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Democratic Socialist Republic of Sri Lanka: Delivering Natural Resource and Environmental Management Services Sector Project

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Prepared by:

ANZDEC Limited, New Zealand in association with Infotechs Ideas (Pvt) Limited, Sri Lanka

For: Ministry of Environment and Natural Resources, Sri Lanka

Asian Development Bank

SRI LANKA
DELIVERING NATURAL RESOURCE AND ENVIRONMENTAL MANAGEMENT SERVICES SECTOR PROJECT
ADB TA NO. 4059–SRI

Final Report
Volume I – Main Report

September 2005

Prepared for the
Ministry of Environment and Natural Resources, Sri Lanka
and the
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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AF	Arthachariya Foundation
AusAID	Australian Agency for International Development
BAT	Best Available Technology
BATNEEC	Best Available Technology Not Entailing Excessive Costs
BOD	Biological Oxygen Demand
CBO	Community-Based Organizations
CEA	Central Environmental Authority
CEIF	Community Environment Initiative Facility
CEIP	Colombo Environmental Improvement Project
CEPOM	Committee on Environmental Policy and Management
CFE	Caring for the Environment
CREST	**C**ollaborative **R**esource-based **E**cologically **S**us**T**ainable
DEO	Divisional/District Environmental Office(r)
DFID	Department of International Development (of the UK Government)
DS	Divisional/District Secretary/Secretariat
DWLC	Department of Wild Life Conservation
EA1P	Environmental Action 1 Project
EIA	Environmental Impact Assessment
EIF	Environment Information Forum
EIRR	Economic Internal Rate of Return
EIS	Environmental Information System/Service
EMIS	Environmental Management Information System
EPL	Environmental Protection License
EPU	Environmental Planning Unit
ESA	Ecologically/Environmentally Sensitive Areas
ESI	Environmental Sustainability Index
FD	Forest Department
FIRR	Financial Internal Rate of Return
GCA	Greater Colombo Area
GDP	Gross Domestic Product
GIS	Geographic Information System
GN	Grama Niladhari
GOSL	Government of Sri Lanka
GPA	Global Program of Act
HCI	Head Count Index
HHs	Households
IDP	Internally Displaced Person
IEE	Initial Environmental Examination
IGAs	Income Generation Activities
IMSC	Inter-ministerial Steering Committee
IPENS/IPENRS	Investment Plan for Environment and Natural Resources Sector
IPM	Integrated Pest Management
IPM	Integral Pump Mixing (technology)
ISOA	Institutional Sector and Organizational Analysis
IT	Information Technology
JICA	Japan International Cooperation Agency
LA	Local Authorities
LAN	Local Area Network
LG	Local Government
LGA	Local Government Authority(ies)
LLDF	Local Loan Development Fund
LTTE	Liberation Tigers of Tamil Eelam
LUPPD	Land Use and Policy Planning Division
MC	Municipal Council
MDG	Millennium Development Goal
MENR	Ministry of Environment and Natural Resources
MILES	Managing Information for Local Environment in Sri Lanka
MIS	Management Information System
MOEF	Ministry of Environment and Forests (now MENR)
MOF	Ministry of Finance
MPAHA	Ministry of Public Administration and Home Affairs
MPCLG	Ministry of Provincial Councils and Local Government
mt	metric tonne
MTU	Manpower Training Unit
NEA	National Environmental Act

NEP	National Environmental Policy
NGO	Non-Governmental Organization
NNRC	National Natural Resource Council
NORAD	North American Aerospace Defense Command
NRE	Natural Resource and Environment
NREM	Natural Resource and Environmental Management
O&M	Operation and Maintenance
OCED	Organization for Economic Co-operation and Development
PC	Provincial Council(s)
PPM	Pradeshiya Parisara Mandalaya
PPP	Public-Private Partnership
PPS	Palaath Parisara Sabha
PRA	Participatory Rural Appraisal
PS	Pradeshiya Sabha
PSA	Poverty and Social Assessment
RALEs	Real Legal and Economic Entities
RDA	Road Development Authority
RNE	Royal Netherlands Embassy
RRA	Rapid Rural Appraisal
Rs.	Sri Lankan Rupee(s)
SAARC	South Asian Association for Regional Cooperation
SACEP	South Asian Co-operative Environment Program
SALT	Society for Applied Learning Technology
SEA	Strategic Environmental Assessment
SK	Sampath Kalaapa
SKS	Sampath Kalaapa Sansadaya
SLANRMP	Sri Lanka-Australia Natural Resource Management Project
SLILG	Sri Lanka Institute of Local Governance
SOE	State of the Environment
SWM	Solid Waste Management
TA	Technical Assistance
TSHDA	Tea Small Holdings Development Authority
UAE	United Arab Emirates
UC	Urban Council
UDA	Urban Development Authority
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UN-HABITAT	United Nations Human Settlements Program
WAN	Wide Area Network
WTP	Willingness to Pay
ZOPP	Zielorientierte Projektplanung, or GOPP- Goal Oriented Project Planning

EXECUTIVE SUMMARY

A. Overview

1. Sri Lanka society remains dependent upon its natural resources for economic and social wellbeing. The rate of urban development maintains a predominantly rural lifestyle with its dependence on natural resources. The ability to continue a resource dependent lifestyle is questionable with high and increasing rates of poverty occurring in rural areas. The inability of natural systems to support a growing population is producing indications of over-use (declining fertility and lowered fishery catches) and degradation (soil loss, water pollution, salinization and nitrate contamination of waterways).

2. The goal of the National Environmental Policy (NEP) is to move towards more sustainable development, something not occurring in most rural areas. As increased population result in declining resources per capita, producers seek increased outputs to compensate the effects of reduced land by applying fertilizer, chemicals, etc., increasing the risk of pollution or degradation. Further, as pressures increase, producers seek to achieve greater efficiencies in terms of labor use through mechanization and increasing the scale of their holdings. The result of this is for communities to lose young adults in search of paid labor. This process of seeking increasing outputs leads to degradation, pollution and ultimately rural depopulation. These effects occur over a wide-scale and represent a major change in the sector point source to non-point source issues.

3. As these pressures mount, the rate of urbanization is expected to accelerate bringing new challenges of how to address wastes and contaminants from densely, often unplanned and under-serviced, urban development. Already urban areas are proving to be almost impossible to service through current approaches, as demonstrated by the ongoing failures in the provision of effective and affordable solid waste management (SWM). These failures occur despite creating significant risks to public health (dengue being a striking indicator) and environmental quality as waste is wild dumped or used to fill low lying areas for urban development. In April 2005, this culminated in Colombo's waste being dumped in close proximity to the water intake for the city with the serious risk of contamination of the city's water supply.

4. Sri Lanka is losing ground in its attempts at protecting its natural resources and environment with development moving away from the desired sustainable pathways stated in the policy. The Yale Sustainability Index ranks Sri Lanka significantly lower than its OECD economic rank suggesting economic development may occur at the expense of its natural resource and environmental assets. The lack of effective management systems for natural resource management is the major contributor for low performance in the sustainability index.

5. The institutional framework for managing the changing nature and increasing intensity of problems is poorly developed. Current systems continue to rely on sector administration with strong objectives and incentives to increase economic production. The natural resource and environment (NRE) sector is dependent on these sector agencies which results in NRE needs being subjugated in decision-making behind sector economic objectives. The institutional framework in the NRE sector is limited to the Central Environmental Authority (CEA) and the Ministry of Environment and Natural Resources (MENR) which have focused on the easier targets linked to point source pollution management.

6. Effective management of NRE non-point sources challenges the capacity and effectiveness of current management systems with indicators suggesting that management continues to fail. There are two major contributing causes for these persistent failings. The first is the nature of non-point management problems which require collective actions across users whose livelihood depends on resource use and the ability to get coordinated responses across a large number of sectoral agencies. The real need is for territorially defined management ideally defined on the basis of natural and social systems and not centralized sector decision-

making which involves numerous agencies with overlapping and ambiguous jurisdictions, mandates and authority.

7. The second issue is the notion of subsidiarity and the need to identify and address issues at the lowest possible level. This is demonstrated by the way national agencies define issues and problems. National agencies do so in generic terms using conceptual problems which in reality are complexes of different issues, involving different stakeholders who face differing incentives and causes to the problems. Nationally these are grouped into issues such as "land degradation'" which is little more than a category or grouping label and is redundant in terms of defining effective operational programs. Consequently programs defined this way are announced with budget and input targets and beneficiaries sought to fulfill the expected use of inputs. The effect on outputs or outcomes is totally ignored and assumed to be addressed through this provision of inputs.

8. From the point of view of implementing a management system for the NEP priorities current management systems are highly ineffective and are likely to become even less effective. The lack of a natural resource and environmental management (NREM) framework that has clearly defined Roles, Responsibilities, Rights and Relationships within the context of subsidiarity is a major shortfall within the sector and is a focus within this report.

9. The investment plan is preceded with the definition of a collaborative sub-national NREM framework. The proposed framework aims to move the NRE sector into a planning modality that works on territorial plans prepared at three levels. At the lowest resource planning unit (Sampath Kalaapa [SK]) community stakeholders identify priority issues and prepare action plans. At this level the planning process and approach adopts a livelihood approach. The use of the livelihood framework recognizes the context of resource use at the local level, in that the natural resource use is influenced by the mix of development assets available and the risks and uncertainties that surround the use of resources.

10. Once completed, the SK plans will form a Pradeshiya plan that address cross border issues, externalities and the cumulative effects of linked resource systems. Located at the lowest level of administration and governance, the focus of the Pradeshiya plan will be the service delivery objectives and responsibilities defined both constitutionally and in local authority legislation. The Pradeshiya plan adopts a spatial perspective and collectively will form the basis for the Palaath plan at the provincial level.

11. The provincial level adopts a strategic planning approach with sustainability as the overall goal that will be built on a series of strategic environmental assessments (SEAs) and their integration with the Pradeshiya plans. Critical issue at this level is to protect the overall capacity of natural systems in terms of carrying and assimilative capacity. The provincial plan will address cumulative effects of all the current and proposed use and then outline strategic interventions to limit use to within sustainable levels.

12. The planning systems will be implemented by local partnerships at the lowest possible level with funding directed to these partnerships. The implementation partnerships require Real and Legal Entities (RALEs) which enable the partnership to enter into legal contracts as well as economic contracting and resource mobilization. Implementation financing will flow through the Finance Commission which will form an imprest account and from which money will be allocated to the outcomes of the sub-national planning process.

13. It is proposed to move this into a sector funding modality with a strong resource mobilization program.[1] An important finding of the case studies was the significant opportunity to mobilize community resources into NRE and livelihood programs. On average, between 40 and 60% of the proposed actions did not require outside resources. One of the greatest benefits of

[1] Currently being developed by UNEP under the GPA program.

the planning process in the case studies was to provide a platform for collective discussion and decision-making previously not available to communities on these issues.

14. The final component of the NREM framework is a proposed monitoring and evaluation program. The proposed NREM framework adopts as a key principle the notion of managing for outcomes and not inputs. As such, the proposed projects are designed as planning processes that define needs and then the resources required to implement the required actions. Traditionally in Sri Lanka, a planning process was given a budget with no plans on how this would be spent with little or no connection to outputs and therefore the accountability for outputs and outcomes was not established or applied.

15. There are significant examples of the overall approach working. It was from these successes that the NREM framework was designed. There is however, a significant difference. Past successes were driven mostly by donor initiatives that relied on top-down or supply-driven approaches that were implemented through creating special institutional arrangements creating parallel implementation systems in the form of project implementation offices and rules. Once these projects end, the implementation arrangements also cease and the initiative is not sustainable as there remains no system for implementation irrespective of the success or otherwise of the activities. The proposed NREM framework seeks to avoid parallel arrangements by linking directly to the existing sub-national institutional framework within which it defines the Rights, Responsibilities, Relationships and Roles for all the respective stakeholders.

16. The objective and scope of the supporting investment plan is: "*to develop an investment plan that will enable the MENR to finance management systems for achieving natural resource and environmental outcomes through the implementation of the National Environmental Policy*".

17. While the investment plan adopts an NRE sector perspective based on the Caring for the Environment (CFE) priorities, the Government of Sri Lanka (GOSL) requested that the scope of issues be limited to programs that delivered NRE services related to:

- Managing the provision of ecosystem services – this is to distinguish that the TA will not address issues related to non-renewable resources and most brown-side issues.

- Managing the provision of urban environmental services of which SWM is the most pressing issue – the emphasis being on urban, since a service-oriented economy depends significantly on the presence of effective and efficient urban environmental services.

- Linking NREM to sustainable development, particularly by establishing links to tourism development (not only ecotourism) – the distinction is subtle, but sustainable NREM need not be linked only to eco-tourism. The tourism sector as a whole should be linked with sound NRE strategies.

- Creating awareness and education programs with a view to achieving behavioral changes regarding NRE issues – the latter part of the sentence adds an emphasis on the purpose of awareness and education programs. This is necessary to ensure that programs are targeted to specific audiences and also to develop the correct impact monitoring indicators.

- Decentralizing delivery of NREM services and building capacity especially within local government agencies – the emphasis here is on creating appropriate public-private partnerships (PPP) for delivery of services and building institutional capacity within this context.

18. The investment plan addresses the priority issues through the implementation of the NREM framework with the agreed priority investments being: (i) solid waste management, (ii) integrated NREM for the provision of ecological services and functions, and (iii) management of environmentally sensitive areas (ESA) especially wetlands. For each of these a fully specified investment plan is provided, however the proposed application of the NREM framework would enable any set of issues to be addressed through the same process.

1. Solid Waste Management

19. Solid waste management (SWM) in Sri Lanka has turned into solid waste movement with significant dialogue, yet persisting policy and institutional failings due to institutions with no mandate dabbling in the subject. For example, key sector parameters such as regulation and environmental standards need to provide positive incentives for change and not major hurdles. As a consequence of both donors and these agencies adopting a reactive, largely unplanned approach, many initiatives fail and often result in significantly higher costs to the community.

20. The proposed investment supports a strategic planning approach operated from the province level down to the local authority who would in turn work with local communities. The investment focuses on achieving safe final disposal for clusters of local authorities reducing the number of sites and enabling the use of more technology and engineering at these sites. A total of 22 clusters are identified with each involving a semi-engineered final disposal site supported with necessary planning and support for local authorities for operational and financial planning to ensure affordability and sustainability of services. Local authorities will also be eligible to receive support for collection and transport systems that includes the possible use of transfer stations.

21. Local authorities will work with NGOs on contract in each cluster to demonstrate the SWM and livelihood programs that are effective elsewhere in Sri Lanka. These contracts are expected to reach about 20% of the population targeting the poorest or marginalized groups and will work to reduce waste by between 60 and 70% for the target group, providing significant financial benefits to local authorities due to saved transport and disposal costs and to the communities themselves by generating income and savings which is linked to the provision of microfinance for small and medium enterprise (SME) development. After a period of four years the contract is handed across to the local authority that would be expected to promote the approach on a wider scale, either directly or through new contracts.

22. Outside the clusters, simple managed site final disposal options will be offered to individual local authorities. These will also be supported through planning, financial management, cost recovery and user charges. The technology for final disposal will not be engineered but will include composting options to reduce the potential risk to the environment from leachate.

23. Implementation of the program will adopt the proposed NREM planning framework process. The strategic nature of SWM and the importance of final disposal provision however, necessitates that management be defined from the perspective of final disposal which needs to be planned at the provincial level. The planning process will review the use of PPPs as a means of creating a more sustainable investment input after any donor support is completed.

24. The total scale of the investment is estimated at slightly more than US$100 million including land and contingencies. It is recommended that the planning process and steps be tested or piloted in one province before a widespread application of the approach and that this could be Wayamba due to its capacity and the recent Supreme Court ruling that creates a strong incentive to move forward.

2. Integrated NREM and Environmentally Sensitive Areas

25. The remaining two investment priorities will introduce the NREM framework within two priority NREM contexts being (i) rural landscapes where there remains a balance between the livelihood requirements of local communities and the ability of the natural resource base to sustain this livelihood, and (ii) ESAs where the objectives of management seek to protect the ecological integrity of a landscape or system. For both of these contexts the investment will support both the planning process and the implementation of the resultant plans. A critical logic in the investment is to establish both procedures and capacity to implement improved NREM that is linked to local livelihood and also addresses the wider ecosystem needs on a sustained basis.

26. The investment will apply the planning process and the actual activities and investments will be defined as part of the process and as such, cannot be defined in advance. Case study work indicates marked differences in the investment packages between sites and locations while highlighting that the entry point will be water supply, sanitation, water pollution and land management for water management.

27. The investment will fund implementation of the plan outcomes including enterprise and innovation grants that create new employment opportunities and best management practices to the way resources are managed. In addition, a wider service delivery plan will be supported through capacity and organizational systems development, and strategic interventions. The outcome will be to increasingly introduce and influence the manner in which resources and the environment are used, with a movement towards best management practice linked to more sustainable livelihood.

28. The investment is proposed to pilot the process in one province so the process could be monitored, evaluated and if necessary, adapted for wider adoption throughout Sri Lanka. The evaluation will be used to finalize the proposed NRE statute that will recognize the planning outcome as a statutory document that binds both the public and private sectors. Once planning is completed, the plan will be implemented and the approach extended to the other provinces.

29. The third investment follows the same approach but within the context of managing ESA. The approach differs in that the pilot program is a wetlands that does not extend to the level of the province and is not necessarily a priority for the provincial level NRE planning. It is proposed that for each ESA a local management entity along the lines available to Coastal Fisheries be created for local resource stakeholders. This entity would become the RALE that would implement the management plan developed, starting from the SK level and then being collated into a unified plan for the whole ecosystem.

30. For Koggala, the management entity is proposed for the district level and once the plan is approved, the management entity would be empowered to implement the plan on behalf of the stakeholders. For the ESA program, the Koggala pilot site has been designed in detail[2] and there is provision for two extension sites based on the evaluation of the pilot program.

3. Program Implementation

31. The overall program will be implemented under the leadership of an inter-ministerial steering committee comprising the MENR, Ministry of Provincial Councils and Local Government (MPCLG), Ministry of Pubic Administration and Home Affairs (MPAHA) and a program unit within the MENR. Support is proposed for monitoring and evaluation, technical skills, data collection and policy analysis at the national level. Further, it is proposed that a stakeholder-based National Natural Resource Council be formed under the leadership of the Prime Minister to provide policy advice and oversight of the NRE sector.

[2] The tsunami of December 2004 however, will necessitate confirmation of the plan priorities and responses.

32. The outcome of the program will be an increasingly proactive management of NRE that limits future damage and maintains the productivity of natural systems to support sustainable livelihood for those stakeholders that remain dependent on the resource. More importantly, it will leave institutionalized capacity and system for the ongoing management of natural resources that can increasingly address the threats and capture future opportunities from effective natural resource management.

B. Reform Agenda

33. The investment targets the implementation of sustained management capacity and systems that supports priority implementation programs. As a consequence, there are institutional hurdles and weaknesses that need to be addressed to enable the benefits of the proposal to be captured. The following outlines the priority reforms discussed with the government throughout the TA.

1. Solid Waste Management

34. The following are a subset of a wider set of reform recommendations (see pages 67 to 70 of this report):

(i) For MPCLG to revise and strengthen the national SWM strategy prepared by the MENR to include the wider aspects of SWM and in particular to address the following key points:
- A strategy for final disposal.
- Clarify roles and responsibilities in final disposal.
- Redefine the compliance framework for SWM.
- Site design and operation guidelines prepared by CEA to be integrated with the strategy.
- A strategy to re-specify appropriate environmental standards and possibility of using site based regulation through licensing/permitting systems.
- Clear definition of liability for final disposal sites, both official and unofficial.
- Specification of site closure procedures.
- Outline monitoring program for containment and where necessary, remediation of past practices.
- Clarify institutional roles, mandates, jurisdictions and authority with emphasis on moving SWM away from MENR to MPCLG.
- Defining a financing strategy for service provision including the use of user charges, a mandatory full cost user charge for conservancy services to industry to create incentives for waste minimization and PPP guidelines and advisory services.

(ii) The MPCLG to enact legal reform to provide provincial authorities the mandate for final disposal infrastructure provision possibly linked to the Provincial Natural Resources Planning Act.

(iii) A joint MCPLG and MENR taskforce to develop and implement a performance benchmarking system for SWM.

(iv) Strengthen MCPLG capacity for its support role to the local government sector by introducing skills and resources for the development of PPPs.

(v) MPCLG to require reclassification of urban areas in all local government entities to ensure that rating systems are applied to all those that receive services.

(vi) To complete the CEA register of final disposal sites and link this to the MPCLG.

(vii) Provincial authorities to introduce final disposal site licensing as mandatory for all public and private lands as a means of identifying potential risks to human and environmental health.

(viii) CEA to introduce affordable and flexible environmental standards including the option to regulate final disposal sites by contract as an integral part of site licensing.

(ix) A comprehensive review of the compliance system to be undertaken and recommendations enacted to ensure that appropriate disincentives exist for inappropriate final disposal by either the private or public sector including the specification of clear liability for final disposal acts.

(x) The introduction of provincial level SWM strategic planning to reduce the number of sites, obtain cost efficiencies and to access land where it may not be available in the smaller local authority units.

(xi) Provincial councils to be made responsible for the provision of final disposal infrastructure, either directly or indirectly through PPPs.

(xii) To require full cost accounting for the purpose of setting SWM rates by local authorities and to introduce differential rating for SWM as a separate charge.

(xiii) Local authorities to operate a separate SWM operational unit and cost center to enable budgeting and staff allocations.

(xiv) Mandatory time bound program to introduce SWM by-laws that have already been drafted.

2. Integrated Natural Resource Management

35. The following reforms are recommended in support of the introduction of the decentralized natural resource and ESA management program:

(i) MENR to adopt the principles of the NREM framework built on planning, subsidiarity, livelihood improvement, decentralization and collaborative management programs as a national policy and strategy.

(ii) MENR to establish legal jurisdiction of decentralized NRE planning[3] through the introduction of:
- National NRE Planning Law;
- National NRE Planning Statute;
- Local NRE Planning Law; and
- Local NRE Planning Statute.

(iii) The Minister of MENR to form a National Natural Resource Council (para 579) and an Inter-Ministerial Steering Committee for NRE (para 582).

(iv) The Secretary of MENR to form a dedicated Livelihoods Improvement and NREM section within the Natural Resource Management Division of MENR (para 585) to oversee decentralized NREM.

(v) MPCLG and MENR to form Palaath Parisara Sabha (PPS), Pradeshiya Parisara Mandalaya (PPM) and Sampath Kalaapa Sansadaya (SKS) for NRE planning and reporting (para 77-127).

(vi) A legal review of community level institutions to identify options for creating affordable legal entities that also have economic status[4] (para 535-536).

[3] Draft term sheets for each are provided in Appendix 16 Volume 3.
[4] See Appendix 4 Volume 3 for detailed discussion on the needs and current options for real and economic legal entities for community level implementation of plans.

(vii) Ministry of Finance (MOF) and MENR to jointly develop a sector financing mechanism within budget and linked to a resource mobilization strategy, building on the work of the current UNDP study. Once established, to review and pilot options that will enable the PPM to become an economic entity that disburses and revolves funds for the purpose of the NRE plan.

(viii) The MPAHA to work with MENR to develop mechanisms for the NRE plans and programs to be integrated with the sector programs through the Divisional Secretariat and to use the plans as a means for defining future programs, and to define and implement the role of the District Secretary in the linkage to provincial councils and the proposed NRE planning and management framework.

(ix) The development of management provisioning for ecologically and ESAs within the planning statutes to enable zonated management prescriptions to be applied.

C. Next Steps

36. The following section outlines a series of first steps through which the investment programs can be initiated. These steps were discussed with the relevant agencies during the TA program and in some instances have been adopted by the GOSL already. For example, the government is using its own funds along with Royal Netherlands Embassy (RNE) donor funds to pilot the introduction of the NRE program during 2005-2006.

1. Solid Waste Management

(i) The preparation of a joint Ministerial briefing paper on the underlying strategy to address final disposal for areas outside of the greater Colombo area – Additional Secretary MENR, Additional Secretary MPCLG.

(ii) A follow-on Cabinet paper to be jointly submitted by the Ministers of MPCLG and MENR on the approach to SWM based on a final disposal strategy involving provincial strategic planning, clustered local authority final disposal and the use of PPPs.

(iii) A concept paper to be submitted to the World Bank for use of public-private grant funds for piloting of the proposed strategic planning and PPP model for final disposal and to implement the plan by linking this to the planned $10 million grant available under the Poverty Reduction Fund. It is recommended that North West Province be used due to the recent Supreme Court ruling and the willingness of the Provincial Administration – MPCLG.

(iv) A SWM GOSL-donor meeting to be held to communicate the government's plan for SWM to donors and to plan a coordinated partnership for investment into SWM – Additional Secretary MPCLG. The donor meeting should consider issues of final disposal financing (especially the inability of a donor to fund 100% of the capital costs due to the extended timeframe for capital investment) and develop an agreement on how the donor and the government will address this.

(v) An MPCLG taskforce to be established to address the issues related to the Greater Colombo Area, including the possibility of moving all final disposals into one site and management regime. The taskforce would need to address the range of current contracts and obligations and determine a schedule and basis for this to be transitioned into an appropriately managed final disposal system. The taskforce should be empowered to develop a public-private concept and proposal through to the expression of interest stage.

(vi) CEA and MENR to form a joint SWM compliance taskforce under a senior legal expert to address critical shortcomings related to:
- definition and notification of achievable and affordable environmental standards;
- the ability to regulate by contract and license sites;
- the definition of responsibility and liability for solid waste, final disposal actions, etc., given contractual relationships between the public and private sectors; and
- drafting provisions in the National Environment Act for sanctioning inappropriate waste disposal including the use of SWM for private landfilling.

2. Implementing Integrated Natural Resource Management

37. The following next steps were recommended to the MENR for the introduction of the NREM planning and implementation program:

(i) MENR to form a Livelihoods and Decentralized NRE Group within the Natural Resources Division with a minimum of four staff.

(ii) MENR to prepare a Cabinet briefing paper recommending the pilot testing of the proposed decentralized NREM framework.

(iii) MENR to work with the Wayamba Provincial Council to develop a pilot program at the province level, as opposed to a small discrete parallel project level and to implement the planning system. MENR to approach the GOSL for donor assistance to finance implementation of the planning outcomes.

(iv) MENR and MPCLG to form a monitoring and evaluation team to assess process and outcomes arising from the pilot program and then use this to define the final version of the proposed NRE planning laws and statutes (drafts are provided in Appendix 16, Volume 3).

(v) MENR and MOF to develop a sector fund options paper and discuss with donors for support of such a funding mechanism.

(vi) MENR to consider the institutional option of forming a RALE for ESAs through which agreed plans could be implemented. This entity would be empowered in a similar fashion to those of coastal community fishery groups who once a management plan is agreed have the power to implement the plan.

(vii) Based on the experience of the pilot program, for the MENR to finalize a draft statute that enables the plans to become statutory and a required responsibility of the sub-national and deconcentrated government entities.

I. INTRODUCTION

A. Objective

1. The Ministry of Environment and Natural Resources (MENR) seeks to achieve improved environmental and natural resource outcomes while facilitating the role of natural resources within an overarching goal of achieving sustainable development. The following report presents the findings and outcomes of the ADB TA 4059-SRI as part of the MENR strategy to achieve more effective natural resource and environmental management (NREM). The purpose of the TA was limited to implementation functions and not to the national institutional arrangements which are being addressed through a Royal Netherlands Embassy (RNE) supported program.

