would be integrated into a single Mission to guide the detailed formulation and implementation of the Action Plan. The new Mission would come into being by 1st January, 2008. The restructured Mission would develop a network of professional agencies involved in sanitation including Community Medicine Department of Medical Colleges, Regional Research Laboratory, National Rural Health Mission, Communication and Capacity Development Unit, Jalanidhi, Socio Economic Unit Foundation, Integrated Rural Technology Centre, Agency for Non-conventional Energy and Rural Technology, Costford, Cochin University of Science and Technology, Centre for Earth Science Studies, Centre for Water Resources Development and Management, Pollution Control Board, Khadi & Village Industries Board, State Energy Mission, Kerala Water Authority and voluntary organizations.

ii. A Communication and Capacity Development Unit (CCDU) for sanitation would be set up exclusively for sanitation within the Mission to spearhead Information, Education and Communication (IEC) activities.

III-1.3.2 Participatory Planning

Based on the needs identified by the survey conducted in Local Governments and the suggestions emanating from the Grama Sabhas, Local Governments would initiate participatory preparation of Detailed Project Reports (DPRs) adopting the following steps.

(i) Setting up of Working Groups

Working Groups would be set up by each Local Government exclusively for sanitation. It will be headed by the Chairperson of the Standing Committee in charge of Health and would have as its members, officials concerned with the sector, experts from within and outside Government, social activists, representatives of Self Help Groups and other stakeholders. The Working Group would perform the following tasks:

a) Revisit the data collected and firm them up.

b) Hold consultations with stakeholders.

c) Review the present methods for solid and liquid waste management.

d) Evaluate different managerial and technology options.

e) Present draft proposals to the Local Government.

(ii) Expert Consultation

Using the Working Group Reports, elected Local Governments would consult experts identified at the district level and take a decision on the recommendations of the Working Group.

(iii) Preparation of Detailed Project Report

Based on the decision of the Local Government the Working Group would prepare Detailed Project Report (DPR) covering the following elements.

- Universal coverage of household latrines.
- Universal coverage of latrines in public institutions.
- Different aspects of solid waste management – waste reduction, segregation and storage at the point of generation, collection, transportation and final processing and disposal.
- Different aspects of liquid waste management – soak pits, drainage for liquid waste, drainage for storm water and sewerage in urbanized areas.
- Setting up of modern slaughter houses in a phased manner
- Setting up of burial grounds/crematoria as per requirements.

(iv) Vetting of DPR

The District Planning Committees (DPC) would set up Technical Advisory Groups (TAG) for sanitation which would vet the projects prepared by Local Governments.

(y) Approval of Projects

The District Planning Committees would approve the projects.

(vi) Time frame

The time frame for the planning process would be as follows:

1)	Training of Working Groups	–	by 30th November 2007.
2)	Submission of Working Group Reports	–	by 31st December 2007
3)	Decision by Local Governments	–	by 31st January 2008.
4)	Submission of DPR	–	by 28th February 2008
5)	Approval by DPC	–	by 31st March 2008

III-1.3.3. Capacity Building

Kerala Institute of Local Administration (KILA) would provide the necessary training for the experts as well as members of the Working Group.

Key elected representatives of Local Governments would also be trained for taking the appropriate decisions. The State Institute of Rural Development (SIRD) would be associated in the capacity building programme.

The trainings would be conducted in a decentralized manner at the District and Block levels. The programmes would be held in phases to cover the different actors in the planning process starting from the Working Group up to the District Planning Committees. A multi-media campaign would be launched on 1st January 2008 to give momentum to the campaign for *Waste free Kerala*.

III-1.3.4. Regulatory framework

A strong regulatory frame-work would be put in place by amending the Kerala Municipality Act and the Kerala Panchayat Raj Act along with relevant Rules. The amendments would focus on the following:

- Role and responsibilities of households in segregating wastes and in promoting processing within compounds.
- Responsibilities of establishments generating huge quantities of waste in storing, processing and treatment of waste.
- Responsibilities of Village Panchayats, Municipalities and Corporations in storage, collection, transportation, treatment and disposal of waste.
- Guidelines for collection, transportation and treatment and processing of waste.
- Guidelines for identifying location of treatment facilities and disposal sites.
- Penalties for violators with special reference to littering of public places, obstruction of natural and artificial drainage, pollution of water bodies and soil and negligence leading to vector breeding.

The Amendments would be in place by 30th June 2008

III-1.3.5. Monitoring

An independent machinery for monitoring performance as well as sustainability of achievements would be set up by 31st May 2008. This mechanism would, among other things use a methodology of Citizen Score Card as adapted for Kerala to evaluate citizen satisfaction. In addition monitoring would focus on the environmental and public health outcomes.

III-2. RESOURCES

The Action Plan would require considerable resources. While approved projects with secured funding are ready for implementation the other projects would be costed in detail as and when DPRs are prepared.

The following projects have already been approved for the urban areas.