2. The objective of this ADB TA is to focus on the implementation aspects of the Government of Sri Lanka (GOSL) strategy with the overarching purpose of "*developing an investment plan that will enable the MENR to finance management systems for achieving natural resource and environmental outcomes through the implementation of the National Environmental Policy*".

3. While the investment plan adopts a natural resource and environment (NRE) sector perspective based on priorities outlined in the Caring for the Environment (CFE) report and then subsequently modified during the inception phase, the GOSL requested that the scope of issues to be addressed be limited to programs that delivered natural resource and environmental services related to:

- Managing the provision of ecosystem services – this is to distinguish that the TA will not address issues related to non-renewable resources and most brown-side issues.

- Managing the provision of urban environmental services of which solid waste management (SWM) is the most pressing issue – the emphasis being on urban, since a service-oriented economy depends significantly on the presence of effective and efficient urban environmental services.

- Linking NREM to sustainable development, particularly by establishing links to tourism development (not only ecotourism) – the distinction is subtle, but sustainable NREM need not be linked only to eco-tourism. The tourism sector as a whole should be linked with sound NRE strategies.

- Creating awareness and education programs with a view to achieving behavioral changes regarding NRE issues – the latter part of the sentence adds an emphasis on the purpose of awareness and education programs. This is necessary to ensure that programs are targeted to specific audiences and also to develop the correct impact monitoring indicators.

- Decentralizing delivery of NREM services and building capacity especially within local government agencies – the emphasis here is on creating appropriate PPPs for delivery of services and building institutional capacity within this context.

4. A key determinant of the scope of the investment plan is the delivery of sub-national services for improved environmental outcomes as opposed to generic capacity and institutional strengthening. Where this strengthening is necessary for achieving implementation programs, strengthening is provided as an integral part of implementation programs. Implementation programs are specified with the range of agencies involved in NREM at all levels of government enabling policies to be interpreted into strategies and plans into actions and actions into outcomes. To achieve such a system requires development of comprehensive management systems which collectively form a proposed Sri Lankan NREM framework.

5. The NREM framework is an essential element in the strategy to achieve more effective implementation of programs; however, this requires capacity to be developed sub-nationally.

B. Reporting Outcomes

6. The Interim Report submitted in July 2004 was the first of three reporting milestones5 and was followed by a Mid-term Report in November 2004 which further clarified the rationale and scope for the investment plan and the proposed NREM framework which is identified as the priority investment. These reports summarized the current situation, assessed sector priorities, and detailed implementation arrangements and investment required for the decentralized NREM framework.

7. This report details the modality of the decentralized NREM program proposed including planning procedures, institutional context and linkages, and the need to adopt improved governance in the natural resource sectors. The modality is more than a planning process as it will be an important contributor towards: (i) changing the prevailing culture from focusing on inputs to outcomes; (ii) creating improved accountability for these outcomes and behaviors; (iii) increasing the depth and intensity of participation of all stakeholders so they are more actively involved in developing and implementing natural resource programs; and (iv) providing greater certainty to the process of resource use and management by moving to planned programs to allocate resources and guide programs.

8. The TA presents the NREM programs as a discreet entity; however, it is also an integral component of decentralization and the expanding role of decentralized agencies in NREM. As such the investment addresses some of the capacity constraints at these sub-national levels recognizing that there remain significant needs from a local authority and institutional strengthening perspective if all the programs are to be durable over the long run. In this context the report retains the policy dialogue as an important element of the overall investment plan.

9. Following the description of the proposed NREM framework, the report presents descriptions of the priority application investments. The first is a comprehensive SWM program that builds from the provision of final disposal. The program is indicatively defined for the whole of Sri Lanka based on a proposal to implement a pilot provincial program using a similar planning system to that proposed for the NREM framework. The SWM program is therefore indicative of a national priority issue being implemented in this manner. The proposed pilot will test and refine the systems and capacity development programs to be applied in the remaining provinces.

10. The second investment priority addresses the provision of ecosystem service within the wider landscape. The proposed multi-stakeholder planning process will adopt a livelihood and natural resource approach to local, Pradeshiya and provincial development needs. This investment will involve the introduction of the multi-stakeholder process through a pilot province with supporting investments at all levels.

11. The third investment priority addresses the provision of management services to ecologically sensitive areas (ESAs). While the same planning process will apply it is limited to the scope of the ecosystem and as such is labeled the “ecosystem approach”. The Koggala Wetlands in the Southern Province is used as a case study from which a pilot investment program is proposed. Once complete the pilot could be replicated to other ESAs.

[5] Contractually there are only two milestones, the interim and draft final reports; however it has been agreed to provide a mid-term report to provide clear opportunities for comment prior to the Project moving on to the next phase of the feasibility assessment.

12. The investment plan also supports essential support services relating to information systems and performance reporting mechanisms that will enable adaptation of programs through time and provide the necessary data on outcomes achieved and the status of the environment and natural resources.

13. The 2005-2015 investment plan was prepared under the expectation that the period represents a probable transition in donor support for the sector. The transition will involve the withdrawal of concessionary donor financing as Sri Lanka graduates into middle income status. The investment plan represents an opportunity to use donor support to establish the enduring systems of NREM and the underlying strategy acknowledged by prioritizing items that provide an exit strategy for donor inputs by establishing capacity and domestic financing mechanisms that can sustain management systems from domestic sources.

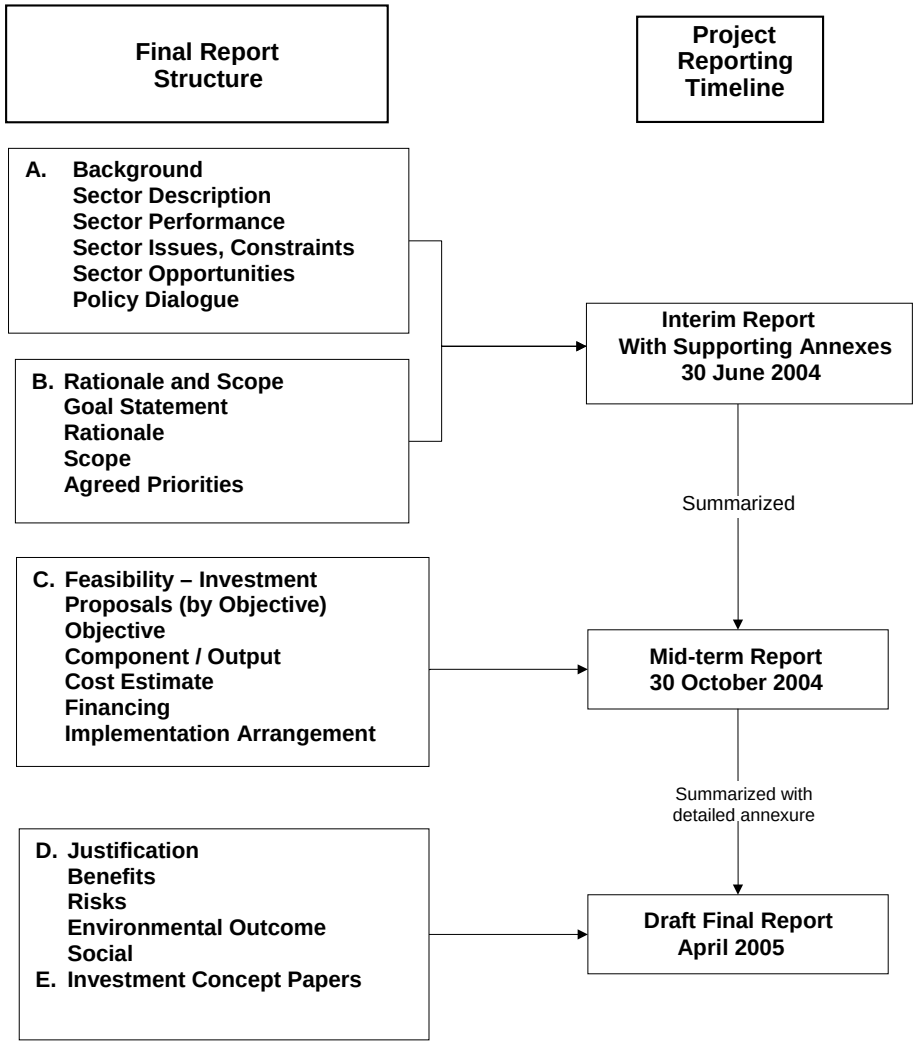

Figure 1: Scheme of TA Timeline

C. Decisions taken during the TA Process

14. At the Interim Report stage, the following decisions were made:

- That the organic farming proposal be delegated to the level of a concept paper, however since then the Ministry of Agriculture has sourced financing from the Food and Agriculture Organization for this proposal.
- That the sand mining proposal not be taken through to full investment plan status, rather the TA shall provide technical support to the MENR for the purpose of preparing a Draft National Sand Policy (see Mid-term Report, Appendix 21).
- That there is a need to present the planning and implementation modality inputs before the investment plan.
- That the TA should direct more attention to the issue of developing sustainable financing.
- The TA learnt that United Nations Environment Program (UNEP) under the Global Program of Act (GPA) is mobilizing a program of defining opportunities for the use of market-based instruments for the purpose of environment sector funding. The TA will coordinate with this program and has redirected its resources to define the fund operation such that resources mobilized can be used to target sector priorities other than going to the consolidated fund. Due to the tsunami, this program appears to be delayed.

15. Decisions at the Mid-term Report stage included:

- Recognition that the proposed NREM framework was a significant investment in and of itself.
- That the NREM framework was a priority for the GOSL.
- That there needed to be greater integration of the NREM framework and the Livelihood framework, both in terms of approach and also the analytical inputs.
- Financing and financial flows need to be more clearly stated.

II. SECTOR REVIEW

A. Sector Goals

1. National Environment Policy

16. During 2001-2003, the MENR prepared a National Environmental Policy (NEP) through a series of consultative workshops at the sector and provincial levels. The policy, ratified by Cabinet in August 2003, has the following objectives:

- To promote sound management of Sri Lanka's environment in its entirety without compromise, balancing the needs for social and economic development and environmental integrity, to the maximum extent possible while restricting inimical activities.

- To manage the environment by linking together the activities, interests and perspectives of all groups, including the people, NGOs and government at both the central and the local levels.

- To ensure environmental accountability.

17. The NEP adopts core principles relating to: (i) polluter pays and the need for consumption efficiency; (ii) use of natural resources will be guided by the need for sustainable development outcomes; (iii) when non-living resources are involved best management practices will apply with regard to the needs of future generations; (iv) traditional knowledge and practices will be respected in the development of management systems; and (v) effective governance will be ensured through the decentralization of environmental management services to the maximum extent possible.

18. The policy prioritizes the need to strengthen governance through increased participation with predictable and accountable decision processes. A key aspect of this TA is to develop these as clear unambiguous roles and responsibilities for all stakeholders in the NREM framework. Without this clarity, accountability for decision-making remains unclear and is a direct constraint to achieving the third policy objective above. The NREM framework will specify the linkages between institutions contributing to the policy statement of improving the institutional framework and linkages.

19. The Institutional Sector and Organizational Analysis (ISOA) program was to provide outcomes on the national level institutional relationships for inclusion in the NREM framework before the end of June 2004. However, this is ongoing and has yet to address either the relationship between the national organizations or the functional deconcentration issue of the Central Environmental Authority (CEA). Consequently, the following document must be premised on the understanding that these constraints will be resolved at some time in the future.[6]

20. In review, the NEP legitimizes the TA objectives and approach; however, significant gaps remain in the NEP statement in terms of addressing the need for effective governance in environmental management systems and how such environmental management will be implemented. While the emphasis on accountability is not defined it indicates a move towards an outcome-based management objective; however, to date, policy targets have not been specified. Policy statements remain sectoral in approach focusing on responding to issues as opposed to the establishment of a more proactive management framework. A consequence of

[6] The ISOA program has not been able to fully resolve the issues of overlapping mandates and at the latest interaction with the TA it appears that the program has adapted and is now working separately with the two institutions. At time of writing the fundamental allocation of functions and roles and their integration with jurisdictions and mandates at the national level appear unlikely to be resolved.

this is the inability to achieve effective implementation of programs other than through special arrangements such as projects and pilot programs most of which are attached to wider economic sector programs resulting in the NRE program having a low priority. The ability to extend such programs over the required scale is therefore constrained and the achievement of effective NREM outcomes significantly limited.

2. Caring For the Environment (CFE)

21. In September 2003, the MENR published the CFE report which presents the NEP and the national environmental strategies. While not stated in quantitative policy targets, the CFE report specifies the expected policy outcomes in the form of statements for land, water, the atmosphere and biological diversity. The CFE report provides a review of sector programs with environmental dimensions attached to current sector programs, the Committee on Environmental Policy and Management (CEPOM) structure being:

- Forestry and Wildlife;
- Agriculture, Plantations, Land Development and Mining;
- Fisheries and Coastal Marine Area Management;
- Industry and Tourism;
- Energy and Tourism; and
- Health, Sanitation and Urban Development.

22. Sector plans for each group were reviewed and strategies identified from these plans are "a business as usual" approach within the sector and not a strategic approach to implement the NEP. The CFE is mostly sector based for 2003-2007 with little or no focus on sub-national agencies despite the policy statement to the contrary.[7] While agencies have been assigned responsibilities there is no commitment from these agencies to address the recommended actions within their programs or within the timeline recommended.

23. There remain significant gaps in how programs will be implemented and the NREM framework at the sub-national level remains mostly undefined. The lack of definition occurs despite the 13th Amendment to the Constitution assigns functions and responsibility on significant parts of the NREM requirements to the sub-national administrative agencies.

3. State of Environment (SOE)

24. The SOE Report (2001) prepared by the Ministry of Environment and Forests (now MENR) defined a number of national priority issues with a range of supporting recommendations (see Table 1) which have been assimilated into the more recent CFE document - *Path to Sustainable Development*. The SOE also reports a number of general statements which highlight some of the requirements that need to be incorporated into the NREM framework. These include:

- Enforcement of laws must be strengthened;
- Maintain balance between economic development and environmental management;
- Mainstream environment into sector programs;
- Central bulk allocation mechanism for water;
- Protect waterbodies around Colombo;
- Protect the exploitation of biological resources through biotechnology developments;
- Provision of urban infrastructure and service;
- Move to user pays for utility services;
- Manage pollution as the economy grows; and
- Polluter pays will be introduced.

[7] This is not surprising as the sub-national agencies did not have plans to be reviewed and then include in this document.

Table 1: National Environmental Issues (SOE, 2001)

Issues	Recommendations
1. Land Degradation by Erosion	i) Strengthen the legal and institutional base: - Soil Conservation Act - MENR - institutional mechanism ii) Develop strategy to move people away from rural-based employment in highlands iii) Effective enforcement of land use zoning laws and regulations iv) Implementation of appropriate forestry programs in vulnerable areas v) Research and development on conservation practices vi) Database accessible to stakeholders
2. Waste Disposal	i) Adoption of integrated waste management systems including a coherent waste disposal system ii) Establish central and regional institutions to coordinate waste management iii) Effective enforcement of laws iv) Encourage participation of communities and private sector v) Promote entrepreneurs in recycling waste especially polythene and composting
3. Pollution of Inland Waters	i) Control use of agrochemicals, chemical fertilizers and encourage organic farming including bio-control of pests and insects – use of compost fertilizer ii) Introduce sound catchment management practices iii) Establish proper sewage facilities – initially in urban areas iv) Introduce SWM and waste water disposal techniques v) Locate high pollution industries in zones with central water treatment and waste management practices
4.Loss of Biodiversity	i) Develop conservation areas boundary marking and zoning strategies ii) Capacity building of field staff iii) Regulate visitors iv) Review and update policies and programs v) Foster research vi) Develop recreational facilities, ecotourism and education based on biodiversity vii) Rehabilitate degraded areas viii) Expand process of valuation of natural resources ix) Facilitate community participation in conservation management
5. Depletion of Coastal Resources	i) Strengthen legal framework ii) Change fishing methods iii) Regulate excessive sand mining iv) Limit visitation of diving sites v) Coral protection

B. Persistent Policy Failure - Policy as an Output

25. The sector review indicates policy and legal arrangements have yet to influence sector outcomes. The sector continues to operate in opportunistic and reactive modes based on personal and political agendas as opposed to being guided by policy. The failure of policy to influence sector decisions is partly due to the historical role the sector played in the economy, where resources and their allocation defined development outcomes and the associated power relationships within the wider policy and public decision-making. Over a period of time this power was used to centralize decision-making, largely in the form of assigning use rights with little engagement of civil society, adopting instead an almost total reliance on command (and control) systems.[8] To many in the sector the NEP is seen merely as an output, something achieved by its preparation, and not an input into new sector outcomes where it guides and constrains activities. A policy guided program is still to emerge and remains a significant weakness within the sector.

26. A review of the government and donor programs for (integrated) NREM projects illustrates that there is a yawning gap between the policy and actual practice. There are several

[8] This in itself is partly misleading as the control was limited to assignment of rights and not limiting the use of resources attached to those rights.

policy, structural, institutional and political reasons for this gap between policy and actual practice including:

- The fragmented approach to NREM, which follows and further perpetuates the conventional vertical single function agency model employed by the government and the donors alike and which discourages local involvement and horizontal integration.

- The enthusiasm and competition to access concessionary donor funding in the absence of regular resources; the projects aim at fragmented, quick delivery approaches and consequently fail to meet the real needs of society.

- There is no apex institution such as the originally intended Committee on Integrating Environment and Development Policy to monitor and evaluate whether investments are consistent with the declared policy, goals and objectives of the government.

- While the high level policy statements of government echo the global thinking on NREM, they are seldom translated into strategies and inter-sector programs.

- Concepts such as participatory management and community participation still remain experimental, exploratory or NGO-driven and are not mainstreamed into the development process. Consequently agencies and communities with limited capacity are continually exposed to an ever expanding range of planning and project implementation approaches.

- The value and potential of natural resources for the local economy and to society needs to be properly evaluated.

- Natural resource management is most effective when integrated with livelihoods for local communities tailored to suit the local setting; however this is only reflected in pilot projects. To date, there has been little or no mainstreaming of such thinking and approaches.

- Recent experience of community-based projects clearly demonstrates that the most effective entry point to NREM is domestic water and associated health care. The sector-based approaches of both the government and donors effectively exclude this entry point for most programs.

27. Current institutional arrangements have limited capacity, procedures or systems to implement the NEP in a manner that is consistent with its underlying principles, or achieve its objectives. For example, there remains an inability to control resource use, develop integrated approaches to resource management and manage the trade-offs between the imperatives of economic development and sustainability of the NRE of Sri Lanka. Several reviews have found these weaknesses are driven more by persisting institutional and policy failures than by a shortage of finance.

28. Previous sector policies and plans prepared at the instigation of donors have enabled the government to leverage substantial amounts of concessionary donor funding in the ensuing period for implementation of NRE investments. However, the funding obtained was often used for budgetary support primarily in the form of providing operational and capital funding to central agencies.

29. Routine reviews conducted by the government and donors indicate that: (i) the programs have remained largely center-driven and sectoral with minimal horizontal integration; (ii) due to design failures or implementation weaknesses, they have failed to promote integrated management at the local level; (iii) the desired objectives, particularly those relating to broad-based participation and for capacity building have not been realized to the levels originally

envisaged; and (iv) that most initiatives have failed to sustain beyond the project timeline and few if any success stories have been extended.

30. The underlying reasons for weak horizontal and vertical integration and for poor community involvement are wide ranging. Some reasons for this are:

- The fragmentation of responsibility for natural resources across a number of agencies. Since natural resources are dispersed and cross-sectoral some degree of separation is unavoidable. What is avoidable though, is, irrational and frequent reallocation of Ministry functions leading to discontinuities in policy formulation and program development. Consequently, transaction and coordination costs are high.

- An inability to address inter-sectoral interplay within the policy formulation process which results in policy statements that address sector issues without providing guidance on how other sector policies will come to bear in relation to each other. For example, the CEF strategy on clean air is largely dependent on fuel quality issues that are not addressed in the energy policy of Sri Lanka.

- Given the centralized vertically-structured management systems, a sectoral approach is still very dominant. This is partly due to the interest in preserving the historical authority and identity of the agency and partly to preserve narrow sectoral interests. Institutional mechanisms for inter-sectoral consultation continue to be weak and ineffective and where they do exist, compete for scarce resources.

- Harmonizing the sectoral activities at the national level within administrative regimes, even conceptually, is difficult due to the lack of capacity and the limited sharing of knowledge.

- At the local level, the vertical management structure along with the system of reporting and accountability discourage horizontal integration. Accountability is driven more by input use, accounting and audit requirements than by outputs and outcomes.

- Intense competition for scarce resources, both financial and human, especially for donor funds which have greater flexibility in disbursement and management. This competition actively discourages collaboration among sectors which many donor programs have attempted to strengthen.

- Inadequate arrangements for information sharing. Apart from lack of proper information systems, there is a strong culture of resistance to share.

31. The predominant challenge for the sector is to increasingly move into a culture of policy guided decision-making. This requires more appropriate institutional arrangements. An NREM framework is proposed to move the sector onto a more systematic management platform.

32. The NREM framework is designed to resolve and clarify some of the mandate and jurisdiction conflicts that currently exist or remain poorly stated creating a week governance regime for the NRE sector. These effects are compounded when the weak governance regime combines with characteristics of the institutional framework including: (i) a strong centralized decision-making system; (ii) the current option of channeling government resources primarily through sector and line agencies; (iii) a reluctance to share resources with decentralized administration; and (iv) the failure to bring local authorities into the NRE sector programs despite these organizations having the constitutional mandate and jurisdiction for these functions.

33. In the past, donor supported programs provided mechanisms that allowed current institutional constraints to be by-passed, thus avoiding the need for reform. However, as the demand for natural resources in Sri Lanka increases with development and with demographic changes, Sri Lanka also faces the prospect of losing concessionary donor funded programs. As donor programs are removed, so will the ability to create the special arrangements that have been necessary to overcome the institutional constraints through parallel project implementation arrangements. A critical need for the sector is to continue to clarify mandates, jurisdictions and authority and then to institutionalize delivery programs through the appropriate agency. Given the constitutional and legal mandates, such programs will lead to a significant increase in the role of the local authority and provincial councils due to the provisions of the 13th Amendment of the Constitution and the various Local Authority Ordinances

34. The urgency for change due to decline in donor involvement is also driven by dramatic increases in population and the forecast rates of urbanization, both of which create new pressures on available natural resources. The effect of population increases is to reduce the availability of resource per capita which in the case of land limits the potential production per capita and therefore the surplus for trade (see Figure 2). As this trend continues, there will be increasingly negative effects on the wider economy. Despite rapid population growth, Sri Lanka has maintained a relatively low level of urbanization and continues to be over-dependent on natural resources for the wellbeing of its citizens. Many in public decision-making retain the view that the development needs of a rural population can be addressed through the continued allocation of natural resources to offset the lack of alternative employment and livelihood options being generated downstream in the economy. There is significant evidence to suggest that this is no longer the case and it is not, therefore, surprising to find that poverty in Sri Lanka is primarily a rural phenomenon (see Annex 1, Poverty and Social Assessment).

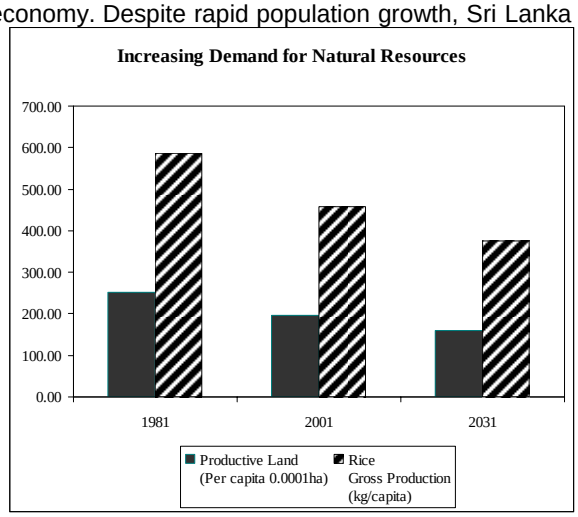

Figure 2: Increasing Demand for Natural Resources

35. The continued over-reliance on natural resources for livelihood and wellbeing through command and control systems requires that control or compliance systems are effective. There is evidence to indicate that the State is no longer effective in administering the laws and regulations centrally. This is amply demonstrated in the case of sand extraction and coastal setbacks. For sand, powerful interests with linkages to politicians, police and markets have continued to extract sand well beyond the capacity of local ecosystems, destroying river beds, water tables and creating significant social costs to both local communities and to the wider society. The mining of sand represents a significant wealth transfer from the disadvantaged and the general taxpayer to private construction sector interests. A recent Supreme Court Judge put on notice a Police unit for its involvement in this business; however, sand mining continues largely unabated and uncontrolled. Likewise coastal setbacks have been in place for considerable time, yet were ignored or simply not enforced, resulting in significant increases in the losses incurred during the Boxing Day tsunami.

36. While the NEP identifies new priorities and principles, the programs of the two main lead agencies concentrates more on reactive implementation activities (compost bins, solid waste programs and tree planting, for example) and not on building the systems and instruments that

the policy demands for its implementation. There are important gaps in the current system to enable the move from reactive to proactive NREM systems. In addition, there are significant challenges if a strategy of forging partnerships between civil society and the State to sustainably manage natural resources while supporting livelihood is to be achieved. Such a strategy needs to take into account ecosystem functions, the resource base, and the wellbeing of both the community that depends on it and the society of which they are a part; yet there are no such programs outside the donor program.

C. Sector Performance

1. Overview

37. Sector performance is nearly impossible to ascertain. Current information systems are limited and unsystematic with regard to the collection of data and information, while archival data storage systems[9] are virtually non-existent such that no temporal or spatial analysis is easily undertaken. Reporting is limited to the audit requirements of spending budgets while the predictability of outcomes and accountability for performance are non-existent.

38. Exceptions to the focus on auditing of budgets are the SOE reports. These reports attempt to examine mostly historical data and expert opinion to describe past trends and prioritize current issues from a range of disparate sources. The quality of data is largely unknown with most not being formally assessed for the purpose that it is being applied. Consequently, the SOE reports are more generic statements of environmental issues as opposed to an assessment of the state of the environment at any specific point of time and an evaluation of ongoing trends and changes.

39. There is no legal requirement as to when and how the sector should report the state of the environment to government, the public and to the international community with most reports being donor-driven. This situation reached the preposterous situation of an SOE report being prepared in 2001 with support from SACEP, DEMA, NORAD and UNEP, and then another report being published in January 2002 for SAARC. This leads to a conclusion that the reports are seen as outputs as opposed to a tool or an input for the management of the sector. There is an urgent need for Sri Lanka to develop an agreed public reporting framework for the state of the environment, within an agreed measurement framework, that links to the Millennium Development Goals, Public Policy Goals and the Sector Policy Objectives.

40. Two developments on the reporting of outcomes are worthy of note. The first is the air quality reporting of AIRMAC where data on air quality within Colombo is reported daily on boards and in newspapers. While this is to be applauded, it also highlights a major cultural difficulty for the sector. The reported data is in the form of daily average concentration data that mostly fall in the acceptable level due to the effects of averaging across time. They do not include maximum concentration exposure data from which the public can ascertain the nature and extent of personal health risks. The reason given for this is that when bad news is published “the public may ask what is being done about it!” A significant dis-benefit of this is that the MENR is unable to generate strong public support for improved vehicle emissions as the public is being told the current levels of pollution are acceptable.

41. The second is the Pavitra Ganga program where water quality data is shared with local communities. While there is real difficulty in sustaining the program, mostly as it is implemented by the MENR and not by local institutions, the achievement to date provides data on the changing water quality through time and that can be used by local communities to identify pollution sources. Further elaboration would enable local communities to work with the sector to understand the causes of water pollution and to seek means for addressing major threats. For

[9] Even the Forest Department FORDATA database has not had the ability to capture temporal data for management purposes.

this to happen, there needs to be a mechanism for engaging and empowering local institutions and communities in NRE activities to ensure it is institutionalized and therefore sustainable.[10]

2. Environmental Performance Assessment

42. With a stated objective of moving towards sustainable development (CFE, 2003) the sector should be assessing its performance against stated policy targets that reflect sustainability. The performance of Sri Lanka is assessed as part of an international comparative study.[11] Each country in the study is assigned an Environmental Sustainability Index (ESI) based on a range of parameters that are ordered in five categories being: (i) Environmental Systems; (ii) Reducing Environmental Stresses; (iii) Reducing Human Vulnerability; (iv) Social and Institutional Capacity; and (v) Global Stewardship.

43. The ESI enables countries with similar results to be grouped (see Figure 3) into similar performing and characterized groups. Sri Lanka has an assessed index of 48.5 (maximum possible 100) which sees it grouped with countries such as Cambodia, China, Sudan, India and Indonesia. This characterization is described as having weak environmental systems and moderate levels of environmental stresses, human vulnerability, social and institutional capacity and global stewardship.

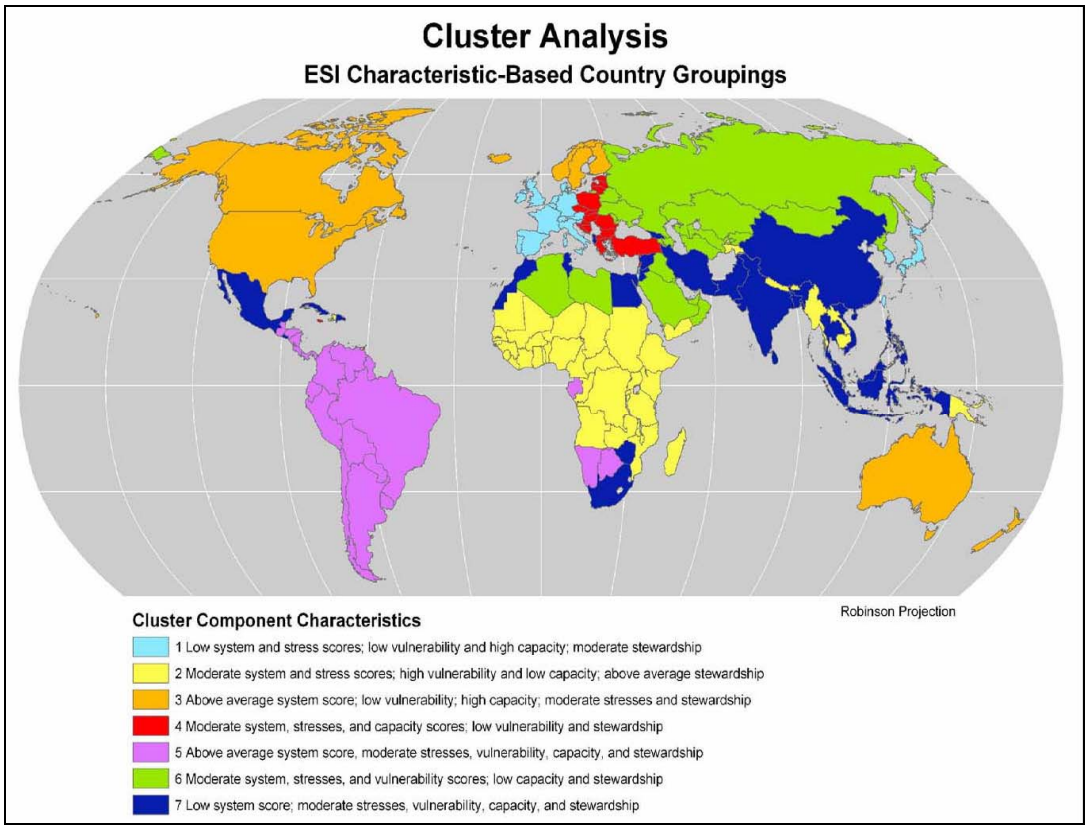

Figure 3: Environmental Sustainability Index – Country Groupings

[10] This case illustrates the difficulty of pilot programs where there is no arrangement in place to replicate the program into normal business.
[11] 2005 ESI: Benchmarking National Environmental Stewardship undertaken by Yale Centre for Environmental Law and Policy, Yale University, Centre for International Earth Science Information Network, Columbia University: In collaboration with World Economic Forum, Geneva and Joint Research Centre, EU, Ispara, Italy.

44. The ESI score of 48.5 for Sri Lanka sees it ranked 79 out of the OECD countries for environmental sustainability which compares with an economic ranking of 56 based on the GDP per capita of $3,284. In this sense, it would appear that the environmental sector is underperforming when compared with the economy or alternately the economic growth is occurring at the expense of its environment.

45. Estimates of environmental damage in Sri Lanka suggest annual damages amounted to 2.5% of GNP excluding coastal zone impacts, biodiversity and land degradation; three of the major issues raised in the SOE reports. This level of damage ranges from 30-50% of GNP growth per annum. Interestingly, 60% of the damage is linked to the green sector compared to 30% to the brown sector. The extent of damages in the green sector highlights a major weakness in the NRE institutional arrangements. These effects are the collective result of the decisions of all resource users, both past and current. These effects are both non-point source and diffuse issues spread both spatially and temporally.

46. These same issues are represented in each of the National Environmental Action Plans and the latest CFE report as increasing in scope and severity suggesting that despite their prioritization, remediation of past damages has proven difficult, as is preventing new damages occurring and highlights one of the major institutional difficulties facing the sector. Existing institutional arrangements rely on centralized sector agencies whose primary role has been the allocation of resources for economic development whereas increasingly the need is to manage how allocated resources are used.

47. The above weakness in managing resources is supported by the disaggregated ESI for Sri Lanka (see Figure 4) which indicates that Sri Lanka achieves average performance on four of the five categories of variables (where scores fall in the 50-60% bracket) except for the environmental systems category which only achieves 30%. This category covers separate variables for air quality, biodiversity, land, water quality and water quantity and indicates serious shortcomings in the achievement of sustainability goals for variables that fall within the gambit of the sector itself, i.e. the systems through which these resources are managed. The outcome is incongruent with stated government policy and reflects the institutional complexity and ambiguity with which these resources are managed more than any specific financing shortfall.

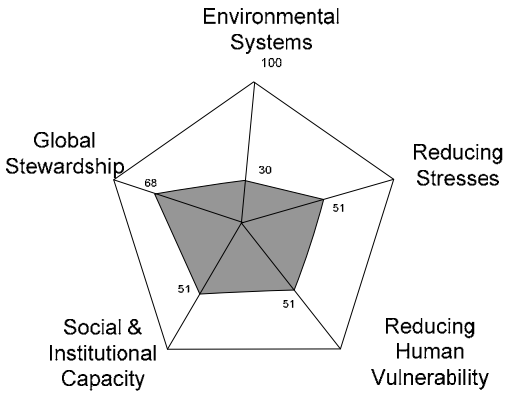

Figure 4: Composition of Sri Lanka's ESI

48. The ESI study supports the sector review findings that current management systems do not provide a basis for delivering the services and management inputs required to achieve the objectives of the NEP. As Sri Lanka continues to grow while retaining a high dependence on natural resources the demands on its resource base are going to increase. This creates incentives for resource users including farmers, fishers, illegal miners, forest users, etc. to seek higher output, irrespective of high or low producer returns. As a consequence, increasingly negative impacts and effects to ecosystems and natural resources, if effective implementation and management systems are not developed, can be expected.

49. With continued population and economic growth causing increased demand for natural resources, resource users will need to seek higher profits through increased output. These incentives while leading to increased output also contributes to the non-sustainability of natural systems. These negative effects include:

- *resource depletion* – where the rate of use exceeds the rate of regeneration resulting in a declining resource level which remains unpriced;

- *resource degradation* – pollution – where production drivers push the rate of waste generation upwards. Over time and space if the rate of waste assimilation exceeds the rate of purification the waste level will increase. The link between waste level and total productive capacity is often missing or unseen by producers of waste; and

- *community decline* – where production drivers increase production that reduces price which is magnified by greater producer–buyer power differentials. The decline in producers' income increases the consolidation rate of producers, lowering the number of producers and the community wellbeing indicators. Feedback that may solve the problems is missing as neither the community wellbeing nor the falling producer income affects productive capacity.

50. The possible reduction in donor support suggests that the lack of a sustainable management regime looms as a major risk to the future of the Sri Lankan economy, its development goals and poverty reduction targets. The objective of the TA is to provide management systems through which these impacts can be avoided or minimized. As such, this investment plan is not a project, rather:

- It aims to establish management systems that can sustain in the absence of donor involvement.
- It aims for developing outcome-based management that can be implemented in an ongoing program.
- It does not provide a loan that the plan aims to spend, instead it seeks to find what is needed, the priorities, and then look for resources to meet these needs/

D. NREM System – Meaning and Understanding

51. In the context of the NRE sector a management system is the set of institutional arrangements that support the implementation of the NEP and associated strategies. In simplistic terms this can be considered as a three-step process of (i) planning, (ii) implementing plans, and (iii) monitoring and evaluating the outcomes to prepare improved plans in the future (see Figure 5). An important aspect here is that the plan is not seen as anything other than a means of prioritization of issues and guiding implementation. The management systems will therefore need to be continuous and institutionalized to make it "business as usual."

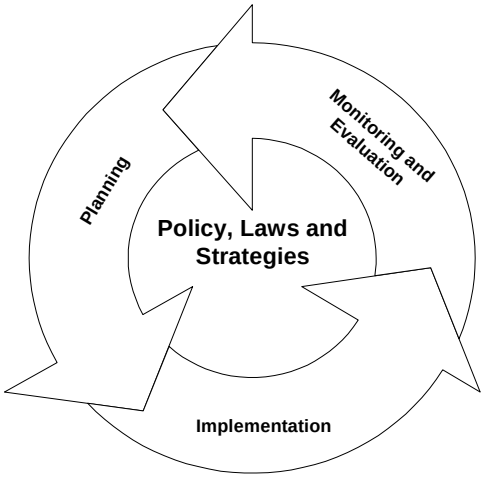

Figure 5: Stylized Management System

52. The NRE sector currently relies on central agencies, some of which are deconcentrated, and others work through delegation to the divisional secretary (DS). The institutional systems for the management of natural resources remains a major constraint (see Figure 6). This is further confused by the legal mandates and jurisdictions overlapping at all levels

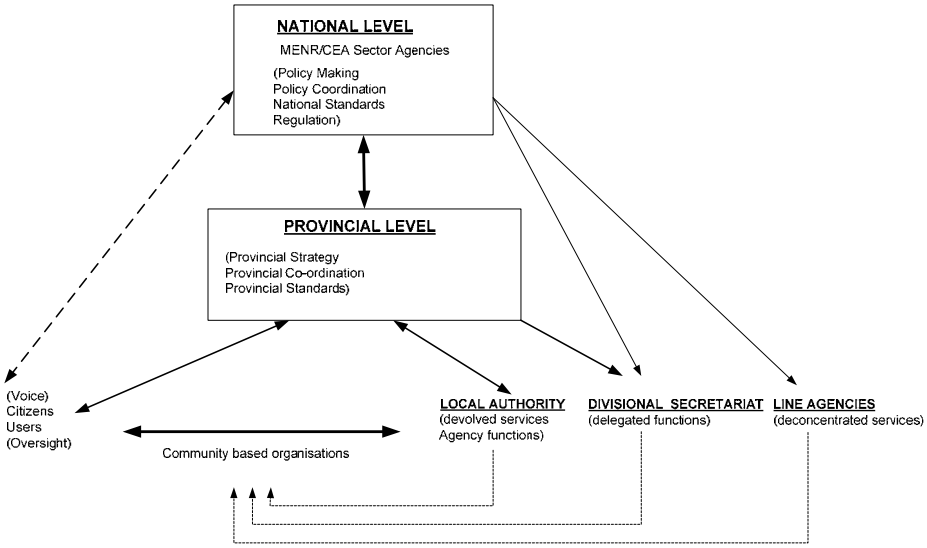

Figure 6: Current Institutional Arrangements for NRE

53. The institutional fragmentation is currently addressed through two mechanisms. First, the manner in which power is exercised in decision-making and control over resources which favors the strong central agencies and the other, through the functioning of coordination committee at the district and divisional level (see Figure 7).

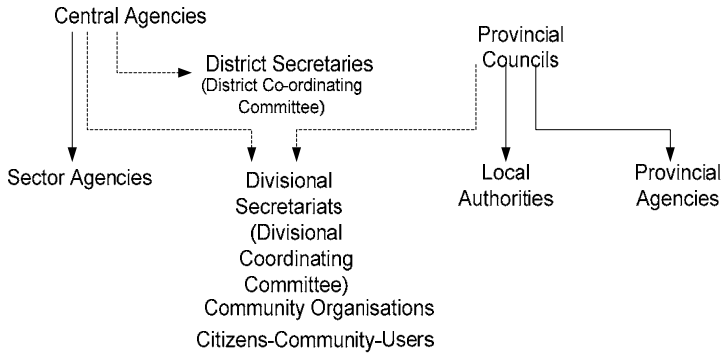

Figure 7: Sub-national Administrative Relationships

E. The Role of Subsidiarity – The Major NREM Challenge

54. The challenges facing the NRE sector are significant. To change outcomes for non-point issues involving many resource users and agencies, all of which respond to differing incentives that result in resource use behaviors which may need to change. At the same time any system needs to be affordable. One option is to adopt the principle of subsidiarity which aims to retain decisions at the lowest appropriate level.

55. Linking the notion of subsidiarity to the existing structure of government will result in differentiated functions and purposes for each level of administration (see Table 2). The purpose or aim of management, the target issues, the type of management intervention, and the focus of management interventions, all differ and any system of management needs to deal with these different issues at the respective levels.

Table 2: NREM – Subsidiarity Effects

	Scale of Administration		
	Local	**Provincial**	**National**
Resource Interaction	Resource use and access to services	Protecting the capacity of resources	Protect natural asset Reduce vulnerability
Aim	Minimize effects	System integration Manage cumulative effects	Preservation and protection Safe minimum standards
Platform	Action plans	Strategic plan	Sector and Master Plans
Issues	Urbanization Air quality Sanitation Solid waste Water quality Livelihood	Sustainable management Soil erosion Pollution System integrity	Protecting key assets Ecosystem representation International reporting
Institutions	Community-based organizations Local Authority Divisional Secretaries	Provincial Councils District Secretaries	Sector and Line Agencies

56. To achieve the desired outcomes requires collective action by the majority of resource users. The need is not to have one agency with a monopoly over management but instead to have one system of management in which all stakeholders develop a consensus on the problems, objectives and required actions. As such, all the stakeholders will need to have clearly differentiated roles, with clearly specified rights that require certain responsibilities to be incurred in return for holding the right. Finally, the relationship between stakeholders and levels of decision-making needs to be clear as do the decision-making procedures to ensure that transboundary and external effects are dealt with equitably.

57. The combination of an unambiguous statement of the four R's (Rights, Roles, Responsibility and Relationships), the imperative for subsidiarity within, and the need for planning, implementation and monitoring, form the NREM framework. As such, the framework needs to assign differing planning roles to differing levels, different implementation responsibilities and different reporting systems (see Figure 8).

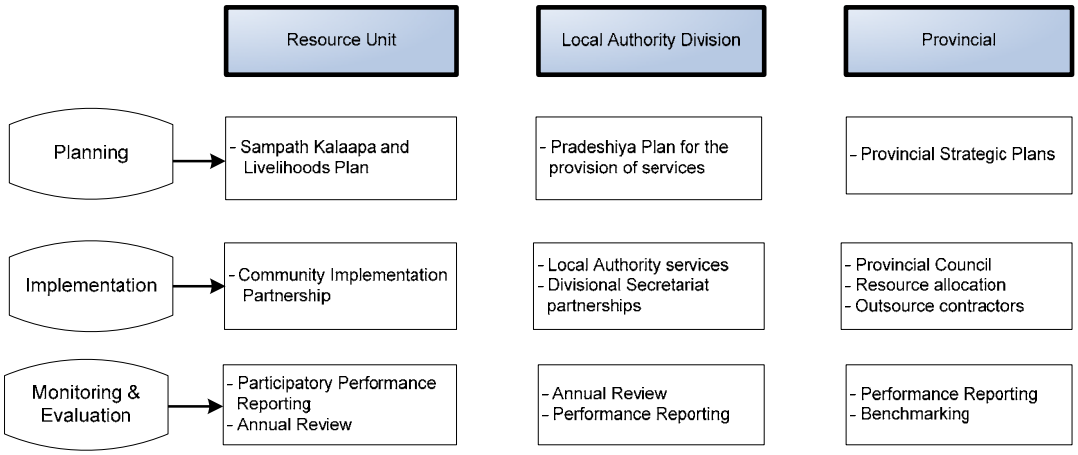

Figure 8: Linking Subsidiarity and the NREM System

F. Livelihood and NREM

58. Natural resources are not influenced by policies but by the effects of people's decisions on resources and the environment in response to policies, rules and the resultant incentives. Those that damage resources often do so in the context of striving to achieve a standard of living where they combine the resources and assets in varying combinations to provide for this living. Natural resources are an important component of local development assets but they cannot be considered in isolation from the other forms of development capital including financial capital, physical (infrastructural and technological) capital, human and social capital that resource users have at their disposal.

59. For example, a fisher that has access to ice and markets (physical capital), knowledge of fish stocks (natural capital) and boats, and is part of a local fishing community with access to micro-credit, will have a far wider range of livelihood options than an artisanal fisher that relies on selling at the lake edge with no ice or market access. The importance of this for NREM planning purposes is that natural resource management systems cannot be developed in isolation from the wider livelihood of those which demand or who have control over the resources.

60. From the perspective of developing a NREM framework is the recognition that the effect of natural resource use is determined within the wider context of livelihoods. Any NREM framework must fit the context of local community livelihoods which are influenced by a range of forces (see Figure 9).

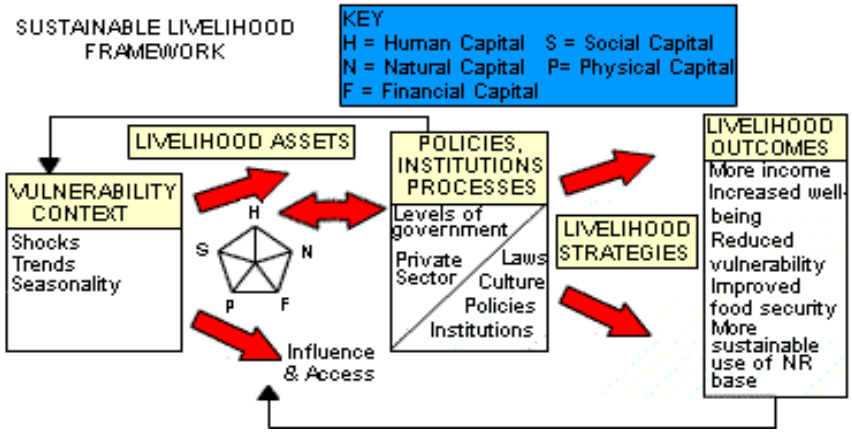

Figure 9: Sustainable Livelihood Framework (DFID, 2000)

61. These forces can be categorized as: (i) vulnerability context being the trends, shocks and seasonal influences that affect an individual's development capital; (ii) the mix of development capital, both available and accessible; (iii) institutional context including the structure of government, its policies and planning that defines access to development capital; and (iv) the strategies or actions undertaken by the individual or community concerned.

62. In Sri Lanka natural resources remain a significant part of local livelihood and poverty. Decisions regarding resource use are an integral part of the felt needs and aspirations of community members – i.e. within the context of their livelihood. Many projects in Sri Lanka recognize the centrality of livelihood but repeatedly confuse this with participation/consultation as opposed to a systemic way of thinking and doing business. Consequently, most initiatives have attempted to bring the livelihood components into sector initiatives and thereby define people's livelihood within the language and scope of a specific sector. Livelihood of local communities is defined by their relationship to a set of resources represented by a range of

sectors in the centralist administration. Sectoral approaches to livelihood do not have the necessary mandate or jurisdiction and many of the well intended initiatives continue to be non-sustainable[12], being little more than an enclave project initiative for a predetermined project life. A more constructive approach is to have the sector agencies bring their expertise into a livelihood framework and not vice versa.

1. Sustainable Livelihood as an Approach

63. The sustainable livelihood approach aims to help people achieve lasting livelihood improvements measured using poverty indicators that they, themselves, define. This, in turn, helps to combat exclusion. It is people-centered. It recognizes that people have certain rights but also certain responsibilities to each other and to society more generally. It recognizes the enormous diversity amongst people and stresses the strengths of these people.

64. The proposed NREM framework will be fully integrated with a sustainable livelihood framework and will adopt the following core principles:

- People-centered: change forces promoted through the NRE program will need to focus on what matters to the lives of those who need to make change, understands the differences between differing groups in society, and then works with these people in a manner that is congruent with their needs and aspirations, current livelihood, social environments and their ability to adapt.

- Be responsive and participatory in that the key players need to be the people themselves that identify and address their livelihood priorities.

- Must be multi-level based on the scale of change to be achieved and ensure that the micro-level is used to inform higher levels as much as vice versa.

- A strong commitment to partnerships that include the public and private sectors including civil society and NGOs.

- All programs need to be sustainable from all perspectives including financial, institutional, social, environmental and political.

- The systems must be dynamic to respond to the changing circumstance and needs of community members.

65. The above principles are similar to those adopted by the NEP and are consistent with the needs of more sustainable NRE programs. In the above context the NREM framework by adopting these principles will be adopting the overall livelihood approach and an overall focus on what matters to poor people, a synthesis of issues from a wider more holistic set of dimensions, a system that looks beyond financial returns and direct impacts, and an intuitive appeal that it reflects the world as local people feel it. At an operational level the NREM framework will need to adopt the analytical framing of the livelihood framework.

2. Sustainable Livelihood Analytics

66. It is proposed to use the sustainable livelihood framework as an analytical tool for the planning processes through undertaking detailed livelihood analysis to ensure that any proposed NRE intervention fits the needs of local communities. The adoption of the analytical approach requires assessments at each level of the management framework and that

[12] The March 2003 review of the ADB Forestry Resources Management Project identifies the lack of integration of community planning systems with forest sector plans as a key finding and significant constraint to the achievement of sustainable outcomes.

assessment will need to include aspects that focus on how change may impact on livelihood such as:

- Vulnerability of people's livelihood;
- The development assets available for stakeholders;
- The livelihood outcomes desired; and
- Implementation arrangements for selected livelihood strategies.

67. Equally important is the effect of the proposed program on institutions, including the processes through which decisions and rights are made. The institutional assessment also needs to address the means through which a common objective and program can be negotiated and then the process of agreeing on how these can be implemented through people-centered processes and strategies. Finally, the institutional arrangements for implementation need to be included in the overall process (see Figure 10).

68. An important aspect is to institutionalize implementation at the local level and to provide such local institutions as CBOs (or other institutions) real voice and power for community members and/or groups in resource management decision-making. To do so requires, community-based natural resource management (CBNRM) approaches to address not only resource-endowed community members but also those that are landless and those that survive on the margin of society. The ability to increasingly involve the beneficiaries in the planning and implementation as one of the implementation partners alongside local authorities, sector agencies and technical experts is a critical component for achieving sustainable programs.

69. The integration of the livelihood framework into the NREM framework requires two basic linkages. The NREM framework will adopt the livelihood principles as outlined above (see Figure 10) and the sustainable livelihood approach will be used as the basis for implementing the NREM framework. Secondly, the implementation of a livelihood approach will use livelihood analytical techniques and the use of the livelihood framework as a means of structuring the needs of local communities and for identifying and agreeing on livelihood strategies that are consistent with NREM objectives. Using the notion of subsidiarity leads to the allocation of different aspects of the livelihood framework and analysis to differing levels of the administrative system (see Figure 11).

70. At the local level, the NREM planning and management system will include local stakeholder assessments of development assets, descriptions of perceived vulnerabilities and risks, and preferred livelihood options. Through the assessment processes a livelihood perspective will be used to understand priorities, especially of the poor and marginal groups in society, identify linkages across sectors and between vertical levels of administration and policy and also between urban and rural lifestyles.

71. The cross sector perspective also offers a strong advantage for the NRE sector by creating a range of vastly differing entry points from which local NREM response systems can be built, while ensuring rural livelihood strategies are consistent with long run sustainability requirements. This will be supported at the Pradeshiya level with systems supporting the provision of essential services and also to ensure that potential vulnerability caused by cross border or cumulative effects are managed.