Table III-1: Projects approved under KSUDP

(Rs in crore)

Sector	Tvpm	Kollam	Kochi	Trichur	Kozd	Total
Sewerage and Sanitation	77.25	52.70	92.79	0.73	56.84	**280.33**
Storm Water Drainage	6.30	8.03	13.76	27.41	28.14	**83.64**
Solid Waste Management	—	6.90	12.96	5.74	7.34	**32.94**

Table III-2: Projects approved under JNNURM

(Rs. in crore)

Sector	Name of Local Body	Approved cost
Solid Waste Management	Kochi	88.00
Sewerage	Thiruvananthapuram	215.41
Drainage	Kochi	9.78

Table III-3: Projects approved under UIDSSMT

(Rs. in crore)

Sector	Name of town	Approved cost
Solid Waste Management	Neyyattinkara	3.49
-do-	Attingal	3.06
-do-	Punalur	4.82
-do-	Pathanamthitta	3.90
-do-	Changanassery	3.80
-do-	Perinthalmanna	5.22
Sewerage	Chalakkudy	55.00

These projects worth Rs. 811.59 crore are to be started immediately for which funding has been secured. In addition all urban local Governments have been given directions to give first priority to sanitation while preparing new proposals for funding from JNNURM.

The Total Sanitation Campaign project has been restructured and now approved by Government of India for Rs.209 crore which is Rs.90 crore over the earlier project approved by Government of India. 10% of the revised project is to be spent on Solid Waste Management, Government of India has been requested to enhance this to 25% in tune with the priorities of the State.

For the Action Plans, the Development Fund and Maintenance Fund provided to Local Governments would be put to optimum use. Funds from National Rural Health Mission would be converged particularly for IEC. Micro enterprises in the field of sanitation would be set up through the Kudumbashree network for which funds from Swarna Jayanti Grameen Swarozgar Yojana (SGSY) and Swarna Jayanthi Shahari Rozgar Yojana (SJSRY) would be pooled with the budgetary allocations of Kudumbashree.

Now that National Rural Employment Guarantee Act (NREGA) has been universalized the funds would be used in rural areas for improving drainage with the objective of scientific storm water/liquid waste management and renovation and upgradation of traditional water sources. Anti-poverty programmes of Hariyali and Indira Awas Yojana (IAY) can also be dovetailed to augment resources.

For technical support and capacity building, budgetary support would be provided by the State Government. To eke out these public resources, large waste generators would be asked to make their own arrangements for waste disposal and treatment or pay the Local Government for the services. Also, resources for IEC and for keeping public places clean would be mobilized through sponsorships and voluntary donations. The biggest resource is expected to be the local people themselves who could contribute in cash, kind and labour for a common cause, particularly local organizations and clubs would be mobilized for sanitation activities in public places along with the vast network of NHGs of women.

III-3. OUTPUTS

In concrete terms the Action Plan would focus on the following outputs and milestones.

Table III-4: Outputs/Milestones and time frame

Outputs / Milestones	Time frame
a) Total coverage of household sanitary latrines	Nine months
b) Total coverage of latrines in public institutions like Anganwadis, Schools and Hospitals	One year
c) Putting in place household and institutional waste treatment systems	$^{1}/_{3}^{rd}$ of the households and institutions to be covered in each of the next three years.
d) Segregation of household and institutional waste	Within one year
e) Developing decentralized common treatment facilities	$^{1}/_{3}^{rd}$ of the local governments to achieve this in each of the next three years.
f) Development of common sanitary land-fill sites for inert waste as required	During the Eleventh Five Year Plan period.
g) Making Colonies clean and neat	In two years
h) Introducing litter-free public places	All major town centres, pilgrim/ tourist centres, markets, street and public institutions to be covered in three years.
i) Plan for liquid waste management	A perspective plan to be prepared in two years
j) Extending sewerage facilities	Present coverage to be tripled in five years

To incentivise the achievement of these milestones ahead of time, awards would be given to Local Governments based on transparent indicators. For the first set of awards the following qualifications have been prescribed to be achieved by 31st May 2008.

1. Achievement of total coverage of individual household latrines, and coverage of schools, anganwadis and hospital toilets.
2. Cleaning of the premises of all public offices and institutions.
3. Scoring of at least 50% of the eligible marks in respect of the following items.
    i. Clean market places
    ii. Clean schools / hospitals / anganwadis
    iii. Litter free major streets.
    iv. Segregation and in situ treatment of household waste
    v. Clean Colonies
    vi. Enforcement of ban on plastics

4. Preparation of the following detailed plans

i. Plan for Solid Waste Management
ii. Plan for Drainage
iii. Plan for Clean Colonies

III-4. OUTCOME

At the end of the XI Five Year Plan it is intended to realize the goal of Clean Kerala to a substantial extent. It is expected to be reflected in better quality of life due to improved health and general wellbeing, economic gains, better aesthetic surroundings and overall environmental upgradation.