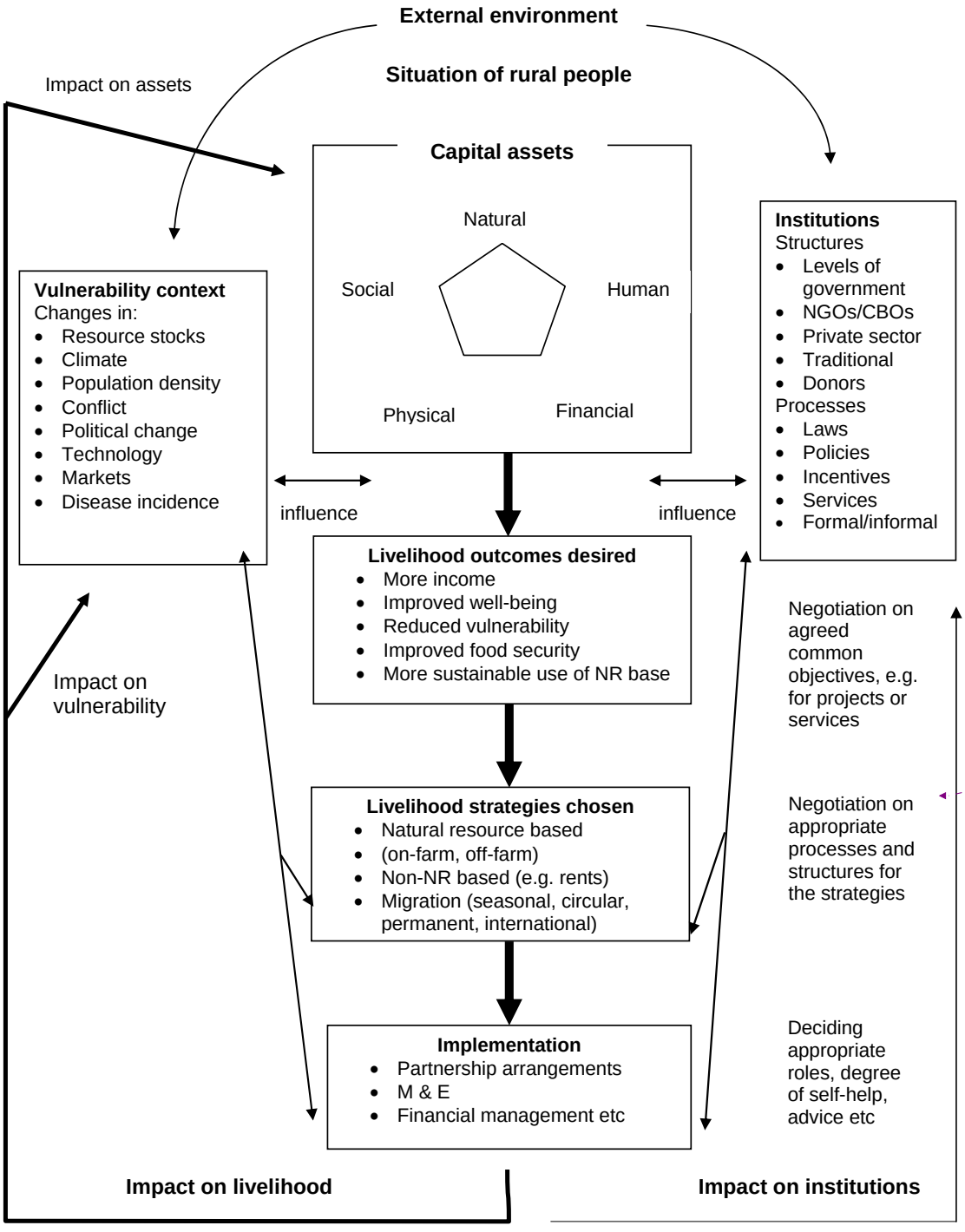

Figure 10: Sustainable Rural Livelihood Framework

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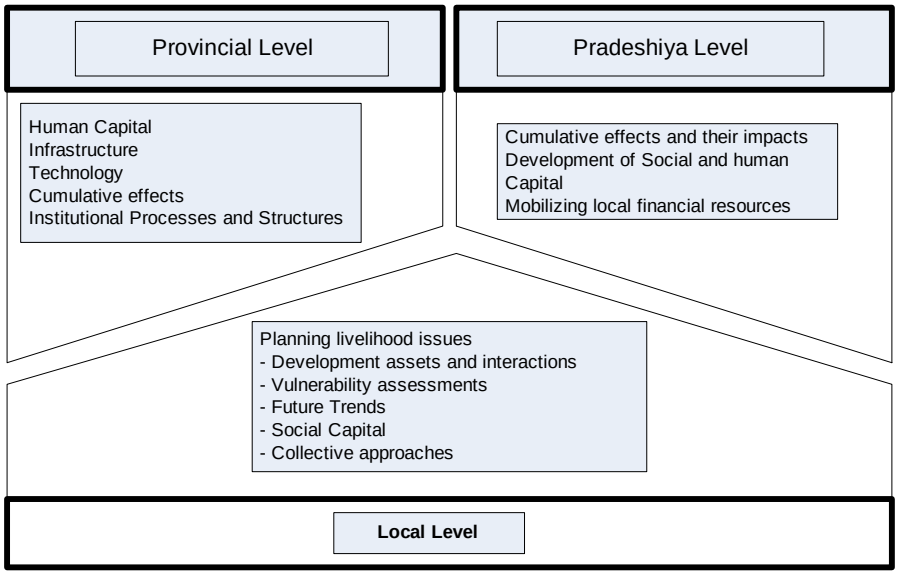


Figure 11: Integration of Livelihood Approach with NREM Framework

G. Proposed NREM Framework – Collaborative Resource-based Ecologically Sustainable Livelihood

72. To achieve the outcomes stated within the GOSL policy for the NRE sectors, effective integration of economic and social development with those of sustainable natural resource management is essential. The ability to merge and obtain win:win solutions between the competing needs of economic development and sustainable natural resource outcomes is the investment priority for the sector. The priority manifests itself in differing ways ranging from land resource, water quality and solid waste management, but ultimately all problems come back to this dichotomy and the systems that are used to address it. What is clear is that sustainable development cannot be achieved through only one side of the dichotomy.

73. The NREM framework provides a system by which the above dichotomy can be addressed, ensuring that economic development does not occur at the expense of the environment and that environmental management is considered to be an integral contributor towards development. As such, it is proposed that a **C**ollaborative **R**esource based **E**cologically **S**us**T**ainable (CREST) Livelihood approach be adopted in the proposed NREM framework. The following sections present the proposed NREM framework within the functional headings of planning, implementation and monitoring and evaluation. The focus is on sub-national functions and delivery as specified in the TA terms of reference as the RNE-funded ISOA program was to address the national level systems.

1. NREM Planning Function

74. A three-tier multi-stakeholder planning process that is based on subsidiarity that addresses the macro-micro linkages through vertical interplay and develops the collective actions through horizontal interactions will be introduced. The purpose of the planning platforms is into more programmatic approaches that shift the focus from inputs to outcomes. To adopt an outcome philosophy there needs to be greater emphasis on effective service provision that supports the desired activities of local resource users.

75. The planning system will be based on current and existing institutions (see Figure 12) but will involve the preparation of plans for geographic areas and not specific sector institutions. Plans will be developed for the province, each Pradeshiya, and for local planning units labeled Sampath Kalaapa. Each level of planning will address only those issues that cannot be addressed at the lower levels.

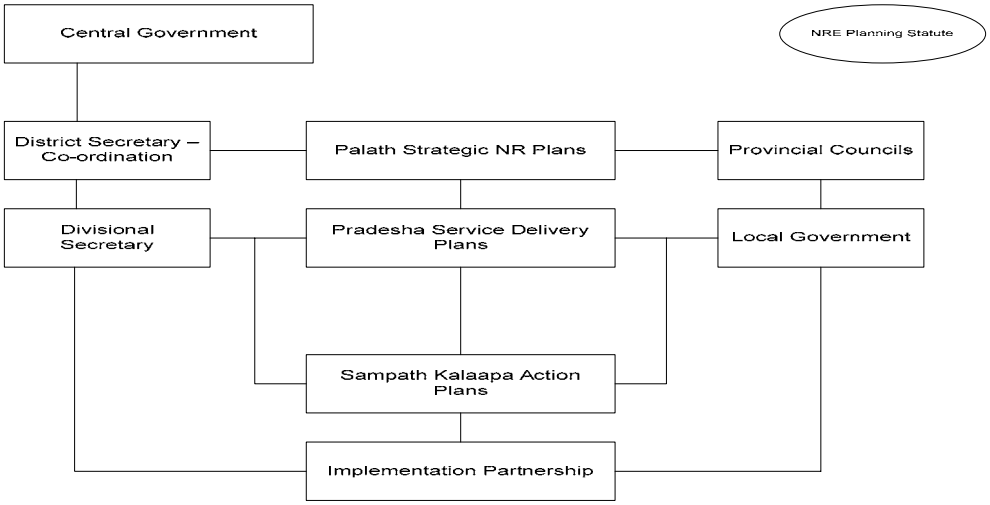


Figure 12: Proposed NRE Planning System and its Linkage to Current Institutions

a. Sampath Kalaapa plans

76. The occurrence of natural resources is governed by natural phenomena such as location, climate, topography, river systems and ecological features and events. The governance of natural resources for human use though, comes under the purview of national agencies that are subdivided by political, social and administrative boundaries.

77. In Sri Lanka, although the logical unit for NREM could have been the river basin and/or ecosystem, most natural resources since the time of the British Administration have been managed centrally though sector mandated agencies according to 'revenue' districts and divisions, defined for the purpose of development which, subsequently, drastically reshaped and, in some instances, interfered with the natural landscape.

78. With demographic changes, industrialization and the emergence of environmental concerns in NREM, the adequacy of the current system to manage the finite set of natural resources in a sustainable manner while concurrently supporting livelihood, has come into question. In attempting to develop a NREM framework, the current system of boundaries was revisited. In the process, it has become clear that, for a people-centered NREM system to emerge, the current administrative unit of the divisional/local authority area is both unwieldy and 'artificial' in the sense they cut across both social as well as natural boundaries and ecological phenomena. During PRA consultations held at local level, an attempt was made to move to a more rational planning unit defined within the administrative unit as the prospects of adjusting administrative boundaries remains unlikely.

79. The Sampath Kalaapa (SK) is the recommended response to this dilemma. SK is a geographical unit within the division/local authority area which reflects a level of homogeneity with respect to aspects such as local physical features, watersheds, alignment of river sub-basins, accessibility, human settlements and local socio-economic activities impacting on the NRE. The lowest administrative unit, viz the Grama Niladhari (GN) Division, is mostly

accommodated within a single SK. Thus, in any division/local authority area, there could be 5-10 such SKs that are identified and agreed through local consultations and finalized at the divisional/local authority levels.

80. The boundaries of a SK would not be rigid; there would be room for adjustments and refinements based on practical experience and ongoing local dialogues and even may differ according to the issues being addressed. Local community groups and neighborhoods in the form of CBOs will be the critical social capital or 'glue' that will bind the SK as a cohesive unit and in this respect the planning unit is linked closely to the manner in which social capital is related to natural resources.

81. The SK is not an end in itself, rather they serve as **building blocks** for building up to ecological units at a higher level, to enable better planning and management of NRE in a larger and strategic context, e.g. the boundary between two adjacent DS areas may be a river; a rational NREM program cannot be sustained unless communities on both banks of the river follow similar standards in NREM. Hence, NREM programs which span several SKs and DS areas over time may need to combine as a single planning unit. The overlap of natural and political boundaries will thus continue and therefore need to be managed step by step through consultations within higher levels of the planning process. Planning at the SKs will adopt a sustainable livelihood approach as a means to integrate development with NREM.

82. SKs, while identified through consultations and administrative decisions, should be allowed to evolve organically and grow (merge or disaggregate) and formalize on the basis of societal experience. SK will be used as planning units where there is no current planning process. As such, a SK will not be required for reserve forests, wildlife sanctuaries and highly urbanized locations for which separate planning processes already exist. However for ESAs, or priority environmental protection issues such as SWM, SK that include urban areas and forest lands that impact on the area being planned would be included as legitimate stakeholders.

83. SK plans will adopt an issue-action planning approach with the planning process comprising the following steps: (i) assessment of livelihood needs, (ii) identifying the vulnerability of livelihood, (iii) identifying livelihood improvement issues, and (iv) preparing an implementation and monitoring framework.

84. The underlying approach for identifying issues and for structuring the planning effort will be the sustainable livelihood framework. Livelihood is derived from the capabilities, assets and activities required in achieving a means of living, especially when stakeholders are poor or marginalized. A stakeholder's livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and available development assets both now and in the future *(sustainability)* while not undermining the natural resource base *(environment).* Livelihoods are built upon both productive and reproductive strategies where productive activities available to rural communities include options for:

- On-farm production (agriculture);
- Off-farm (livestock, forest);
- Non-farm (income-generation activities/enterprise); and
- Migration and wage labor.

85. However livelihood also have components of reproductive strategies that address: (i) the care and maintenance of household and it members; (ii) care of children; (iii) collection of essential subsistence needs linked to food, water, fuel and shelter; (iv) health of family members; (v) education and upskilling; and (vi) recreation and entertainment. Both productive and reproductive livelihood strategies are often non-sustainable without the basic community networks or social capital necessary to achieve collective and communal responses. This includes activities relating to: (i) participation in social events and services; (ii) local political

activities; (iii) social contact and entertainment; (iv) social and community institutions; and (v) community level decision-making.

86. To adopt a livelihood approach the SK plans need to address key challenges relating to people inclusive development and development processes and will need to address: (i) whose goals, purpose, outputs and activities are being addressed; (ii) diverse and differing activities make up different people's 'lives' which require analysis that will often reveal the impact of previous or existing sector approaches; and (iii) livelihood strategies need to be built from strategic choice of activities that involve trade-offs between choices, including between short and medium term solutions and options. Within a livelihood modality there are a range of alternative activities that provide entry points for clusters of similar people with similar aspirations.

87. The SK planning process will identify and mobilize local stakeholders through a stakeholder identification and mobilization program followed by a community workshop process to develop detailed understanding of the differences that exist in the stakeholders' development assets and how these are defined in terms of entitlements and access. Many entitlements may be tradable, substituted or even traded-off against each other providing new opportunities or threats. The capital base once identified will be assessed within a SWOT framework to identify key issues that need to be addressed.

88. Development assets can be determined during stakeholder identification processes and follow-on workshops to identify issues regarding the provision of services and facilities, to reveal constraints. These will be taken to the Pradeshiya Parisara Sabha (PPM) planning process to engage with the service providers. Social capacity is more difficult to define, some will be observed and others can be identified using PRA techniques. Natural capital or resources will be identified through the provision of secondary data as a resource material to support PRA methods in break groups. Financial capital will be assessed from the perspective of demand for financial capital, access or supply of finance and the financial worthiness of proposed programs. These can be linked to seasonal calendars, timelines and through financial budgeting and analysis techniques. Detailed financial analysis of options can be undertaken at the proposal formulation stage using technical services.

89. Once development assets are known, stakeholders will identify how susceptible or resilient their systems are to both unpredictable and predictable changes. When assets and livelihood are insecure short term often exploitation decisions predominate. Once more resilience is created then longer run stewardship is more likely to emerge. The extent that vulnerability factors influence livelihood and decision-making is a critical aspect of SK planning and can be addressed through the workshop process using a range of PRA techniques including key informants, timelines and seasonal calendars, ranking of preferences and the importance of vulnerability factors, while trends can be identified through the supporting data and information services proposed as part of the provincial support for the planning process.

90. The third component of the assessment of livelihood needs to focus on the extent that the assets and vulnerability profiles are linked to the structures and processes that govern and link individuals and communities to wider society. Structures in this sense include the private sector, the public sector (in all forms including centralized, deconcentrated, delegated, decentralized and devolved agencies and functions) and civil society structures. The interaction with structures is often governed through processes defined in policy and legislation, institutions (markets, rule of exchange, access, regulation and entitlements), culture and power. The SK planning process should provide process for the stakeholders to identify the SWOT relating to these transforming structures and decision-making processes that define access to resources and capital. These will be used in defining appropriate responses within the SK planning program and also to identify needs to be addressed in the Pradeshiya and provincial levels in terms of service provision programs and decision-making processes.

91. Having completed the assessment process the workshop will identify priority issues. The livelihood responses can be developed through brainstorming on break-out groups to identify potential responses which can then be assessed against a range of criteria including NRE sustainability factors, short and long run needs and linkages to both productive and reproductive strategies. It is proposed to use a standard planning matrix that identifies the response for each priority issue, the responsibility, the need for resources and the performance achievement indicators.

b. Pradeshiya or Divisional plans

92. The Pradeshiya or divisional level plans will adopt a spatial framework by collating the SK plans into one spatial plan. The planning process will take the proposed plans for each SK and align these onto a common spatial base, providing a basis to address boundary interactions and externalities. Once a common spatial plan is developed and agreed the demand for services from the divisional level can be addressed, along with the issues of service provision, policy constraints and regulations. This would include reviewing current sector programs and having these tailored to the needs of local communities.

93. The second part of the planning process involves developing a community vision of "what should be". In this process the current needs are retained as the base from which the longer run five-year insights or preferences are developed through the workshop process.

94. The Pradeshiya plan will address three major components: (i) the provision of services to local communities; (ii) management of boundary or spillover effects between Sampath Kalaapa Sansadaya (SKS); and (iii) the cumulative effects of resource use to ensure that the integrity of natural systems is not exceeded.

95. The Pradeshiya plan will also address the management needs of larger ecosystems, for example it would need to address the cumulative effects of resource use by many distinct stakeholders to ensure that the cumulative level of use or the effects of use did not exceed the capacity of the natural resource or environmental systems. As such, the Pradeshiya–SK linkage will need to be developed to ensure that the NREM framework retains a sustainable livelihood perspective with a focus on:

96. *Planning around people* - The legitimate role of local government in the provision of NRE services provides the opportunity for community-based planning systems. While there is considerable need for clarifying and gaining consensus on their role and to strengthen their capacity, local government and DS provide an opportunity to integrate planning for poverty eradication and resource management into local development plans. However there is still a need to link local government with the people, through local, perhaps SK planning and communication mechanisms, and the use of locally accountable forums for sectoral departments.

97. *Changing institutional processes at national and provincial levels* - There is a need for national government to take a more strategic role, decentralizing with budget what it can, and providing ultimate control functions. Provincial government also needs to decentralize functions to local government where possible, and should investigate deconcentration to field units at local authority level. Provincial government needs to support and participate in planning and capacity-building at the local level, and provide appropriate guidance and technical support.

98. *Mainstreaming the environment and holistic approaches* - The sustainable livelihood approach explicitly incorporates the environment as covering all natural resources. Planners have to understand the role natural resources play in people's lives and ensure that this is reflected in their planning outcomes. Further, planners need to increasingly ensure that resources are not allocated for use beyond their capacity and as such the Pradeshiya planning

process will need to ensure the focus moves increasingly from expansion of use to the quality of resource use.

99. *Trade-offs between short-term and long-term impacts* - There is considerable pressure for short-term gains through increased access to resources, markets and the linkage of these via infrastructure. One role of the visioning exercise is to ensure that short-term economic and social development preferences are not achieved at the cost of enduring and sustainable NRE outcomes. In this context the Pradeshiya plan will need to increasingly reflect the need to move beyond new development to the ongoing maintenance and utilization of past investment in such things as water supply and infrastructure.

100. *Identification of outcomes in terms of performance indicators* - It will be a function of the Pradeshiya plan to ensure that adequate attention is given to identifying how programs will be sustained and how program success will be assessed. Implementation progress need to be assessed on agreed outcome and output indicators and the reporting of performance should be tied to any external funding. One of the service provision requirements may therefore be a performance monitoring and reporting service.

c. Provincial plans

101. The provincial planning process will be built on two sets of information. The first set will be the completed Pradeshiya plans and the second will be technical strategic environmental assessments of critical sustainable development issues for each province. These assessments would be undertaken at the time of the SK and Pradeshiya plans.

102. The first stage of the provincial plan will be to compile the Pradeshiya plans into one spatial framework and to identify priority issues from lower levels that relate to achievement of collective approaches, the sequencing of cross-boundary programs and approaches, and the management of cross-boundary effects. The provincial plan will have fewer operational aspects and will address system-wide needs within a ten-year planning framework. It will be through the spatial plan that any sector plans (Forestry Department [FD], Department of Wild Life Conservation [DWLC], Coast Conservation Department) are integrated into the planning program. Once the spatial frame is completed, a vision-based provincial NRE plan will be developed and based on the finalized Pradeshiya plans and the information in the strategic environmental assessments.

103. A critical aspect of the provincial plan will be to state policy targets for key sustainable development indicators, and to outline what level and type of resource use is considered to be allowable. By setting limits such as this (akin to safe minimum standards and the precautionary principle of the NEP) the plan will signal to stakeholders with control over resources where they will be expected to make changes to bring non-sustainable use into a more sustainable pathway.

104. The plan will take a long-term view on sustainable development and will identify key programs that need to be undertaken to achieve the desired outcomes. However, for a number of strategic and priority issues, the provincial plan may move into an operational implementation modality. For example, an issue such as SWM (see later in this report) has major constraints in terms of final disposal options. Here land is scarce, there are significant benefits from having fewer disposal sites, and the cost of disposal is markedly lower with larger operations. In this case, it is proposed that the final disposal issue could best be addressed through the provincial planning process and could go as far as being implemented by the provincial councils. Likewise, the effects of over-extraction of water or the over-use of nitrogen on water quality and public welfare are issues that may need to be addressed on the wider ecosystem scale. Similarly, the provincial plans will need to address critical issues such as infrastructure supply, the development of human capital, mobilization of financial resources to support the implementation of NRE and livelihood development programs.

d. CREST - institutional arrangements and implementation

105. The CREST NREM planning system is presented as a functional responsibility and as such it is proposed to implement the NREM planning system through existing agencies and organizations. At each of the three levels, planning forums will be created to provide the platform for the implementation of the planning process.

106. At the provincial level, a NRE stakeholder council (Palaath Parisara Sabha [PPS]) will be established[13] and will provide the platform for planning. The council will be supported by a technical secretariat that will be provided by the respective provincial councils. The exact nature and organizational linkage to the provincial council will be defined provincially, for example in Wayamba the Provincial Environmental Authority may provide a natural resource secretariat to fulfill this role, whereas in Southern Province it maybe the Provincial Planning Unit.

107. Membership of the PPS will be broad-based representing the interests in NREM (see Figure 13) and would be formed under the leadership of the Chief Minister and Chief Secretary. The PPS will undertake: (i) strategic planning, (ii) provide links to existing institutional and sector plans, (iii) complete technical assessments and strategic environmental assessments, (iv) provide consultative forums for developing a provincial level NRE plan, and (v) provide conflict resolution and program evaluation programs.

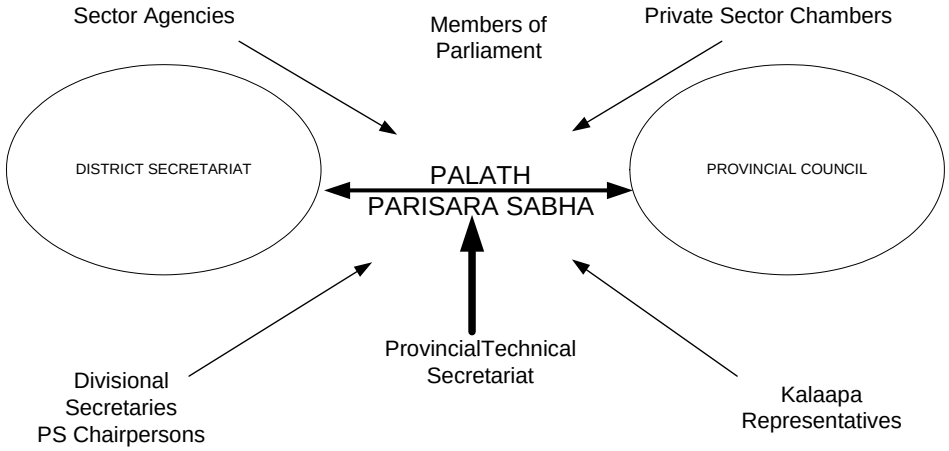


Figure 13: Palaath Parisara Sabha Representation

108. It is anticipated that the PPS would contract strategic environmental assessments and provide planning forums where: (i) session one would address the consolidation of the Pradeshiya plans and link these with the strategic environmental assessment (SEA) findings; (ii) session two would develop visions for the province; (iii) session three would develop issues and options and complete a risk review; and (iv) session four would prepare a strategic plan. The PPS would be charged with the production of a provincial strategic plan, development of provincial level NRE indicators and performance standards and the production of annual status reports.

109. A data collection, collation and information unit would be created and contracted by the natural resource secretariat to support the planning process at all levels. The unit would also be used to disseminate existing and new information to all participants and create a provincial data library. An important aspect of this unit would be to provide working maps for preparing spatial planning options and as a tool for planning at each level including the Pradeshiya and SK.

[13] Wayamba Province already has such a council formed.

110. At the division and Pradeshiya levels, a planning partnership forum, the Pradeshiya Parisara Mandalaya (PPM), will be formed. The divisional level partnership will engage both the Pradeshiya Sabha (PS) and DS with other stakeholders to formulate NRE visions, outcomes and service provision plans. The membership of the PPM is open to all primary stakeholders including the private sector, sector agencies, provincial agencies, CBOs, NGOs and the representatives of the SK (see below). The PPM would be formed through a consultative meeting to identify stakeholders who would be convened to identify sub-divisional planning units (SK). Once formed, the SK would be publicly notified and then representatives from each SK invited to join the PPM planning forums.

111. Defining the SK requires a two-step process. First, the formation of the PPM (Divisional Environmental Forum) and secondly, the development of SKS plans. The operational process will start with the formation of the PPM; this involves a seminar convened by the Chief Secretary with support from the focal points of MENR, MPCLG and district secretaries. The seminar would be held in each PS area at the beginning of the planning process.

112. The seminar would: (i) announce the formation of a PPM under the joint chairmanship of the DS and local government for whom the DEO (CEA) will provide secretarial services; (ii) describe the planning process; (iii) explain how it will be used to address livelihood and NRE objectives; (iv) present examples of how individuals, groups and institutions can participate; and (v) outline the process of how the PPM will be formed.

113. Following the seminar, potential members of the PPM will be identified as part of a stakeholder identification process by the local authority and the DS with assistance from the DEO. The potential members will be convened in an initial workshop (1 day with 50 people) that would: (i) finalize PPM membership; (ii) create a master list of stakeholders; (iii) identify candidates for the role of facilitators (approximately 50) from technical agencies, NGOs, local authority and civil society groups. The selected candidates would then undertake a training program in the proposed NRE planning system, facilitation skills, PRA and RRA techniques, questioning, listening and reporting skills. The total training time will be 3 weeks; (iv) an information taskforce will be created to support the planning process at the PPM and PPS levels. This will include the DEO (CEA) as the focal point, the Land Use and Policy Planning Division (LUPPD) staff, Census staff and university representatives when available. Within the taskforce, the DEO will be the distribution point for data and maps, the LUPPD will be the repository and archive as will be the Provincial Planning Unit (information services role); and (v) a legal opinion and conflict resolution panel will also be formed to address issues that arise during the SKS and PPM planning procedures. This panel will comprise of local legal experts, retired judges and senior government officials, NGOs and eminent people.

114. Once facilitators are trained, a meeting of the PPM will be convened to define the SKS planning units within each PS region. To assist this process maps will be provided by the LUPPD overlaid with census data, administrative boundaries, waterways, etc. Once the SKS are defined, the LUPPD will prepare SKS base maps for the planning process.

115. The PPM would be convened under a joint chair role of the DS and the PS but in the medium term the PPM may be led by any of the stakeholder representatives. It is proposed that a total of three PPM forums be completed for each round of planning: (i) session one to consolidate SK plans into a single spatial platform; (ii) session two for developing a spatial and livelihood vision for the Pradeshiya and to identify key issues that need to be constructed by stakeholders before completing the final plan; and (iii) session three for option assessment and preparation of a final service delivery plan, an assessment of sustainability of the proposed programs and local NREM programs, and the identification of performance indicators.

116. In addition to the planning process, the PPM will also hold forums with the DS to identify how existing sector and government programs can be mobilized to implement parts of the plan. Additional resource mobilization options including the private sector and local community resources would be addressed at this forum.

117. The plan will be presented to the PPM committee for comment and ratification. The final plan will be lodged with the information taskforce who will archive the plan and distribute it to the DS, each SKS, local authority and to the provincial planning program.

118. SK plans would be undertaken by a SKS or a community-based forum that would involve representatives of CBOs, NGOs, GNs, local leaders, resource users, community institutions and divisional facilitators.

119. The SKS planning process will be facilitated by a team of three facilitators (a minimum of one female). The planning team will first undertake a two-day reconnaissance program in the SKS that reviews the data, builds information from local stakeholders and discusses with stakeholders the planning process, its purpose and how they can participate. The process of reconnaissance is based on adopting a stakeholder perspectives approach along with the principles of rapid appraisal techniques to describe the SKS, its resources, resource use and its effects. This phase is critical in the overall process in that it defines participation within the entire planning process. As such, the following social inclusion parameters need to be applied:

- Landless households including women-headed households;
- Women;
- Young and elderly;
- People from across all religious and social caste backgrounds;
- People from the range of wealth categories as identified through PRA process in the reconnaissance program; and
- People currently linked to illegal possession, squatting or illegal extraction of resources.

120. The above groups would be identified as well as their views and understanding on issues relating to: (i) resource use and access; (ii) problems and vulnerability due to shocks, trends and climate; (iii) control of resources; (iv) the need for gender differentiated and inclusive programs; (v) current institutions; and (vi) areas of conflict.

121. Representatives of these groups will be approached during the reconnaissance program to ensure that socially acceptable means are provided for ensuring their voice and requirements are built into the planning processes. This may, in certain instances, require smaller meetings during the planning process to enable them to express their views. While the facilitators will be the focal point, the reconnaissance program will also be supported through local volunteers sourced from educated youth and experienced community members mobilized by the DEO or by members of the PPM as part of their networking program.

122. The reconnaissance program will be followed by a SKS planning workshop for a period of one day and facilitated by the planning team. The workshop would follow the concept of developing a planning matrix using a livelihood framework structure that builds a picture of the development assets for different social groups within the SKS, assessing the degrees of vulnerability each faces and the causes of these vulnerabilities.

123. Equally important are the mechanisms for accessing capital and the rules or norms that enable groups to access resources and their associated benefits. The construction of the assessment will use PRA techniques that are already widely applied in Sri Lanka. The assessment process would result in a prioritized planning needs matrix (see Figure 14). The workshop is for one day and will have approximately 40 participants.

Priority Issue/Problem	Actions	Actors (who)	Existing resources	Risks	Monitor Benchmark

Figure 14: Example of Action Matrix

124. The planning team will prepare a workshop report that includes an outline of the assessment of conditions including natural resources, environment, land use and social capital. The report will use standardized formats with maps and wall charts as resource tools. For the write-up, the following will be included:

- A transect diagram prepared during day two;
- Trend lines for major parameters for priority resource and environment parameters;
- Output from the community brainstorming and planning matrix to present;
- Issues, problems, removing constraints;
- Priority issues and feasible solutions that can be addressed at the SKS level for little or no cost;
- Action plan matrix – what, who, how, when, etc; and
- External assistance needs.

125. A second workshop will be held where the report is presented back to the community for final comments – this would require a half day workshop for about 30 people. Once finalized the output and datasheets would be sent to the following:

- One copy to the PPM office who would review the plan and once cleared copies would be sent to:
  - One copy to the information team (DEO focal point – who will pass a copy to the LUPPD for archive); and
  - Two copies to the local community for display at the temple or school.

126. An overview of the CREST planning process is provided in Table 3 below.

Table 3: CREST Planning Linkage to Existing Institutional Structure

	NREM Outputs	Spatial Roles Responsibilities	Institutional Arrangements
Provincial	Programs Strategic Interventions	Sustainable Development	Palaath Parisara Sabha Sustainable Development Dialogues
Pradeshiya	Service Delivery Plans	NREM Outcomes Service Provision	Pradeshiya Parisara Mandalaya Divisional Management Partnerships
Sampath Kalaapa	Action Plans Best Management Practices	Livelihood NREM Problems	Sampath Kalaapa Sansadaya Community Action Forums

127. The integration of the NRE planning systems with the existing institutional structure and the relationship between the planning process and institutions is summarized in Figure 15.

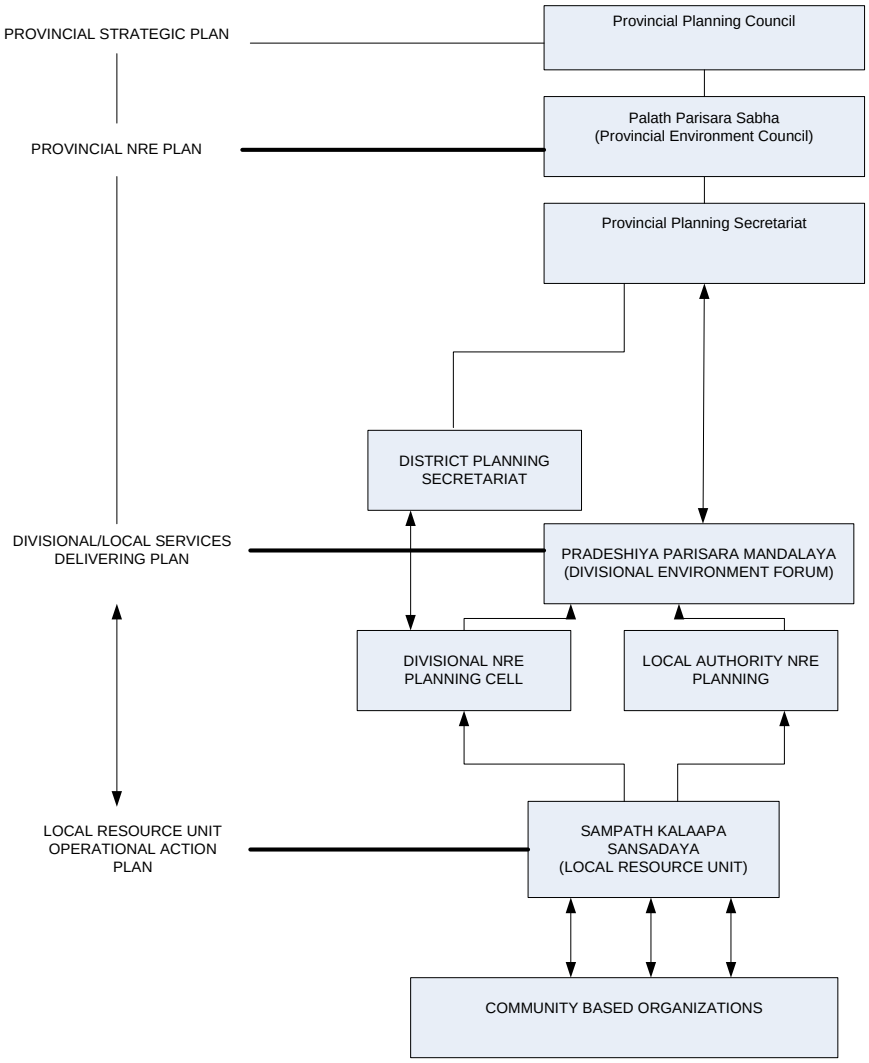


Figure 15: Institutional Arrangements for Decentralized NRE planning

H. Establishing the Process

128. Both the MENR and the MPCLG need to appoint a focal point for decentralization that will provide leadership in championing the implementation process and integrating the sub-national programs. The following description of implementation and resource requirements are defined in terms of applying the planning process for the proposed Wayamba pilot province.

129. It is recommended to pilot the NRE planning process to refine operational guidelines for the subsequent provinces. The launch of the pilot province should commence with a seminar that is jointly chaired by the Provincial Governor, Chief Minister, Minister MENR and Minister MPCLG. The seminar would introduce the concept of the proposed strengthened NREM framework to the key political, public service, bureaucratic and civil society leaders. It is recommended that a resource and information pack be developed by the MENR/CEA and the TA that will support the pilot province process. Key participants in the seminar would include:

- Local authority representatives and senior officials;
- Provincial representatives and senior officials;
- District and divisional secretaries;
- Business leaders including private sector representatives through the Chamber of Commerce and Trade and Industry;
- NGOs, CBOs, Civic Leaders;
- Academic and Research Institutes;
- Media (Print and electronic); and
- Trade Union Representatives.

130. The seminar would also announce the formation of a Provincial Environmental Planning Council – Palaath Parisara Sabha (PPS) and create the PPS desk for the NRE planning process. The PPS desk would comprise of a Provincial Coordinator that will be responsible for the implementation of the program and will have two support staff to manage logistics, undertake procurement and manage the program financial accounts and reporting requirements. The PPS desk will be part of the provincial council operation and all staff will remain provincial council staff but with a supplementary stipend (proposed to be 50% of their base salary) for the period required to complete the proposed pilot. The PPS office would be established within the provincial council with operating costs financed from the program and essential items including one PC and one photocopier.

131. The following inputs are planned:

- 200 information and resource packs;
- 50 media packs;
- Seminar costs for 100 people; and
- PPS provincial desk staff.

1. Information Teams and Strategic Resource Assessments

132. The NRE planning process aims to provide an implementation platform for delivering improved NRE outcomes as defined in the NEP. This will require the understanding of the supply of resources and the demand for the same resources, as well as managing the competing needs for resources. During the period when the planning process is being established and the awareness and training programs implemented, the Provincial Environmental Planning Council will start to collate existing data sources including previous resource inventories and priority assessments for the province.

133. The PPS planning process will operate in tandem with the PPM and SKS process that require access to existing information and representation of data (maps etc.) at all levels of the planning process. During the period of preparation for the planning process (including the training of planning teams) the PPS Secretariat will form a Provincial Information Group that will collate existing data as well as undertake strategic assessments on priority themes.

134. The framework of Strategic Environmental Assessment will be adapted for provincial level assessments related to land use, water quality, groundwater, forest cover, solid waste, urban development, human-elephant conflict, coastal management, wetlands, etc. The regional office of the CEA (for Wayamba, jointly with the Provincial Environmental Authority) shall take a lead role in completing the assessments and work closely with the proposed provincial information service unit. Each assessment will be set up as an outsourced contract under the supervision of the PPS representatives. As data is collated and analyzed, it will be provided to the PPM information teams.

2. Awareness and Education Programs

135. The NRE pilot program will operate over a timeline of approximately 18 months and awareness and education programs will be provided to create and retain awareness of the program as it moves through the province. It is recommended that a public awareness outsource contract be provided and that this contract include: (i) the development of a communication strategy; and (ii) design of an awareness program that targets all stakeholders with appropriate messages and delivered through an appropriate mix of media that includes print, radio, television and local theatre.

136. The development of training programs and the training of trainers would be through a second contract that would include the following: (i) the development and implementation of training programs associated with the planning process; (ii) completion of a training for trainers program through SLILG and the Municipal Training Unit of the Provincial Council; and (iii) the development of systems for reporting outcomes and outputs that are developed within the NRE process. This process will be linked to a national monitoring and evaluation program.

137. The national monitoring and evaluation program will be implemented by the MENR (NREM Director) and will involve a small four-person team (including representatives from MENR, provincial council, NGO and an eminent ex-public servant). The MENR leadership will enable policy issues identified during the NRE planning process to be placed with the MENR policy development process. The team will develop a process monitoring program and will implement this throughout the implementation phase. The monitoring program will be structured in a manner to support the performance benchmarking program and to support process and output-outcome evaluation of the NRE planning system. The monitoring program will be used to adapt the NRE planning process and to prepare final documentation in the form of guidelines, procedural requirements and a monitoring and evaluation manual.

138. **Inputs.** The following inputs are recommended:

- Awareness contract (12 month)
- Training and independent reporting:
  - Training of trainers
  - Training programs 10 course
  - Reporting and communicating outputs
- Monitoring and evaluation costs:
  - Disbursement
  - Reports and manuals.

3. Example Planning Process

139. **Structure of process.** The structure of the planning process is described in detail in Figure 16. For an example province such as Wayamba, the administrative structure is 28 PSs, 43 DS and 2,158 GN units. It is estimated that between 200-220 SKS plans will be consolidated into 28 PPM plans by the Divisional Environmental Council which will be consolidated into a single Provincial Environmental Council or PPS plan.

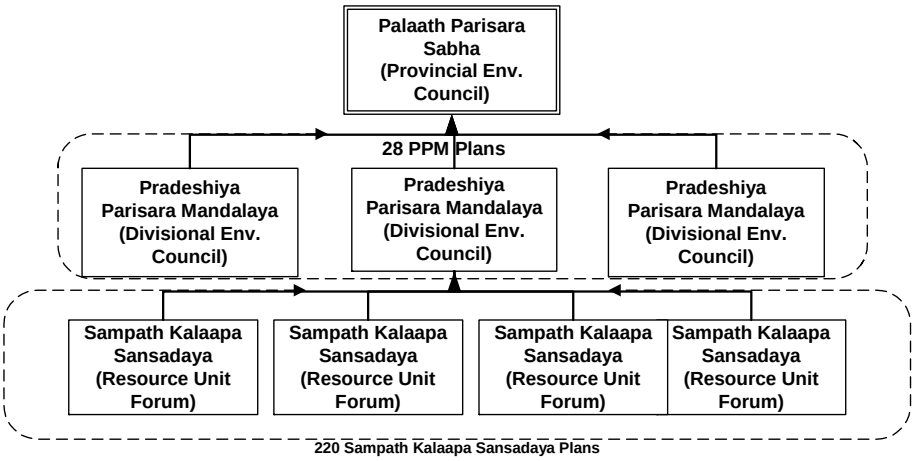


Figure 16: Overview of NRE Planning Structure for Wayamba Province

I. Plan Implementation Functions

140. An integral part of the planning process will be to define implementation responsibilities. It is envisaged that these will vary by issue and location to account for differing stakeholders and differing levels of capacity that exist. The implementation procedure will vary between the local and the Pradeshiya levels.

1. Local Level

141. The proposed approach is to have local action plans that are finalized and delivered at that level using local resources including (i) human resources, (ii) social capital, (iii) financial resources – including beneficiary contributions and local benefactors, and (iv) natural resources through the provision of 'public lands', water etc. During the planning process primary stakeholders and interest groups will be identified for each of the major issues. Following the plan completion and acceptance, these interests will form a project implementation entity. These may be an existing community level institution that has agreed to take on the implementation responsibility or may require a new community-based entity to be formed where there is no current institution or where the legal and economic status of current institutions is inadequate for the required tasks.

142. Most local institutions can be created as legally recognized entities if they are registered under a range of options including societies, cooperatives, etc.[14], however each of these imposes either costs, reporting requirements or operating constraints that may not enable the entity to implement a program or to be able to sustain such programs. Experience in the community water supply sector highlights this issue and many institutions are currently constrained in their ability to collect fees and enter into long-term economic contracts. A policy recommendation is therefore to address the manner in which community implementation

[14] See Appendix 4, Volume III, for a full explanation of current institutional forms.

entities can be formed with the ability to enter into legal and economic contracts including revenue generation and mobilization.

143. These community entities in some instances will need to enter into partnerships with other stakeholders such as the private sector and the government agencies. These arrangements can be through subsidiary contractual arrangements to the community entity to overcome the issue of the GOSL being unable to contract an entity or partnership that includes one of its own representatives. These arrangements are loosely referred to as implementation partnerships and the nature of the subsidiary contracts could range from mechanisms for coordination, access to existing GOSL programs, or even contracting back to the subsidiary partners implementation responsibility.

144. Once the plan is approved the implementation partnership could convene to review the proposed actions and devise a detailed implementation plan that will address: (i) review of the proposed response and definition of the scope of response; (ii) detailed list of activities and a work schedule that identifies job sequencing and timing, and responsibilities; (iii) proposed budget and resources plan including commitments to beneficiary contribution and local resource mobilization; (iv) indicators of completion and outcomes that demonstrate success or failure and how this would be measured; and (v) project sustainability agreement for long-term maintenance and upkeep of planned inputs, including the institutional arrangements for the long-term management of the proposed investment.

145. Once completed, the implementation proposal would be forwarded to the proposed sector fund[15] for financing.

2. Pradeshiya Level

146. The proposed service delivery plans would be implemented by the agency with the defined authority for the issue at hand. Where there is a duplicated or ambiguous mandate, the responsibility will pass to the entity that has constitutional jurisdiction and is agreed by the PPM. The planning process will need to recognize the limits to local capacity and how these may constrain the extent of programs in the short term. It is proposed that any entity in the PPM may be a potential implementing agent or partner. This could involve a local authority undertaking SWM collection and transport services or it could include the local authority contracting an NGO/CBO to provide a waste reduction and recycling program at the community level.

147. It is proposed that some service implementation would be coordinated through the DS by deconcentrated and decentralized agencies for the programs that they already offer or can arrange to provide. Likewise, many of these agencies such as the FD may contract with community institutions to undertake social and community forests.

3. Palaath Level

148. The Palaath level would address two important functions within the NEP and NREM framework. Firstly, at this level, the overall ecological integrity would be managed and monitored. This will require cumulative assessments of current and expected resource use and the development of management tools to limit the cumulative use (spatially and temporally) within ecological sustainable bounds. An important aspect of cumulative management is addressing systems for defining limits to use, the allocation of rights to use, and processes for the withdrawal of existing use rights. For example, in one existing case, there are 28 mini-hydro plants on one river system that compete for the same water and take water from other communities who need to find alternative drinking water supplies. More mini-hydro plants are planned, which if assessed individually make sense but when assessed collectively would be non-sustainable and therefore non-economic. An important aspect of the Palaath level will be to

[15] See Appendix 11, Volume III.

devise management tools and compliance programs for the strategic management of natural resources in a province.

149. The second and related role of the Palaath is to undertake strategic environmental assessments from informed decision processes and to have these reflected in future sub-national plans and programs. Associated with these strategic environmental assessments would be the need to report on the state of the environment to the sub-national planning process and the national reporting program. The monitoring program would be linked to the proposed sub-national performance reporting system to be benchmarked at the provincial level and the data collection programs linked to strategic environmental assessments.

J. Financing

150. Currently funds allocated for the NRE sector are spread across agencies coming under the purview of the MENR and also under other ministries and agencies which have NRE related programs through the following methods:

- Budgetary allocations to ministries, departments and provincial councils are provided through the respective budget head, program and project. Funding for all donor-funded projects, including counterpart domestic funding, is provided through the budget. Fund disbursements are made by the State Accounts Department.

- Government grants to public corporations and statutory authorities are provided in the budget estimates as capital grants to the respective institutions. Allocations in respect of foreign funding for projects, and in some instances counterpart domestic funding, are also given in the budget estimates. Some corporations and statutory authorities find the counterpart funds from their own resources.

- Funds mobilized by public corporations and statutory authorities are credited to their own budgets, or in respect of licensing and other statutory revenue, credited to the consolidated fund and released to these agencies.

- Special funds created under ministries and departments for specific objectives.

151. Local authorities currently depend on grants from the central government and their own revenue. Grants from the central government primarily finance salary payments. Own sources of revenue for local authorities include rates and taxes and licensing fees. In addition to these sources of revenue, local authorities can obtain loan facilities through the Local Loan Development Fund (LLDF). The main environment-related service currently provided by local authorities is solid waste collection and disposal, and the issuance of some classes of environment licences on behalf of the CEA. While some of the larger urban local authorities have made provision for SWM programs, funds derived from their own sources of revenue in respect of the smaller local authorities with a low revenue base, are adequate only for the routine garbage collection activities. Although local authorities can apply for loans from the LLDF, very low priority is given by them for SWM in their portfolio of loan applications.

152. Sector funds at both the national and local levels for the provision of services and the management of resources are limited and mostly provided through donor projects. These projects invariably raise issues of sustainability in their preparation but have failed to address the issue of sustainable financing of future activities. Notable exceptions in recent years have been the increased resource mobilization by the FD through the application of realistic stumpage charges[16], and the DWLC and Zoological Department through the collection of entrance fees. There remains a major issue in the governance of such revenues and the ability

[16] Although the majority of these remain uncollected from the State Timber Corporation which effectively uses the royalty to cashflow a non-viable institution.

of the sector to revolve these revenues for further capital investment. Other approaches, including the protected area management trust fund, have failed to be supported in terms of local contribution that would enable a fully endowed fund to be implemented. Consequently, the sector relies to a large extent on donor funds for capital and operational funds while the GOSL finances recurrent salary costs.

1. Proposed Funding Options

153. This section presents three funding options to support the introduction and maintenance of the proposed NREM framework. The options are provided due to the current state of uncertainty over what can be achieved in the short-term (the reluctance to create new funds) versus the long-term need for financing long-term operational programs as opposed to new capital investments. These represent an evolution of public sector financing from the current annual sector appropriations to: (i) tied NRE funding for implementation through LLDF; (ii) a separate sector fund limited to the sector priorities and to revenue mobilization; and (iii) a deconcentration of the NRE sector fund to provincial (and possibly divisional) levels.

a. Option 1: Use of an Existing Fund – A Reformed LLDF

154. The LLDF, as an existing fund available to local authorities, has a distinct advantage as a funding option. However, the LLDF as presently constituted, is not geared for large-scale sector funding and is not currently applied in a manner consistent with a decentralized system of management that involves non-government partner organizations in the planning and implementation process. If the LLDF is to be an effective channel for funding, some restructuring is necessary including:

- Capitalization of its funds with a sound capital base. This will involve resorting to commercial bank borrowings which under the Act is permitted and channelling donor funds and possible private sector financing through the LLDF.

- Capital resource mobilization from within the sector.

- Change in lending priorities. The present emphasis on public utility works, commercial undertakings and vehicles has to change towards other priority areas such as programs in the NRE sector. There should be a shift from capital purchasing to program funding.

- Availability of funding for partner organizations. This is permitted under the Act, with the proviso that such funding will be channelled through the local authorities. However, this facility has been hardly used.

- Lack of provision for funding at provincial and divisional levels. The current funding level of the fund is the local authority. Enabling legislation will be required to fund programs at these two levels.

b. Option 2: Creation of a NRE Sector Fund

155. An alternative would be the creation of a separate NRE sector fund specifically to secure financing of sector priorities and to mobilize revenue from within the sector. The objectives of such a fund will be to:

- Create an outcome-based resourcing program for all scales of management system ranging from the center to the local community level focused on implementation of programs through partnerships.

- Increase the level of resources for implementation, operational activities and programs.
- Provide multi-year certainty in the resourcing of programs that contribute to measurable outcomes.
- Provide a mechanism through which resources mobilised within the sector can be used to finance the NREM activities.
- Support collective and collaborative management systems that address issues with external or cumulative effects.
- Finance integration at the level of resource use and management decision-making.
- Move from plans as outcomes to plans as inputs.

156. The major reason for establishing a NRE sector fund is to provide mechanisms to finance the implementation of planned systematic NRE programs that generate improved outcomes in the NRE sector. The experience of the EA1P CIEF funds highlights the significant gains that can be achieved when financing passes to implementation partnerships.

157. A sector fund would achieve this (i) by applying systems where expenditure is directed to programs with direct and indirect beneficiary contribution; (ii) through financing plans directly to the appropriate level of implementation; (iii) by resourcing clearly stated priorities; (iv) by establishing clear procedures for use of funds that are linked to outcomes and performance reporting requirements; (v) by providing funds competitively to create efficiency incentives; (vi) by supporting the introduction of performance monitoring and reporting systems; and (vii) by involving a wider range of stakeholders in the planning, implementation and evaluation of NRE programs through the financing of implementation partnerships.

c. Option 3: Deconcentrated Sector Fund

158. This option would involve decision-making over the use of funds being shared with the PPS and PPM empowered to manage sub-funds. As such, this approach would be the most consistent with the planning and implementation philosophy of the NREM framework. While the concept is similar to Option 2, a deconcentrated sector fund will necessarily mean that the sub-national NREM stakeholders will be actively involved in the planning and decision-making process, and the utilization of funds at provincial and divisional levels. Under this option the allocated funds will be "controlled" by the sub-national planning entity creating greater incentives for local resource mobilization, revolving of funds, increased efficiency in the use of funds, and technical effectiveness as the primary beneficiary would be the local stakeholders in the form of the PPM and SKS membership.

159. Once a sub-national entity (this could be a province or even a PPM) ratified their NREM plan the national sector fund could provide a bulk allocation for the implementation of the plan. The sub-national entity would then seek to use those funds to greatest effect including the provision of funds on the basis of cost recovery, or cost sharing programs with local stakeholders, ensuring that funds were available for programs in subsequent years. Bulk allocation of funds would be channeled through provincial councils from the sector fund. A structure will have to be put in place to administer the fund at sub-national level. Under this option each sub-national entity would need to apply for national funds on a competitive basis. Disbursement of resources from the funds would be directly to implementation partnerships defined within the planning process which had subsequently developed a detailed implementation action plan.

160. A deconcentrated NRE sector fund, while providing flexibility for support to implementation partnerships, will have to work within the provincial council budgetary procedures and framework. The funding needs would be identified as a result of the NREM planning process and each provincial council would need to specify its financing needs in the annual budgeting cycle to the finance commission. The allocation of NRE budget requests between provinces could either be undertaken by the Finance Commission or directly by the national fund manager. It is suggested that through time this would need to be based on performance and other agreed criteria and it would need to report and recommend this to the Treasury for approval. Treasury would then make the respective allocations in the budget estimates based on these recommendations. However, the Finance Commission will not directly intervene in the operational management of the fund at either the national or the provincial level.

2. NRE Sector Fund Administrative Requirements

161. The NRE sector fund must be within the government budgetary framework requiring that any revenue to the fund needs to be credited and passed through the consolidated fund. To achieve this requirement, a budget item will be created under the ministry in charge of the subject of NRE. All revenue specified for the fund, including donor funding, will be credited to the consolidated fund and appropriated under this budget item as funds earmarked for the NRE sector. Expenditure or program heads would then be established under the budget item for reporting purposes and all expenditure would therefore require public finance reporting and accounting standards.

162. The NRE sector fund will need an Act of Parliament as a state-owned corporate entity under the Ministry of Finance (MOF). The fund will be managed by a Board of Management comprising five to seven directors. The chairperson and other directors will be appointed by the Minister of Finance with the concurrence of the minister in charge of the subject of NRE and in close consultation with the secretaries of the ministries responsible for natural resources and provincial council and local government.

163. The proposed functions of the Board of Management of the NRE sector fund will be to:

- receive funds or revenue from grants, loans or cash whether from local or foreign source;
- disburse funds on agreed priorities;
- enter into arrangements for procuring services for the administration of the fund;
- call for application of use of funds;
- collect and maintain data on the appropriate administration of the fund and the overall needs of the NRE sector;
- develop funding priorities and have these ratified by the Ministry in charge of NRE and MOF;
- define the rules, guidelines and conditions relating to the administration and application of the fund;
- assess the impact of the use of programs financed by the fund;
- monitor implementation programs; and
- continuously review the source of funding and its use, accounting for both equity and efficiency and make recommendations for the continuous strengthening of fund management.

164. A National Advisory Council formed from the broader stakeholders will develop policy level decisions which will be adopted by the Council. The powers of the Advisory Council would be limited to the provision of advice to the Board and assess the performance of the use of funds. The Advisory Council shall be limited to 15 members. It will meet at least two times per year. The Council shall have access to all information held by the Board or the administration, except information which the Board considers to be of a confidential nature.

165. A Secretariat will function as the official arm of the Board of Management for the fund. The Secretariat will be headed by a Chief Executive Officer who will report to the Board. It will have the minimum support staff which initially is proposed to be limited to six. In order to obtain the required expertise, it is proposed that the technical input be contracted to a private operator who will also provide the office space.

166. Accountability mechanisms for the fund require clear financial procedures consistent with Government Financial Regulations and the Finance Act. The following reports and manuals are proposed to ensure transparency and accountability:

- Business plan for the fund prepared by the Board Secretariat for a period of three years containing projected estimates of revenue and expenditure for this period.
- Operational and Performance Manual detailing procedures, policies and criteria.
- Performance indicators reported six monthly to the Board and the Advisory Council.
- External environmental and impact audit of the program financed.
- Annual audited statement of accounts.
- Annual report where performance is reported against stated performance indicators.
- Revenue mobilization plans and achievement report.
- Auditor's report.

3. Scope of Use of Proposed Funding

167. It is suggested that the scope of the fund be limited to proposals that: (i) demonstrate sustainability with proven commitments for ongoing maintenance; (ii) provide beneficiary contributions that amount to a minimum of 20% of total cost; (iii) have at least 30% of the impacts falling to the public or public good; (iv) programs that require collective responses; (v) involve an implementation partnership and is provided to a non-government legal entity; (vi) is associated with an assessment of technical and financial feasibility; and (vii) has specified outcomes that are linked to NEP objectives.

168. The fund may eventually provide for local research and pilot development funding at the national and provincial levels and also for the development of technical solutions including beneficiary contribution systems. It is expected that the scope of the fund will change through time becoming a sector-wide fund available for partnerships formed to implement NREM plans. This could include a move towards extended multi-year funding up to a maximum of five years based on annual performance reviews to reduce the transaction costs associated with annual budget requests. Funding will not include government salaries or overheads.

4. Linkage with the Decentralized Planning System

169. The NREM is an integrated planning system, both horizontal and vertical, which provides for a decentralized structure with active community participation through implementation partnerships. Community participation is ensured through the establishment of PPS at provincial level, PPM at divisional level and SK at local authority level. These institutional arrangements will function as multi-stakeholder forums for planning, implementing and monitoring NREM partnership action.

170. The NRE sector fund will need to provide funds to the respective implementation partnerships that will need to be Real Legal and Economic Entities (RALEs) accountable for funds. Channeling of funds will be on the basis of plans, programs and outcomes, and will not be project based. Applications will be made by the PPS, PPM and SK to the fund through the Provincial Environmental Council. Financial management contracts will be entered into by the Fund Board of Management with these bodies for the appraisal and approval of programs submitted by the implementation partnerships and for the management of the funds.

5. Resource Mobilization

171. All revenue mobilized will go into the consolidated fund but will be earmarked for the NRE sector fund which will be established as a budget line under the votes of the ministry in charge of the subject of NRE. The potential sources of revenue to the fund will include: (i) donor contribution; (ii) GOSL contribution through annual appropriation; (iii) natural resource taxes and royalties; (iv) ecosystem levies and charges; (v) tourism surcharge; (vi) provincial share of wildlife charges; and (vii) contributions from the private sector and philanthropists.

172. Sustainability and continuity of the NRE sector fund needs to be ensured. The mechanisms and the operational policies and procedures which will be put in place should ensure this sustainability and continuity. The gradual phasing out of donor funding for project lending will make it necessary for the fund to depend largely on the mobilization of domestic resources through user and beneficiary charges and other innovative sources of revenue mobilization. This will be one of the major tasks of the proposed Board of Management of the fund. Currently UNEP is undertaking a major study into resource mobilization opportunities and policy and legal constraints for applying a range of resource mobilization instruments.

6. Disbursement Procedures

173. The broad operational polices which are proposed to be followed in the allocation and disbursement of funds are indicated below.

174. **Eligibility.** The eligibility criteria proposed for availability of funds are: (i) the applicant must be a legal entity; (ii) implementation of decentralized NRE plan outcomes through direct implementation up to the CBO level (financed 70%); (iii) research and pilot demonstration (80% financed); (iv) implementation modality development including the development of beneficiary cost recovery programs (80% financed); (v) NRE programs with collective responses and community-based programs (financed 70%); and (vi) strategic environmental assessments (financed 50%).

175. **Selection criteria.** Each proposal will be assessed by a review committee against the following criteria: (i) link to the NEP outcomes; (ii) livelihood outcomes; (iii) proven sustainability options; (iv) expected contribution to outcomes; (v) benefits, their distribution, and how these are to be monitored; and (vi) technical responses. Each proposal will receive an average point based on three reviewers with funding flowing to the highest scoring proposals.

176. **Disbursement of funds.** Funds will be made available to implementation partnerships through provincial councils and local authorities in terms of the eligibility and selection criteria given above. Availability of funds will be subject to competitive bidding during specified bidding periods. The Fund Administration will review and assess each proposal against predetermined selection criteria. The use of funds could be defined in terms of broad priorities such as: (i) local implementation programs (55%); (ii) pilot demonstration programs (25%); (iii) action research programs (10%); and (iv) beneficiary contribution programs (10%).

7. Outstanding Issues

177. Some issues remain unresolved and have to be discussed further with Finance and Local Government Ministry officials, as follows:

- With concerns expressed on the creation of special funds, consensus has to be reached with the Ministry on the need for such a fund.

- The perception of the Ministry on what it means to be “within the budget” has to be clarified in the context of the interpretation given in this report.

- Agreement has to be reached on the mechanisms to fund plans and programs instead of projects and to move towards overall sector funding instead of agency funding.

- Agreement has to be reached on mechanisms to channel funds to partner organizations while ensuring proper accountability.

- The urgent need for enabling legislation to empower the provincial councils with necessary powers on NRE concerns to enable sector funds to be channeled at this level has to be recognized.

- Discussions have to be held with the MPCLG on measures to restructure the LLDF to enable it to be an effective channel for fund disbursements.

8. Recommended Approach

178. It is recommended that MENR and MOF develop a five-year strategy to establish a sector fund. If necessary this could start with a LLDF based fund as in option one to overcome legal reforms etc. necessary for establishing a fund. The sector fund could be created and implemented as a sector-wide environment fund. During this initial period, it is suggested that a limited number of PPM sub-funds could be piloted and evaluated over a period of three years. Ultimately the sector fund should be deconcentrated to the provincial and divisional levels and be structured to serve as a funding pool for the implementing partner organizations.

K. NREM Reporting and Information Systems

1. Monitoring and Performance Reporting

179. The NREM framework needs incentives for institutions to adopt the underlying program and the imperative to move from input administration to output-outcome management. One of the means for achieving these incentives is to develop and implement systems of performance monitoring with agreed indicators, a time-bound policy target value for each indicator, and outline programs for reporting this information.

180. It is proposed that the implementation agencies for the decentralized NRE program would move into a performance management system that prepares work plans and budgets to state service provision targets. As programs are implemented, the outcomes, outputs and inputs would be reported and these could be benchmarked at the province and national levels. The notion of performance indicators is depicted in Figure 17 below.

181. The definition of indicators would enable the same process to be used for environmental reporting which the MENR would oversee as part of the benchmarking process. This would enable the MENR to identify programs by issue and location including those that were successful for wider replication and those that are less successful that need to be adapted. MPCLG would use the organizational aspect of the benchmarking process to strengthen its own reporting systems and to be the basis of strengthening capacity etc. The proposed process and how it links back to the NRE planning programs is depicted in Figure 18.

182. For a performance management system to be implemented requires information systems. In Sri Lanka, the ability to introduce technical information systems has been problematic and most fail to be fully implemented and those that are rarely sustained.[17] For this reason the TA proposes that the information systems input and support be directed at the implementation agencies and be based on their wider organization capacity and especially their capacity to move into a performance-based outcome-orientated program. The adopted

[17] For a detailed description of the experiences with IT technology, see Appendix 12, Volume III.

approach is depicted in Figure 19. The components are further detailed in the design of the environmental information system (EIS) at various levels. The approach follows a cascading mechanism beginning at the highest level of government through to the local government, with feedback mechanisms and interfaces being considered at their respective levels.

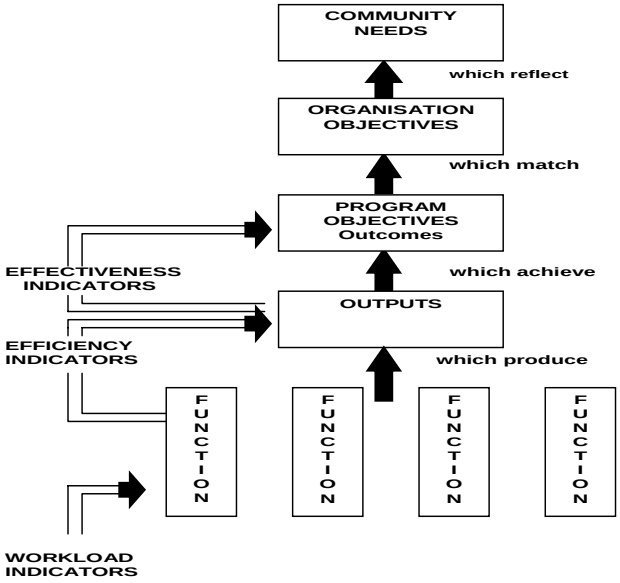


Figure 17: Relationship between Performance Indicators

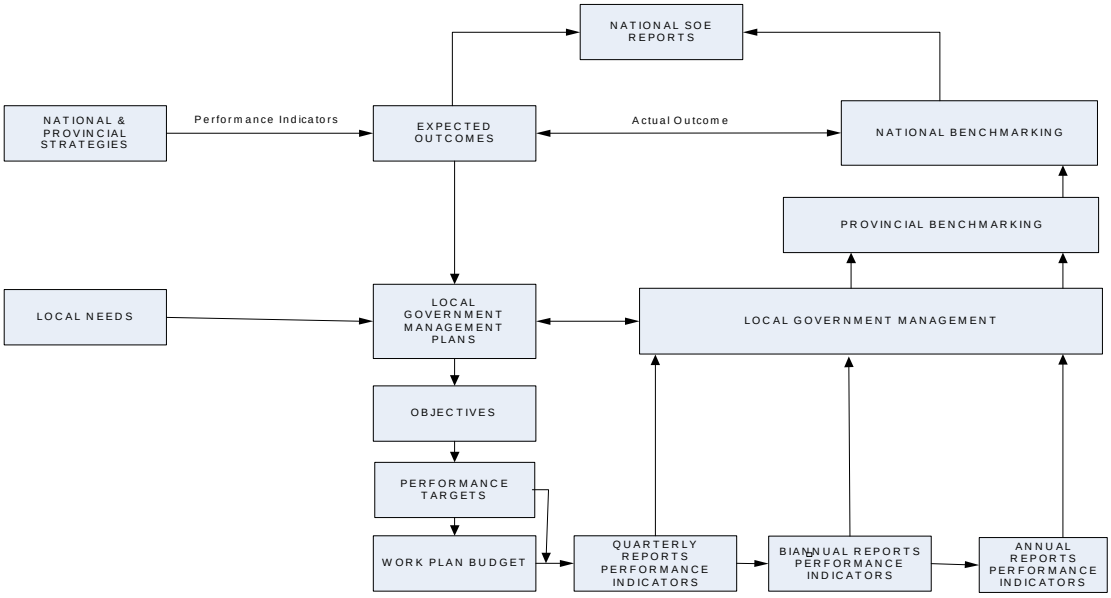


Figure 18: Schema of the Integration of Management Planning, Service Provision Budget

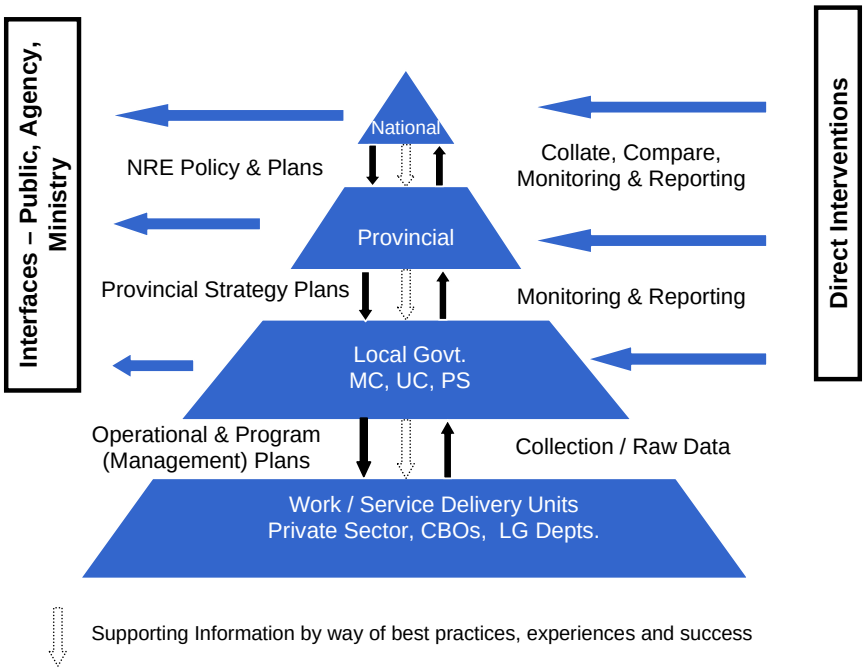


Figure 19: Schematic Representation of NRE Information System

a. National level (MENR)

183. The apex of the diagram represents the national level – as represented by MENR with responsibility for NEP and associated strategies that guide national sector, sub-national and implementation agencies. The information needs at the center include the ability to report on priority needs, the changing status of NRE, the assessment of sector interaction and the achievement of policy goals. The CEA also plays a critical role in the information system for the sector and for its own management. These needs are being addressed through the Royal Netherlands Embassy (RNE)/CEA support program and as such are not replicated here.

184. It is recommended that there be an EIS provision unit formed within the MENR which should be integrated with the Education and Awareness Division. The EIS will adopt a distributed approach in order to build upon and make efficient use of existing capacity in the sector, although there may be a subsequent requirement for an additional centralized EIS to provide an overall data management framework and inter-agency data analysis support.

185. The proposed integration of the EIS with the Education and Awareness Division reflects the need to develop a service provision culture for both aspects as well as the need for the information system to capture supporting information (such as best practices, experiences and success stories) accumulated at national/international/sector levels so that it can be shared on a need to know basis amongst implementing agencies and the national policy and enforcement roles. To achieve the coordination and integration requirements of effective information and learning strategies an Environmental Information Forum (EIF) will be established at the MENR to develop and promote a sector-wide approach to data capture and information management. The EIF should be composed of representatives from the main agencies in the sector who should hold coordination meetings on a monthly basis.

186. The EIF should appoint personnel to carry out the following activities and to report back to the EIF on progress: (i) carry out an inventory of existing capability and data across the sector at national level, building on and revising the study contained in this report; (ii) develop

and maintain a national level data catalogue; (iii) carry out a needs analysis to determine information needs of technical staff and decision-makers; (iv) develop a data capture program to address gaps in the data catalogue; (v) develop procedures for collecting data from local and provincial government; (vi) develop data sharing protocols for intra- and inter-ministerial data exchange; (vii) develop pilot cross-departmental data analysis applications to develop inter-departmental/inter-organizational data exchange; (viii) develop procedures to provide information in an appropriate format to decision-makers; (ix) develop procedures to provide information in an appropriate format to provincial and local governments and to civil society and the general public; (x) develop a national environmental information policy, incorporating national environmental data standards; and (xi) determine the requirement for an inter-organizational EIS, based at the MENR.

187. The EIF will develop an information needs framework – a distributed Environmental Management Information System (EMIS) – within which data capture and information analysis across the sector is coordinated and in which data and information can be shared according to agreed protocols. The successful implementation of a distributed EMIS will represent a considerable improvement in the efficiency and effectiveness of environmental information management at the national level and should lead to the provision of valuable information for all stakeholders, including senior decision-makers.

188. The EIS will act as the technical arm of the EIF. The EIS should consist of a senior manager and a team of 2-3 technical staff. The EIS should not be technology heavy, but it should have adequate database and GIS capability, its staff should be well trained with sufficient operational budget to maintain its technology and carry out its day-to-day activities. The role of the EIS would be to:

- provide an access point to information management services for those agencies that do not have their own capacity;
- provide advanced cross-agency information analysis services for all stakeholders;
- support the in-house information management activities carried out by the agencies that have such a capacity;
- support the growing need for NRE sector policy analysis, not only for development of policy but also to assess the options for its implementation;
- following policy set by the EIF, liaise with organizations outside the sector to obtain appropriate data, to integrate this data into the sector database and to use the data for cross-sectoral analysis; and
- support sector-wide reporting according to international protocols.

189. To achieve the envisaged goal for the EIS, the following management guidelines must be adhered to:

- It must be entirely service orientated and operate an ‘open-door’ policy.
- It must offer high-quality products, based on the mapping of integrated data and on advanced data analysis techniques, to all stakeholders.
- It must be staffed by a small team of highly trained personnel that have access to a small but powerful set of modern hardware and software.
- It must provide technical advice to the EIF on the setting of data standards and on data capture projects.

190. It will be necessary to introduce a certain amount of computer networking to the MENR at an early stage in order to bring information to senior decision-makers. This infrastructure should be kept to a minimum until sustainable mechanisms for the maintenance of the information technology are demonstrated to be effective. The infrastructure could then be extended using a phased strategy, with the sustainable funding for maintaining the present phase being a prerequisite for the implementation of the next phase.

191. The proposed implementation mechanism for natural resource management will use a vertically linked decentralized planning process and then flow resources to the planning outcomes with implementation undertaken at the lowest possible level. To be effective the process will move from an activity or input-based system to a service provision model. This change will require a performance reporting system that builds common performance indicators throughout the agencies and levels (horizontal and vertical) of government. Many of these indicators will be used by decentralized organizations for their operational efficiency programs while others will indicate the changing outcomes and status of NRE, and how these changes are associated with the programs that were implemented. At each vertical level of government it is proposed to adopt a benchmarking system based on the performance indicators to allow horizontal and longitudinal time series comparisons.[18] At the national level this will require the capacity to benchmark across provinces and sectors and the ability to capture, analyze and report data.

192. The EIS must also be capable of monitoring and reporting information at national level which is compiled from provincial level benchmarking data. Important for the monitoring datasets is their ability to support the required feedback for international reporting obligations. Based on the performance indicator information and its analysis, new information may be compiled and passed down to the provincial government.

193. There will be instances where direct interventions and implementation may occur at a national level (e.g. Clean Development Mechanism Program or the current ISOA Project) by way of direct inputs. The EIS will need to accommodate these and report them on a similar basis as well as report the programs to GOSL and to sub-national agencies as such one of the goals of the EIS is sector-based communication.

194. An important interface that links dissemination of information and knowledge at the sector level, inter-ministerial/agency level or the general public (regarded as information consumers) will need to deliver accurate “near-real time” information.

b. PPS level

195. The national policy and strategy and where they exist plans will need to be integrated with the provincial strategic plans. At the provincial level there will be a need for provincial strategic planning, implementation of provincial level programs and performance benchmarking to monitor the provincial performance where programs are implemented at the local government or civil society level. To undertake the proposed situation analysis and strategic environmental analysis, the provincial council will need to capture, analyze and report NRE data.

196. The provincial level will need to develop and maintain datasets and provide the necessary feedback mechanisms for reporting of information at provincial level. Based on the feedback information, new supporting information may be compiled and passed down to the respective local government/s. Provincial environmental planning officers should have sufficient training and resources to enable them to carry out the following functions:

- To collate data from local governments into an environmental database. This can be maintained using paper records to begin with, with a view to moving to electronic storage once a system is established.

- To add value to the local government data through the use of more sophisticated data analysis techniques. The provincial government can analyze data over the whole province and feed the results of this analysis to local governments and to the national government. Furthermore, the provincial government may have access to

[18] The USAID-funded Regional Environmental Policy and Management Project has developed benchmarking software for local authorities that could provide a platform on which to build the proposed system.

greater resources than the local authorities and may be able to add value to the data through more sophisticated statistical and GIS analysis.

- To design and implement, if necessary, a program for the collection of data at the provincial level where required data is not being collected by the local governments. For example, the provincial planners may require information on sand mining across the province that is not being collected by the local governments.

- To inform provincial-level environmental interventions and to incorporate environmental considerations into provincial planning initiatives.

- To set a provincial environmental strategy within which local governments can operate.

- To coordinate local government initiatives that cross local authority borders.

- To supply data in an agreed format to national government and to local governments, to civil society and to the general public.

197. As with local governments, provincial government officers will need to monitor the effectiveness of provincial environmental programs in order to inform and improve subsequent activities and to demonstrate the effectiveness of previous and ongoing programs as part of the application process for future funding. The collection of program monitoring information must therefore be built into the design of all intervention programs and collected by the staff responsible for the programs. Provincial environment officers must be able to access this information through a number of important interfaces that enable dissemination of information and knowledge relating to sector data, local government, sector agencies or the general public (regarded as information consumers). The interfaces will need to provide accurate "near-real time" information.

c. PPM level

198. At the local government level the need for information is twofold. Firstly, the proposed planning system will need to capture and archive the datasets and outcomes of the local government-DS planning process and the resource unit plans. Secondly, they need to provide management information for their organizational functions and programs which is described in Appendixes 6, 7 and 8, Volume III. Specifically it is at this level that the performance reporting data is formed and will need to be consistently prepared and communicated internally with the local government and vertically with the provincial councils. The strategic plans will be represented at the local government level as operational and program plans (also called management plans) that state work/service delivery units which will have the participation of the private sector, CBOs and the local government departments.

199. The local government-DS level will need to interface with a number of levels and agencies. This will include: (i) SSK planning processes; (ii) the PPM NRE planning forum; (iii) the technical secretariat in the DS including the DEO of CEA; (iv) deconcentrated line agencies; (v) provincial authorities; (vi) civil society; and (vii) CBOs/NGOs.

200. The EIS will need the capacity to provide support services, information and data access to all the above.

201. Officers at local government level along with their agents in civil society need to have sufficient training and resources to enable them to carry out the following functions:

- To design a local environmental monitoring program. This program should initially focus on water quality monitoring as a part of the proposed SWM program and then expand into wider land-water and society interaction datasets. An inventory of local environmental resources should also be a priority.

- Due to capacity constraints it is proposed that the DEO (CEA) would act as both a facilitator and a data reception point with the DEO being responsible for archiving datasets and distributing these to the provincial level. For this purpose a computer will be provided to the DEO and included in the training process. One of the roles of the DEO will be to supply data in an agreed format to provincial and national government and to civil society and the general public.

- To carry out environmental monitoring tasks and to record the results. Officers should be trained to measure environmental parameters, to record accurate results and to plot data in order to monitor change. Such monitoring activities should involve civil society, e.g. schools could be involved in water quality monitoring. It is proposed to include five schools per participating local authority to participate in water quality monitoring and hence would require access to testing kits and recording systems.

- To maintain a simple but well-documented database of historical data.

- To carry out primary data analysis in order to identify trends and highlight potential problems. Officers should be trained to plot graphs to monitor change and, where available, to work with paper maps. Officers from larger authorities may develop statistical analysis and even GIS-based spatial analysis.

- To inform local environmental interventions and local planning initiatives, where such initiatives are taking place. Environment officers need to advise on local solutions to local problems and network with their planning colleagues so that environmental considerations become an integral part of the planning process.

202. Monitoring and performance reporting will be established through the introduction of program-based budgeting for SWM that is directly linked to the provision of services. As part of the provincial strategic plan, performance indicators will be identified for SWM service provision which will need to be incorporated in the local authority management planning and budgeting programs (see Appendix 4, Volume II, for a detailed description and example of program budgeting with indicators).

203. The application and benchmarking of performance indicators during the management planning process enables a wider system of performance reporting (see Figure 18) at all levels of the decision-making and planning including the monthly, quarterly and annual reports to local authority management. The same data can be transmitted to the provincial council every six months to enable an evaluation of progress under the strategic plan implementation and then every year to the national level for benchmarking and assessment of provincial performance. It is envisaged that this system can also report environmental data which could be included in the benchmarking programs. Examples of local authority performance monitoring indicators and systems that link to environmental reporting are provided in Appendix 6, Volume III.

d. Inputs

204. A central need for performance reporting and improved local authority management is the ability to handle information and communicate this information to the required level. An integrated information system has been designed to support the proposed NRE planning and delivery system that addresses the hardware, software and human resources needs at MENR,

provincial council and local authority levels (see Appendix 12, Volume III for details). The following section presents the inputs required for the proposed pilot province of Wayamba.[19]

205. **National EIS**. For the EIS procurement requirement in the MENR it is recommended that MENR be provided two servers. To maintain and operate the EIS a total of three staff are recommended in the initial phase, a number that will need to increase to ten by 2015. The three incremental staff recommended include a data management specialist and two GIS specialists.

206. **Provincial level**. For the pilot province it is recommended that a total of five computers with supporting software, two printers and one high end server be provided along with local area network (LAN) and wide area network (WAN) facilities.[20]

Table 4: Indicative IT Procurement for Provincial Agency

System Application	Quantity (2005-2015)
Computers	
Finance	1 – 2
Admin	1 – 2
Public Services	1 – 2
Information Service GIS	1 – 4
Planning Unit	1 – 5
Printers	2 – 5
Digitizer	0 – 1
Plotter	0 – 1
Server	1 – 2 (high end)
WAN	1
LAN (Planning Unit and Local Authority Ministry)	1

207. The typical environmental planning unit staffing requirement is given in Table 5. The staffing number will need to increase through time as the sophistication of the information processing grows – the indicative increases are also provided.

Table 5: Indicative Staffing Needs for Provincial NRE Roles

Role	EPU 2005-2015
Sys Admin	0 / 1
Data Specialist	2 / 5
GIS Specialist	0 / 2
EIS Trainers	1 (1 temp) / 2 (2 temp)

Notes

1. EPU can be outsourced to a central EIS unit / the private sector.
2. An EIS Trainer introduced (can be a Data Specialist) for staff turnover/transfer mitigation, i.e. to provide the required orientation and training to new staff. Two permanent for EIS and two temp staff re-allocated to municipal councils.

208. **Local level**. While a summary of the inputs required for the pilot Wayamba province is presented in Table 6 based on the immediate needs for information management, a system design and needs analysis for each local authority is a precondition before any purchases are undertaken. Here the proposed SKS forum will coordinate and provide technical advice to the contracting and reporting of the needs analysis. The needs analysis will be undertaken as a consulting contract commissioned by the Provincial Commissioner of Local Government. The Southern Province is included in the information system to enable the staff participating in the Wayamba process to capture data and build the systems required to maintain the planning

[19] The inputs for Wayamba will need to be adjusted for any IT purchases and inputs provided for under the proposed SWM program.
[20] Clarification is being sought with respect to the IT investment proposed by the Finance Commission for which the ADB Fiscal Reform Program is including hardware investment costs. The TA understanding is that the area of potential overlap relates to WAN and LAN services.

process. It is envisaged that the contract would require one week input per PPM forum for a total contract cost of US$2,000 including travel etc. For the pilot province with a total of 31 local authorities, this would require a contract of $62,000.

Table 6: Indicative Information Systems Inputs for Pilot Province

Item	Small LAs	Medium LAs	Large LAs
Computers	3	3	4
Software	1	1	1
Printer	1	2	2
Server	Entry level	Entry Level	Mid range
LAN		LAN	1
WAN		WAN	1
B: Numbers			
B.1 Pilot Province – Wayamba			
Municipal Council Cluster	1	5	1
Urban Council Cluster	3	3	2
Other	1	5	1
Total	5	13	4

L. Risks and Assumptions

209. The proposed NREM framework based on collaborative resource and environment management with a sustainable livelihood orientation (e.g. the CARE program) has a number of significant developments for the approach to resource management. These are manifest as risks to the program goals and outcomes that need to be managed. The major risks and assumptions are presented in this section.

1. Subsidiarity

210. The principle of subsidiarity is often referred to in policy documents and policy dialogues within the GOSL and between the donor community and the GOSL. Intuitively it is appealing, it is politically correct to associate with, yet it remains elusive as the current system of administration continues to be based on centralized sectoral agencies. Currently, the constitutional, legal and much of the policy framework purport to apply the notion of subsidiarity but actual practice continues to remain strongly centralized. The proposed CREST program has subsidiarity as a fundamental building block, in terms of local involvement in planning, decision-making, implementation and monitoring. This requires the current administration to provide the room, share power, provide support, and the financial resources for the program to operate at the lowest possible level of decision-making. While the design of the program has received strong support for the concept, it remains unclear if this is seen to be another parallel system that relies on the center for resources or whether real power and authority for NREM will be shifted to lower levels.

2. Institutionalization

211. The proposed CREST program is not something that can be tested on a small scale or within a limited timeframe. The program benefits for NREM are only achievable if the system is implemented on a scale that enables boundary spillover effects, externalities, and cumulative impacts can be included in the management regime. Likewise, if the action planning and implementation at the SK is not linked to these larger scale requirements, both will ultimately fail. The program cannot therefore be introduced solely as a NRE sector program but must reflect a GOSL initiative where it represents a new paradigm for addressing sustainable development. A key input to the program is the development of a cadre of facilitation planning skills and the provision of sufficient time to create awareness, train the cadre and to enable a planning process to evolve and develop.

3. Focusing on Planning

212. There is a history of planning and no implementation in Sri Lanka. It is critical that the MENR does not view this as a planning outcome but focuses on the use of the planning system to deliver sector and policy goals by achieving sustainable outcomes. For this to occur any piloting program needs to assure that there are sufficient resources to support the implementation of plans.

4. Plans to be Statutory

213. It is strongly recommended that the NREM plans produced from the CREST program become statutory such that any line agency, local authority, private sector or community organization is required to follow the plan outcomes. In this regard the TA has produced a term sheet for the development of a national statute that empowers the CREST program under the Provincial Council List of the 13th Amendment. Further, there is a need for each province that participates in the CREST program to develop a provincial statute to empower the planning process. While term sheets are provided for this purpose it is proposed that the system be piloted for one province in order to develop best practices prior to developing the final statute.

5. Sub-national Acceptance

214. The proposal is premised on widespread participation of sub-national agencies. If these agencies choose not to participate, the program would lose a significant opportunity. However, the areas that do plan will still generate sufficient benefit to start the process. As part of policy development one of the statutory functions of sub-national agencies should be specified as the implementation of the CREST program.

M. Applications of the NREM Framework

215. The investment plan prioritizes the use of the NREM framework as a significant investment in capacity. The framework will be applied to three indicative sets of problems that the NRE sector currently struggles to address in an effective manner. These indicative problems are (i) a strategic issue that is required for public good such as managing the public health and environmental risk arising from solid waste, (ii) addressing the non-point source and cumulative effects within a landscape of resource use, and (iii) the management of ecological sensitive areas as defined managed units such as wetlands.

216. In each of these typical problems, it is proposed that the investment would comprise of two components: (i) the establishment of the NREM framework, and (ii) the required implementation investment. The priorities are packaged as two separate projects being: (i) Improved SWM and (ii) Collaborative Sub-national Natural Resource and Environment-based Sustained Livelihood. The latter project comprises both landscape-based integrated natural resource management and management of ESAs.

III. SOLID WASTE MANAGEMENT INVESTMENT PROGRAM

A. Background

1. Waste Stream Composition

217. The composition of the waste stream is characterized by the high proportion of organic waste (up to 80%) within the total waste stream (see Figure 20).

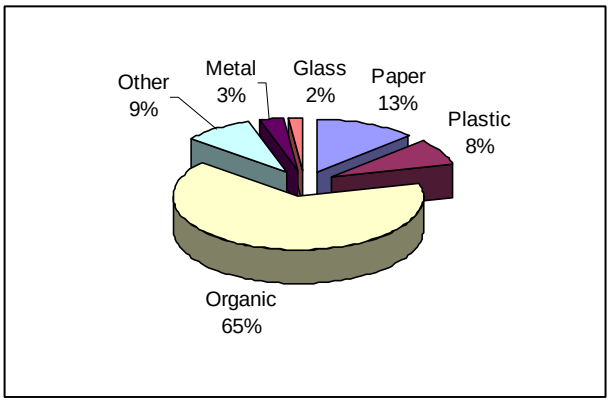


Figure 20: Waste Stream Composition

2. Waste Generation

218. Waste generation rates average 0.8 kg/capita/day for municipal council areas, 0.6 kg/capita/day for urban councils and 0.4 kg/capita/day for PSs.[21] A JICA study concluded that waste generation levels for higher income groups had already reached levels that equate to those found in developed countries. Future increases to the waste stream are inevitable (see Figure 21). The rate of population increase is compounded by accelerating urbanization. For example in 2000, 27-30% of the population was classified as urban, a level predicted to increase to 45% and 65% by 2015 and 2030 respectively. Based on these trends, the 1999 urban population of 3 to 4 million will increase to over 12 million by 2015 and in excess of 15 million by 2030. Any investment will need to reflect the size of the future waste stream predicted to be 30% higher in 2015 than the current waste stream.

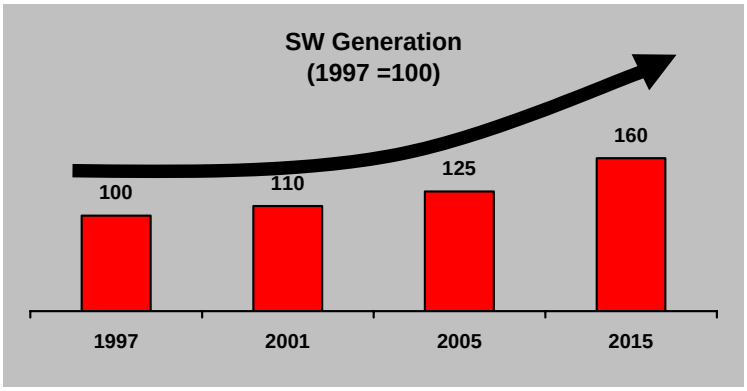


Figure 21: Trend in Waste Generation Since 1997

[21] ERM, 2000.

3. Waste Stream Management

219. Management of the waste stream is limited with 50-65% of urban waste currently collected, although for some areas such as Gampaha it is only 20%. Collection rates vary between the classes of local authorities, with municipal council collection rates averaging close to 85% compared with 65% and 50% for the urban council and PSs respectively.

220. Current final disposal options (see Table 7) highlight significant issues including: (i) a heavy reliance on self-disposal which raises issues of groundwater contamination in homestead plots which also have latrines, septic tanks and wells on site; (ii) the risk that arises from increased urbanization as people have reduced ability or access for self-disposal and composting; (iii) the limited amount of composting at the household level; and (iv) that based on a combination of self-disposal, illegal dumping and landfilling, the proportion of the waste stream requiring final disposal ranges from 80-95% of the waste stream.

Table 7: Final Destination (%) of Waste for Selected Towns in Sri Lanka (JICA 2003)

Town	Waste Generation	Home Compost	Self Disposal	Direct Haulage	Recycle	Illegal Dumping	Landfilling
Badulla	100	5	20	3	14	11	51
Chilaw	100	0	22	0	4	20	50
Gampaha	100	1	54	0	18	8	16
Kandy	100	5	20	0	4	13	60
Matale	100	4	22	1	7	7	61
Negombo	100	4	37	1	9	9	40
Nuwara-Eliya	100	8	15	3	7	7	58

221. Previous approaches as highlighted by the current National Strategy and the reviews of ERM (2001) and Fraser Thomas Ltd (2000) have focused on specific aspects of waste management with a view to attaining a zero waste or near zero waste society. In waste management terms this is desirable but is far from the realities of Sri Lanka and the needs of its society. Effective and affordable SWM needs to develop the building blocks that enable society to move into the systems that may result in a minimal waste generation scenario. This concept is presented in Figure 22, and outlines a progressive strategy to move away from wild-dumping to one that is increasingly managed.

222. Once final disposal is in place, the cost disposal services creates incentives for greater innovation and waste stream use and over time the system of SWM moves towards the long-term vision of the three R's. The National Strategy currently focuses on the long-term vision, but there is a lack of focus on the shorter term realities of final disposal with only small-scale pilot programs attempted. While commendable, these come at a significant cost to ratepayers who effectively forgo significant cost efficiencies from a more planned approach over a wider geographic and administrative area.

223. There are a number of operators and enterprises involved in the sector[22] which range from individual entrepreneurs, CBOs, NGOs and corporates. Formal recycling operations involving paper, tin, plastic polythene, cardboard and glass are distributed across the country and have links to the private entrepreneurs and the NGO/CBO waste management initiatives. Some operators import product for recycling in the plastic sector. The main collection systems include direct depositing onto roadside, communal containers and disposable bags. The current system has been associated with the following problems: (i) deterioration of sanitary conditions and the aesthetic values of public space; (ii) an increased level of street sweeping and cleaning with commensurate increases in costs; and (iii) increased collection works.

[22] A detailed description of these can be found in the Interim Report.

224. Communal bins cause waste scattering as they do not prevent animals scavenging through the waste or dispersal by wind. There is no policy guidance or design requirement for such bins. The use of plastic retention bins has also proved to be ineffective due to theft. The issue of waste scattering appears to have been largely ignored in current initiatives (JICA, 2003).

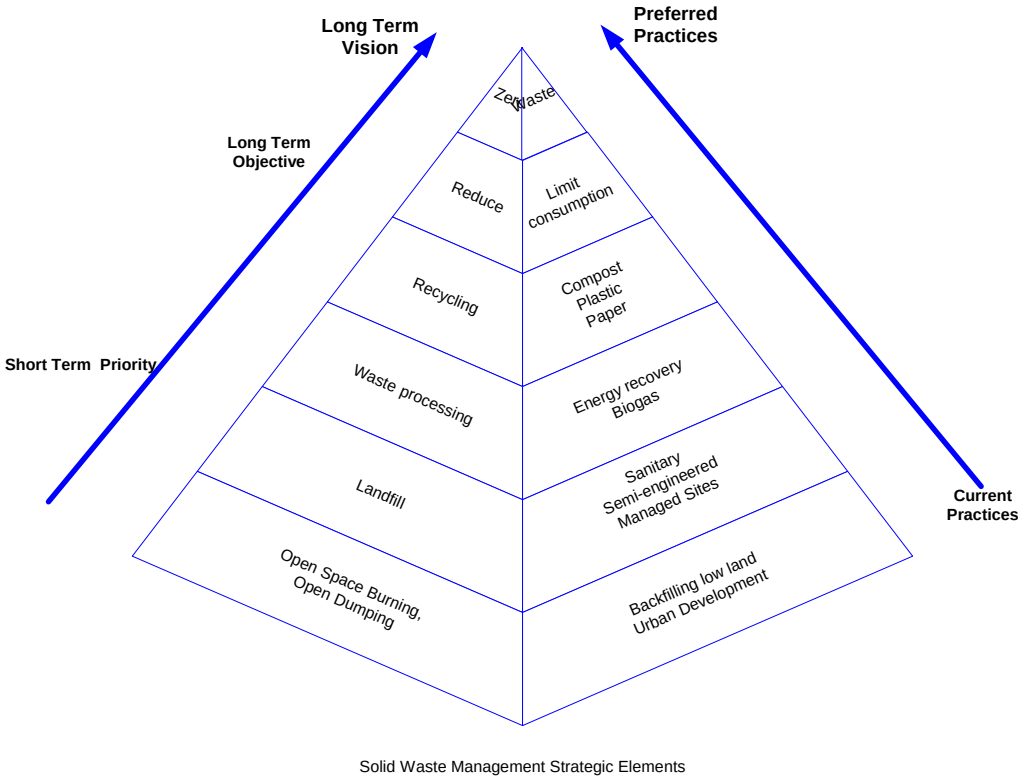


Figure 22: Hierarchy of Strategic SWM Elements

225. **Collection and transportation.** The provision of collection services is reportedly high with claims of 75-85% of the urban population being provided collection services. Interviews and community workshops indicate that this figure is probably grossly over-estimated.[23] Typically collection is provided daily or every second day, with some towns providing a twice a day collection system. Collection systems have traditionally been based around hand-carts, tractors and trailer, and tractor and open trailer arrangements. Some towns provide stationery trailers for collection from commercial areas, markets and/or hospitals.

226. The increasing volume of waste is placing pressure on the capacity of existing systems to provide daily services. Waste collection failures is an area of public concern especially when local authorities neglect to provide service as expected and the public starts not to cooperate with rubbish disposal. [24]

[23] While collection services are operated on most urban roads, no service is offered for those on side roads, lanes etc. As a direct consequence, properties that are 50 m off a main road are not charged rates for such services.
[24] This could be due to a number of factors, i.e. irregular service times that can extend to not knowing what day a collection service will operate. In Kandy the TA was told that this often happened due to public sector employment rules leading to high absenteeism (40%) resulting in equipment being left idle. Casual staff are not employed due to the system of central subsidization of wages and the fact that this was not available to casual staff.

227. Increasingly, the private sector is being contracted[25] for collection and cleaning services which has led to improved effectiveness with the use of garbage disposal vehicles that are covered or closed. [26] Key issues in the collection of waste relate to the method in which salaries for local authority staff are channeled.[27]

228. **Processing and treatment systems.** The processing and treatment sector is widespread and diverse. The range of systems is described in full in the SWM briefing paper (see Appendix 2, Volume II).

229. A major constraint to processing and treatment is accessing sufficient raw material. Currently there is little financial incentive for source separation and collection due to the acceptance of wild dumping that bears no cost (in some instances negative costs in return for payment from private landowners) due to the lack of defined liability for such actions. This removes any incentive for local authorities to seek value from waste streams and to utilize appropriate waste reduction and disposal strategies. Where costs are incurred for collection and disposal there has been a significant increase in recycling and innovation to support recycling and composting and to reduce the costs to the consumer/ratepayer.

230. Sri Lanka has developed a major focus of composting its waste stream largely as a result of technology requirements and the composition of the waste stream. JICA reports that most compost arrangements did not adequately consider the operation and maintenance costs while yet other initiatives under the CIEF program failed due to political opportunism. The current market for high volume compost sales is extremely small and probably over-supplied leading to many compost plants closing or operating at less than capacity. Composting for commercial returns does not currently provide a significant opportunity for waste management.

231. **Final disposal.** Current final disposal is mostly wild or opportunistic dumping with no regard for the environment or public health risks. The continued lack of final disposal remains the biggest single constraint for an effective SWM outcome. On the issue of final disposal, ERM report concludes:

> "NGOs and Parliamentarians have been unable to resist the lure of a NO WASTE society. Whilst this is a commendable, and it is a world-wide utopian, endeavor to attain a NO WASTE society, it will not realistically come about today or tomorrow. …The strategy for long term waste disposal remains unchanged: a safe and reliable disposal and transfer system should form the basis of the Greater Colombo SWM strategy…".

232. The characterization of current dumping practices includes:

- Most sites are 1 to 2 ha, with short life spans.
- A high proportion are privately owned lands which are often marshy or low lying and the solid waste is either sold by the local authorities or, in some instances, the landowner buys it from the local authorities.
- The filling is highly profitable as it enables land to be converted into higher value uses often linked to urban development. The liability of the sites for slumpage and contamination is either undefined or at best unclear.

[25] See SWM Discussion Papers 1 and 3 in the Interim Report.
[26] The results of this contracting are impressive. Kandy Municipal Council reports that their costs are halved e.g. Rs.1,900/mt compared to about Rs.900/mt for a council operation and the level of service increased from about a 30-40% provision to 75-80%.
[27] Funding is provided from the Finance Commission and is channeled through the provincial council based on the number of staff employed. This provides a perverse incentive for improving the standard of SWM services through private contracting as the reduced staff requirement would automatically reduce the funding for already under-resourced local authorities.

- There is a lot of dumping into public lands such as forests and rivers where the natural slope is used and there is little enforcement.
- A lack of political commitment in streamlining SWM and how the change of political leadership affects implementation of planned activities.
- Septic and sewage waste is often dumped into the same sites.
- There has been significant public opposition to formal dumping sites due in part to politicization and due to the fear of having a site of similar quality to those currently in place in their backyard.
- Soil covering is rarely undertaken and most remain encompassed.
- Staff in charge of sites often burn to incinerate to extend the lifespan of the site.
- Complicated and time-consuming task to improve landfill sites.
- Waste stream bundling is essential for horizontal integration across administration units which has proved difficult and remains poorly coordinated.
- The limited role or effectiveness of CEA to manage this situation and the continuing lack of effective regulations and standards.
- Generally an appropriately operated site will require an operational expenditure of Rs.200-300/mt whereas most local authorities spend only Rs.50 or less.

233. Based on project interviews and discussions, the major influences on the lack of final disposal options are provided in Figure 23. The overall conclusion from an assessment of the sector continues to be that the major investment need for SWM is to provide appropriate final disposal infrastructure and to ensure that this is used by local authorities.

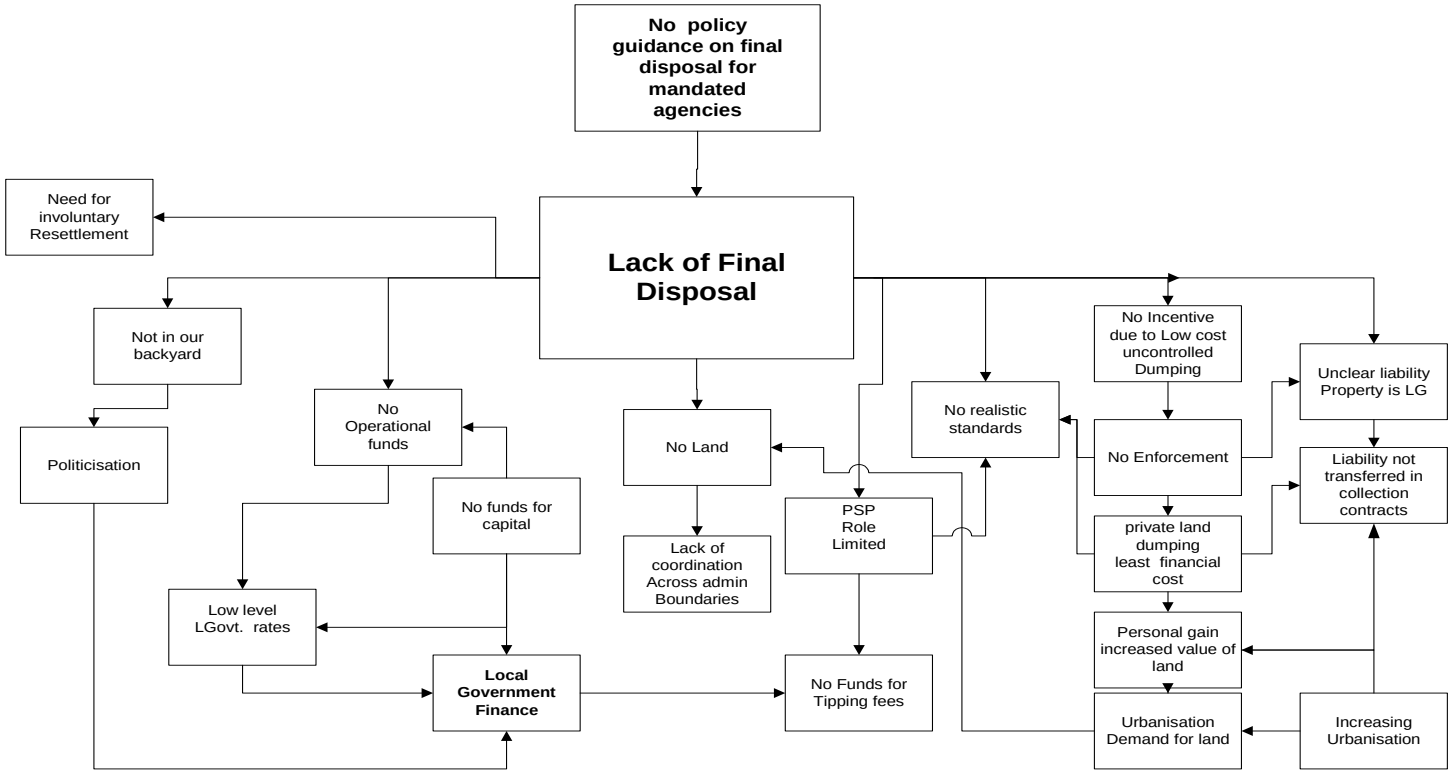


Figure 23: Contributing Causes to the Lack of Final Disposal

4. Institutional Responsibility

234. **Provincial Government.** The mandates for SWM are defined both in constitutional functional responsibility terms and in the supporting statutes relating to local government functions. The constitutional allocation of environmental protection functions falls within both the Concurrent and Provincial Lists and is therefore devolved to the extent allowed for in the various laws. This devolution of environmental protection functions to the provincial administrations supports their mandate for SWM where the integrity of environmental protection is threatened. [28]

235. **Local Authorities.** The mandate for SWM in the Local Authority Statutes[29] is consistent across all three statutes. SWM requirements are incorporated in the conservancy and scavenging part of the Ordinances (Sections 129 to 131 of the Municipal Councils Ordinance, 1987). This section states:

> "It shall be the duty of the Council so far as is reasonably practicable, to take all necessary measures in every part of the Municipality –
> *(a)* for properly sweeping and cleansing the streets, including all footways, and for collecting and removing all street refuse
> *(b)* for securing the due removal at proper periods of all house refuse, and the due cleansing and emptying at proper periods of all latrines and cesspits: and
> *(c)* For the proper disposal of all street refuse, house refuse, and night soil.
>
> S:130. All street refuse, house refuse, night soil, or other similar matter, collected in any Municipality under the provisions of this Part shall be the property of the Council, and the Council shall have full power to sell or dispose of all such matter and the money arising shall be paid to the credit of the Municipal Fund (underline added for emphasis).
>
> S:131. The Council shall from time to time provide places convenient for the proper disposal of all street refuse, house refuse, night soil, and similar matter removed in accordance with the provisions of this part and for keeping all vehicles, animals, implements, and other things required for that purpose or for any other purposes of this Ordinance, and shall take all such measures and precautions as may be necessary to ensure that no such refuse, night soil, or similar matter removed in accordance with the provisions of this Part is disposed of in no such way as to cause a nuisance."

236. For the purposes of the Ordinance, the term "nuisance" is defined as "includes any act, omission, or thing occasioning to or likely to occasion injury, annoyance, offence, harm, danger, or damage to the sense of sight smell, or hearing, or which is or is likely to be dangerous or injurious to health or property".

237. While the Ordinances define the ownership of solid waste as the "the property of the Council, and that the Council shall have the full power to sell or dispose (*of their property)*…" solid waste only becomes the property of the local authorities when it is collected for which they are required to do. The definition of "proper disposal" is problematic as it is not specified. This is further compounded by the continued lack of effective regulation of solid waste although the recent CEA guidelines for SWM including landfills move in the right direction. These deficiencies were identified during the EA1P program in 1997 and have remained unaddressed allowing local authorities to continue to undertake wild dumping. The only precaution for a local authority is to ensure that it does not contravene the nuisance clause of the Ordinance and penal code, for which the maximum sanction or fine is Rs.50 and it is unlikely to impose this upon itself.

238. Local authorities have the ability to address this issue through the specification of local by-laws. Currently there are draft SWM by-laws available but no local authorities have adopted

[28] For a legal opinion on the role of provincial councils in SWM, see Appendix 8, Volume II.
[29] Municipal Councils Ordinance (1987), Urban Council Ordinance (Chapter 255 1988) and Pradeshiya Sabhas Act (No 15 of 1987).

comprehensive by-laws. It is recommended that all local authorities be required to pass such by-laws prior to accessing funds from donors or the LLDF for the purpose of SWM.

239. **Central Government.** Within the administration, the MPCLG has responsibility to facilitate and support local government development. As part of this responsibility, the Ministry is also responsible for the management of the LLDF (see Appendix 10, Volume III) and the Sri Lanka Institute of Local Government (SLILG).

240. Of the LLDF sourced grants, approximately 16% were provided for SWM activities prior to 1999, a figure that has dropped to less than 10% in 2002. Major issues with LLDF regarding the administrative and reporting systems along with limited staff capacity have been identified. The effectiveness of the LLDF is constrained by the ability of local authorities to prepare the required feasibility studies to access funds from the LLDF.

241. The MENR has a planning and policy responsibility within the sector. The Director of the Environmental Protection Division has developed the national SWM strategy and promoted a number of forums and discussions on the issues of SWM throughout Sri Lanka. The MENR, however, does not have authority or mandate in the management of solid waste and as such should not be the executing agency for SWM projects which nationally lies with MPCLG.

242. The Ministry of Health is responsible for monitoring and inspection of the sanitary conditions and the development and application of the legal framework. The Ministry contributes to SWM through the role of the Medical Officers of Health and the Public Health Inspectors who at the local authority level are the focal point for all SWM activities.

243. **Central Environmental Authority (CEA).** The CEA under the provisions of the NEA has regulatory control and responsibility for environmental protection. This is usually achieved through the initial environmental examination (IEE) and environmental impact assessment (EIA) project approval processes and the issuance of environmental protection licenses (EPL). These regulatory instruments involve the establishment of “lists of projects that are required to apply for an EPL”. The revised lists do specify SWM operations including final disposal as a separate category to the previous catch-all general industry category of industries that discharge 3 cm of wastewater per day to surface waterways. Current opinion is that past standards are inappropriate for SWM landfills in Sri Lanka at the present point in time.

244. For the type of solid waste in the Sri Lankan waste stream (high organic matter), the expected BOD of leachate when it is fresh would be expected to fall in the range of 8,000 to 10,000 mg/l, a level that would rise over a period of one or two months to 15,000 to 30,000 mg/l. There is an obvious need to get disposal into controlled sites with the objective of reducing these levels through attainable and affordable solutions. There are affordable solutions that reduce pollution loadings. These potential improvements are denied if current CEA standards are considered not achievable and constrain investment in appropriate SWM systems.

245. The CEA has indicated to the TA and the ADB that BOD standards could be managed on a more flexible basis and indicated that the flexibility of applying standards would be incorporated in current changes to the CEA-defined SWM environmental standards, possibly including the option of regulating by standards. There is a degree of urgency in establishing the new standards and their progressive introduction before investment is provided.

246. **Greater Colombo Area.** The Greater Colombo Area (GCA) in the Western Province has the largest proportion of the total waste stream in Sri Lanka with large volumes associated with the high population density and the associated non-rural economy. The area creates a number of challenges for SWM that the National Strategy rightly prioritizes. The investment proposal outlined below, however, does not prioritize investment for the waste stream attached to the Western Province and the GCA. The reasons for this are:

- the range of existing contractual arrangements that limit the ability to develop viable and environmentally justifiable solutions;
- the scale of the waste streams suggest that a fully engineered solution will be required;
- the extensive interest by private sector investors to invest in the provision of final disposal and SWM activities as was identified by the process championed by the Director of Environmental Protection (MENR) in association with MPCLG, Urban Development Authority and the Board of Investment;
- the potential for introducing new technology;
- the presence of donor programs will continue to fragment the waste stream increasing the costs of SWM to ratepayers; and
- the current process of introducing a private sector operator for one site that has already been identified.

5. Environmental Concerns

247. The impact of having unmanaged solid waste relates to both public health and the environmental risk arising from uncontrolled leachate (see Appendix 9, Volume II). A significant concern is the affordability of current standards and, in particular, the achievement of a 30 mg/l BOD standard. This may in part reflect the uncertainty of the interpretation of discharge to inland surface water and the intent not to have any environmental standards for the discharge to land and groundwater – other than for irrigation purposes.[30] Given the risk to groundwater quality, this seems unlikely but the current standards may be interpreted in this manner. It would seem that the standard that would apply to groundwater is 30 mg/l.

248. The characteristics of the Sri Lanka municipal solid waste stream provide a range of BOD concentrations within the leachate stream. Best information currently indicates that the BOD concentration generally falls within the 20,000 to 25,000 mg/l range – although there are reports of concentrations as high as 35,000 mg/l and lows of 5000 to 8000 mg/l. The differences in BOD concentration is driven by composition and by weather conditions specifically the extent of rainfall. In the wet zone, leachate concentrations are lower due to high rainfall dilution effects; however on a load-based system (i.e. low concentration but high volume) the discharge may be similar.

249. The importance of these values relates to the required investment in leachate processing technology that has the technical capacity to achieve the proposed standards. To reduce the BOD concentration to the proposed levels requires concentration reductions ranging from 98-99.9% of the untreated BOD concentration. Technically this is feasible but it would require additional investment by placing several treatment processes in series where the output of one treatment process enters a further treatment process.

250. For example, one of the most technically efficient biological treatment processes, activated sludge treatment system, has shown in commercial scale operations to reduce the BOD concentration by only 93% for each treatment unit as the best achievable efficiency. If the leachate BOD concentration was 25,000 mg/l, a 93% technical efficiency with two treatment units in series will still only achieve a concentration of 125 mg/l. To achieve the 30 mg/l BOD standard, further tertiary treatment, installed in series, will be required in addition to the two activated sludge plants.

251. This is further compounded by the low probability of achieving an optimal technical efficiency due to institutional capacity and operational capacity constraints. If the efficiency rating drops to 90% the two units in series can only achieve a BOD concentration of 250 mg/l. Activated sludge treatment processes are high technology treatment systems requiring

[30] The notion of "irrigation purposes", as opposed to irrigation suggests the intent of irrigation is important as opposed to the act of spraying leachate discharge through an irrigation system for the purpose of disposing of the leachate.

intensive energy inputs that has significant operational and maintenance costs. Low technology options such as stabilization ponds, be it facultative or anaerobic ponds, will only reduce the concentration by 75-85% which would result in concentrations of 6,250 mg/l-3,750 mg/l for one plant and around 1,000 mg/l if two plants are connected in series. Therefore, expensive tertiary treatment would be needed to achieve the 30 mg/l standard.

252. In the early stages of environmental management in developed countries, standards were set based on the principles of Best Available Technology not Entailing Excessive Costs (BATNEEC). Even today, countries in North America and Europe follow the principles of BATNEEC in sectors where effective environmental management systems are still evolving. In Sri Lanka, where SWM is in its infancy, the rational approach to ensure compliance is to set standards based on principles of BATNEEC and adopting as a longer term policy goal, standards that are solely based on Best Available Technology (BAT), where economic considerations are secondary.

253. Another impact of unattainable standards is to make it difficult, if not impossible, to achieve compliance. When compliance is not possible two factors influence successful outcomes. Firstly, it removes the ability to apply sanctions as there are effectively no alternatives that rationally can be justified, and secondly it deters investment into the sector by the private sector when the risk of being prosecuted for non-compliance persists.

254. Responsibility for compliance management for solid waste is currently diffuse and uncertain, being spread between the CEA and the local authorities. Under current NEA provisions, the CEA can only take action if it cleans up the illegal dumping and then charges the offending party the cost of doing so. Assuming the CEA could identify the offending party, the lack of any disposal option that would meet its own standards means that the CEA is unable to clear and dispose of waste without breaching its own standards. In other words, the NEA provision offers no disincentive for illegal dumping. The local authority is only able to take action under the provision of public nuisance which can be avoided and where cases are successful the maximum sanction is Rs.50.

255. Currently there is no effective enforcement system. Current regulations do not support the objective of SWM by continuing the disincentives to invest in disposal solutions that result in the ongoing practice of wild dumping creating risks to the health of society and its environment.

256. **Enforcement.** There is an urgent need for Sri Lankan policy officials to address the issue of enforcement more realistically. Enforcement systems are holistic in nature and must be conceived and dealt with accordingly. Strong enforcement requires not only good detection but also effective investigation, prosecution, conviction and specification and application of penalties. For this reason, investments in a NREM framework that strengthen only one part of this “chain” i.e. sanctions or detection, will not succeed as long as other weaknesses exist. Because enforcement systems in SWM are often deficient in all parts of the above chain, current systems do not deter environmental degradation.

257. Enforcement and compliance is effective when it creates a disincentive for a specific action that is larger than the financial incentives that motivates the illicit behaviors. While there is emphasis on stating standards there has been little attention to the other components necessary for an effective compliance program. For SWM a compliance disincentive would exist when the cumulative probability of detection, arrest given detection, prosecution and application of a specified sanction exceeds the financial benefit of transgressing. For current SWM disposal systems the financial incentive to transgress is the saved cost of disposal (around Rs.800-1,100/mt) and the value of the waste if it is sold for backfilling lowlands.

258. Currently the probability of being caught, arrested and prosecuted are very low. The time taken to process cases is prolonged, further reducing the compliance disincentive. An example of two scenarios is presented in Table 8. Scenario one represents the current regime while

scenario two represents an improved detection system. Both remain totally ineffective in terms of compliance with the objective of achieving a deterrent, as the required sanction is several orders of magnitude of what is currently in place. Even if all cases were detected, the required sanctions, all else being equal, would still need Rs.84,000/mt and this would only create a neutral position.

Table 8: Sanction Required to Create a Positive Compliance Incentive for Final Disposal

Action	Probability (Scenario one)	Probability (Scenario two)
Detection	0.03	0.5
Arrest	0.2	0.2
Prosecution	0.3	0.3
Conviction	0.2	0.2
Sanction Required	Rs.277,800	Rs.167,000
Financial Incentive (saved cost of SWM disposal)	Rs.1,000	Rs.1,000

Notes:
1. Current sanction limits are (i) under public nuisance provisions a sanction of Rs.50 applies or (ii) under the NEA provisions a sanction of Rs.1,000/mt can be applied.
2. The above does not account for the elapsed time for the cases to be processed which will increase the need for a high sanction.
3. The above sanction provides a neutral position and not a disincentive, i.e. it represents a breakeven scenario.

259. There is an urgent need for further compliance development within the NRE sector. It is recommended that the CEA and the MENR form a joint taskforce under the leadership of a prominent judge or lawyer. The taskforce should be charged with the responsibility of developing an effective compliance and policy system for the NRE sector that provides effective disincentives for environmental crimes. Under the current system, there is no disincentive and while this continues there is little likelihood of achieving more effective management systems.

260. **Progressive standards.** It is recommended that the CEA introduce progressive standards that over time move towards the current CEA standards or goals. Through this progression the affordable standards overcome a potential local authority excuse of not being able to achieve standards as a reason for not addressing their responsibilities for SWM. The introduction of progressive standards will require a policy stating the intention to tighten the regulation of SWM final disposal according to an agreed time-line.

261. Leachate treatment. Considering the financial position of small and medium local authorities, it is recommended that CEA Classes B and C landfills initially install stabilization ponds for leachate treatment. Stabilization ponds are low technology systems that have relatively low capital and operation and maintenance costs, and require minimal technical capacity for operation. However the BOD removal efficiency of stabilization ponds (anaerobic or facultative) is in the range of 60-85%. But experience of stabilization ponds operating in South Asian countries has demonstrated that achieving a 75% BOD removal efficiency is possible. This system could be upgraded to an aerated lagoon with a BOD removal efficiency of 85% in about ten years, without significant additional capital costs, but with higher operating costs. Considering the larger BOD load in Class D landfills, it is recommended that aerated lagoons or another form of high efficiency treatment systems are installed from the initial period, aiming at a minimum BOD removal rate of 80%. These systems too could be upgraded to achieve BOD removal rates of 90% in the future. The standards could be reviewed in 2020 and more stringent standards could be proposed based on the compliance record of leachate treatment systems in the intervening period. Improving treatment systems is technically possible and feasible even on existing landfill sites as the low technology options proposed above would require more land area than high technology treatment systems, land availability will not be a constraint to future improvements in leachate treatment technology.

262. Landfill engineering and design. Given that the economic life of landfills may exceed 25 years, site engineering to contain pollution from landfill sites cannot be progressively improved or re-engineered in an economically viable manner. Therefore, GOSL has to have a clear policy on the level of containment expected from landfills. According to the CEA technical guidelines, Classes A and B landfills do not require engineered containment of leachate if low permeable soils or bedrock layers are available. However, landfill technology has evolved into recommending natural attenuation of pollutants rather than containment for smaller sites (similar to Classes A, B and even C) under suitable hydro-geological conditions. In areas where the groundwater table is low and the soils are moderate to low permeability, natural attenuation sites should be recommended for Classes A and B sites. It is recommended that natural attenuation be considered for Class C sites, on a case by case basis. However, once engineered and constructed to be natural attenuation sites, it is not feasible to require re-engineering to progressively improve the containment in such sites. Therefore, natural attenuation sites should be permitted based on an economic life of around 15 years. In areas where geotechnical conditions are not suitable for natural attenuation, Classes A and B sites could be designed in association with compost plants that treat the organic wastes. Upon removal of the organic matter for composting, the balance of waste could be landfilled in uncontained sites with low risk of environmental damage. This is possible because the largest contributor to the pollution load in leachate is the organic matter.

B. Scope and Rationale for SWM Investment

1. Strategic Implementation Elements

263. A review of the social assessment findings relating to SWM and previous technical assessments of solid waste problems[31] highlights the importance of institutional and policy constraints to achieving SWM outcomes as opposed to the technical and investment constraints. A detailed review of key issues is provided in the Interim Report from which the TA has structured a comprehensive strategy for SWM (see Figure 24).

264. The proposed strategy has two major strategic themes. The first theme is to expand current systems of SWM to increase the proportion of the population provided with SWM services. To achieve this expansion, the investment program will adopt a focus on the provision of final disposal infrastructure, expansion of collection services, expansion of community-based re-use, recycling initiatives and a commensurate increase in waste processing. As portrayed in Figure 24, this requires differing final disposal technologies to suit the range of local government entities. The technologies include semi-engineered solutions and the use of managed sites for smaller local authorities, improvement of local government operational programs and capacity, and the ability to recover the cost of service provision from those that generate waste.

265. The ability to introduce prices and recover the cost of SWM provision will create significant incentives to capture the benefit of waste processing and to catch the additional benefits from moving up the waste management hierarchy (see Figure 22). The proposed investment does not prioritize the GCA for which there is proven private sector interest in investing into solid waste final disposal and waste processing options. **The TA strongly recommends that donor funds are not applied within the Western Province so they do not crowd out private sector investment. Instead donor funds should be used in the rest of the country to maximize the proportion of the solid waste stream that is managed.**

266. The second theme is to improve the productivity of SWM service provision. The achievement of productivity gains requires affordable services, the expansion of operational capacity and to ensure there is effective compliance. This raises issues relating to rating systems, the use of user-pay conveyance charges and efficient systems within local government. Compliance issues are discussed in Appendix 5, Volume II, where it is proposed to

[31] See TA Interim Report, Discussion Paper 1 and GreenTech Report in Volume II.

introduce a phased approach to environmental regulation to ensure that service provision especially for final disposal was affordable for all local governments as opposed to the larger municipal councils.

267. While the financial perspectives of the SWM strategy are the core elements of the investment strategy, the ability to achieve overarching policy goals, i.e. the strategic outcomes, requires management systems to adopt a demand-driven approach as opposed to a purely investment supply-driven response. Past experience in SWM (e.g. Kandy Municipal Council and the EA1P experiences) highlights that the provision of investment without the supportive institutional and client perspectives achieves very little other than delay change and access to social benefits.

268. The proposed SWM strategy highlights critical aspects of service quality, affordability, accessibility, client relationships and information, partnerships and networks between service providers as integral to achieving the required client perspective necessary to achieve sustainable outcomes.

269. The ability to achieve client perspectives above requires that the service providers (mostly local government but with proposed roles for provincial government and community groups) adopt systems of administration, decision-making and management that ensure services are responsive to these parameters. Current institutional incentives however, do not support such approaches and there is a need for significant reform if investment is to be effective and sustainable.[32] To address client perspectives, the SWM strategy will target the strengthening of organizational processes for service delivery agencies. The roles and processes of the provincial and local agencies are separated to highlight the different roles and responsibilities and also to highlight the relationship between them.

270. At the provincial level new roles and processes are proposed for the provision of final disposal infrastructure that captures the economies of scale[33] through strategic planning, waste stream clustering and cost recovery systems. The client perspective for the provincial council requires two clientele groups to be recognized for SWM – their constituents and the local government agencies that operate in the province. The provincial agencies will also need to ensure that regulatory requirements for final disposal address societal goals and preferences regarding employment and value addition are developed and introduced. Service outcomes will be monitored and evaluated as part of the performance reporting system at the provincial level who will report achievement to the local and national governments. The primary role of the provincial council will be to introduce capital and operational cost efficiencies through strategic planning procedures and, where necessary, through the direct provision of final disposal infrastructure.

271. Local governments have primary responsibility for collecting municipal waste. At this level issues of operational planning needs to be aligned with key client and customer perspectives while ensuring that financial management systems can sustain the SWM service delivery. Internal systems of administration and decision-making need to be strengthened, operational capacity improved and a culture of outcome-based SWM service performance needs to be created. A key opportunity for local government to provide increased value to the ratepayers is through the waste reduction, re-use and recycling (three R's) program at the household level. The investment plan will support these programs through contracting

[32] Experience with past program and ADB projects such as the low income housing initiative indicate that without such systems and processes the project is little more than a procurement exercise for the purpose of the project objective as opposed to a needs-based response. For example, the provision of local markets under the ADB project and the procurement incentives of the LLDF have led to capital investment but little development dividend and no sustainability. A lot of procurement was done outside the planning process which resulted in significant duplication and wastage, such as two agencies building local markets on either side of the same road, one with ADB funds and the other with GOSL funds.

[33] TA designs indicate that the cost of landfill have significant economies of scale. For example, a 15 mt/day operation requires an operational cost input of Rs.839/mt compared to Rs.349/mt for a 50 mt/day operation. The respective capital costs are Rs.1,150/mt and Rs.749/mt.

experienced NGOs to work alongside local government to assist community waste management strategies.[34]

272. The investment will need to strengthen human resources capacity, enhance information systems and orientate organizational culture to responsibility for outcomes. The notion of the system learning and adapting is critical as much of the initial investment, while being at the bottom of the solid waste hierarchy (see Figure 22), will create increased opportunity to move organizations and their people up the hierarchy into more complex and cost effective management strategies.

273. For human resources, this requires both capacity building and the creation of appropriate incentives and skills to complete the required tasks. Here the experience of large municipal councils already highlights that contract labor may provide significant outcome and cost efficiencies. The local government skill base needs to be stronger in planning, decision-making, adaptation, networking, facilitation and management as compared with the traditional laborer-staff mix.

274. Critical to moving to a planned system of performance-based service provision is the ability to learn and assess what is working and what is not. Effective SWM requires clear statements of expected input-output and output-outcome relationships and the ability to adapt services to achieve these. The provision of timely and accurate information on all aspects of SWM will ensure that such adaptation can be managed and encouraged. Information systems linked to performance indicators and benchmarking at local, provincial and national levels will enable improved outcomes and success to be shared and extended. The respective organizations at local government and provincial level need to be structured to support implementation and develop a culture of service provision. The development of delegation, performance-based budgeting and management systems, and improved openness in decision-making are all critical conditions to enable the planning and service provision functions to be institutionalized.

275. The SWM strategy requires all elements of the strategy to work in a cohesive manner, and while the focus is on the goal and financial aspects, these can only be achieved if all perspectives are created and integrated from skills and resources through processes to support a client-driven model with investment. As such the overall strategy in Figure 24 needs to be built from the bottom-up.

[34] Existing experience in Sri Lanka has demonstrated that such programs can achieve a participation rate of 25-30% of the population who, in turn, reduce their waste contribution to the municipal council collection system by 70-80%.

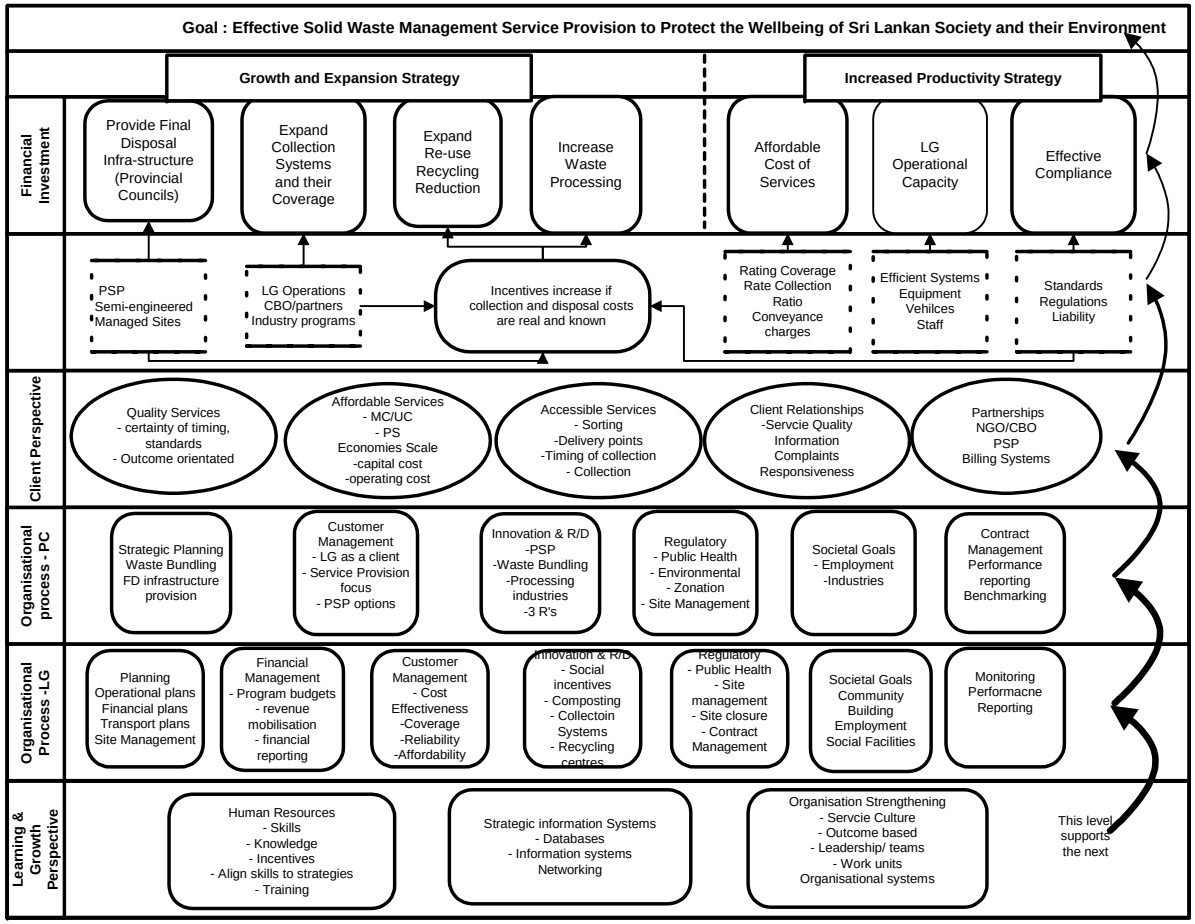


Figure 24: Overview of Strategic Elements in SWM Program

2. Policy Milestones

a. National Government

276. Given the importance of the institutional, organizational and policy aspects of the strategy, the following section outlines important milestones to create the necessary conditions for the investment component to be implemented effectively.

277. **Solid waste final disposal discharge standards** have been reviewed in the Interim Report and the impact of these on the affordability of final disposal operations and solid waste processing operations was assessed by ERM (2001). During the interim review mission, the CEA informed the review mission of the regulatory option proposed by the TA for phased standards that moved the discharge standards towards the long-term policy target of BOD 30 mg/l for inland water and 100 mg/l for irrigated discharge and a further option of requiring all solid waste final disposal sites to be registered and perhaps licensed so that site specific regulations can be incorporated into the contract or license.

278. **Ratification of SWM site management guidelines**. The current draft set of SWM guidelines need to be finalized before investment is made into final disposal infrastructure. The ratification of the CEA guidelines will increase the certainty regarding the rules and norms that will apply to SWM enterprises.

279. **Current liability and penalties** for inappropriate solid waste disposal are unclear (NEA) and, where specified, inadequate (Public Nuisance Ordinance). It is recommended that a clear liability for inappropriate behavior is defined and sanctions imposed that are commensurate with the cost of damages and reparation of sites. Elaboration of the National Strategy to specify how to achieve the required policy objective, includes but is not restricted to:

- Outlining a detailed strategy to move from current disposal to a preferred outcome.
- Clarifying who will supply final disposal infrastructure.
- Establishing a requirement for local authorities to use the infrastructure.
- Preparing site design, operation, management and closure guidelines.
- Outlining environmental discharge management for leachate, dust and methane, including a policy on how standards will be introduced and phased into, to be attainable and affordable.
- Defining liability for sites, both existing and new.
- Defining final disposal site closure procedures.
- Outlining a program for remediation or containment.
- Defining institutional responsibilities including the role of MPCLG in advisory services for planning at provincial council and local authority level and providing advisory services for feasibility analysis.
- Defining provincial council responsibility for strategic planning and enforcement roles (to overcome local authorities enforcing themselves).

280. **The National Strategy** needs to address financing of SWM implementation and provide guidance on issues that constrain the following:

- Local government ratings, the need for full cost recovery of service provision and how this requires rating systems to reflect the level of service provided. Key issue here relate to the classification of urban areas where services are provided and the need to collect rates from this. Given the history of political interference in rate increases there needs to be a basis for the MENR and MPCLG to object where rates are manipulated to the point that they are inadequate for the service requirements of the local authority.

- The policy for using tied rates for SWM should be addressed. Given the extent of SWM in a local authority operation, there is a need to develop a position on the use of a tied SWM rate.
- User pays policy for conservancy charges to industry should be the default position. Given that local authorities are legally not bound to remove industrial and commercial wastes, the local authority should adopt a full cost recovery conservancy charge and this should be a legal requirement and non-discretionary given the opportunity to see investment flow to areas of lower costs.
- The GOSL needs to identify how it will mobilize the significant capital requirement for SWM both now and in the future, PPP guidelines and advisory services.
- Promulgate legal reform to enable provincial council provisioning of final disposal infrastructure.
- Establish PPP advisory capacity within MPCLG.
- Implement PPP framework for SWM and communicate and train provincial councils and local authorities.
- Develop datasets and resource materials for public education and awareness including data on the costs and benefits of SWM.
- Undertake independent monitoring.
- Develop markets for recycled products and waste by-products such as compost and electricity generation.
- Develop compost markets with the development of standards and regulations.
- Clarify who will supply final disposal infrastructure.
- Redefine the compliance framework for SWM through a joint CEA and MENR taskforce.
- Establish a requirement for local authorities to use final disposal infrastructure.
- Site design, operation, management and closure guidelines as prepared by the CEA shall be recognized and integrated with the policy.
- Regulation of environmental discharge management for leachate, dust and methane shall be outlined and the process of how standards will be introduced and phased into to be attainable and affordable, specified.
- Define liability for sites, both existing and new.
- Define final disposal site closure procedures.
- Outline how GOSL will commence the process of remediation or containment of past programs.
- Define institutional responsibilities including:
  - MPCLG role in advisory services for planning at provincial council and local authority levels;
  - Providing advisory services for feasibility analysis; and
  - Defining provincial council responsibility for strategic planning and enforcement roles (to overcome local authorities enforcing themselves).
- Define the strategy for financing SWM service provision and what this requires in terms of:
  - Local government ratings and the introduction of separate SWM charges;
  - User pays policy for conservancy charges to industry; and
  - Private sector participation guidelines and advisory services.

281. **Legal provisions for final disposal:** The CEA and MENR need to define the legal basis for managing solid waste final disposal sites. Given the contingent liability that remains with a final disposal site, it is suggested that the current guidelines, based on daily volumetric classification categories, should be strengthened and that all sites should be licensed and entered into the CEA database at the time of the licensing, irrespective of size. The NEA should be amended to accommodate this requirement. As part of the licensing process the CEA should consider using a load-based standard on a site-by-site basis applied through contract in the form of a license.

282. The current practices and culture of solid waste final disposal is such that the provision of final disposal infrastructure is faced with the significant risk that waste may not be provided to the site. The Local Authority Ordinances and the proposed NRE statutes should include a provision requiring local authorities to supply waste to the infrastructure provided or require them to provide their own final disposal site. This will need to be included within the strategic planning process which would form the basis for each local authority waste stream commitment.

a. Provincial Framework

283. **Strategic plan**. The basis for the provincial planning function for SWM needs to be established in the proposed NRE statute. Critical aspects of the statute with respect to SWM include liability for sites, the requirement of the local authority to supply the sites and the definition of the ability to raise a separate SWM rate. Without a Provincial Strategic Plan a province will not be able to access finance for the implementation of programs and all donor funds should be precluded until such time as the plan is complete.

284. **PPP evaluation**. All final disposal proposals need to demonstrate the ability to finance the ongoing operation and the capital investment prior to accessing financing from the proposed donor program. This should require each provincial council to assess the options for private sector involvement as part of the planning process.

285. **By-law (Board under Provincial Commissioner to pass and approve by-laws)**. Local authority by-laws are an important management tool for local authorities; however many local authorities have experienced substantial delays in obtaining approval from the provincial level. These delays often exceed two years and in certain cases appear to be politically motivated. It is recommended that the Provincial Commissioner be provided a maximum of six weeks to respond to a by-law request and if the local authority does not receive any response the by-law becomes effective. The issues regarding all by-laws to be translated into three languages should remain in place, however if a by-law is drafted and passed in one language it should be effective.

b. Local Authority Framework

286. **By-laws**. For a local authority to be eligible for SWM transport and organizational support, it will need to adopt a local SWM by-law for which there already exists a pro-forma draft.

287. **SWM Plan**. All local authorities will need to complete a solid waste operational and management plan that specifies policy targets, operational systems, budgets and monitoring. The plan must be able to demonstrate the financial viability of the proposed SWM operations prior to being able to access capital investment funds.

288. **Classification completed**. A local authority shall have in place a time-bound plan for the classification of all urban areas within the local authority and a policy statement to raise rates against all households for SWM.

289. **Rating coverage** of households in urban areas should achieve a minimum 75% during a specified time period. There is a need to move away from simple collection ratios to a measure of total households that are rated. The MPCLG needs to develop acceptable coverage ratios that should be set as minimum standards across all local authorities to ensure investors are not provided incentives through moving to locations that adopt more lenient rules or standards.

290. **Industry conveyance charge**. All industries in all locations need to face the full cost of SWM and solid waste disposal. All local authorities and provincial councils in the case of final disposal need to charge a full cost recovery fee including capital recovery for providing their

SWM service without exception. MPCLG should issue a gazette notice to this effect immediately.

291. **SWM Unit**. SWM accounts for as much as 45% of some local authorities' work program and budget. Currently, most local authorities do not have a discrete cost center within the organizational structure for SWM and the responsibility is often distributed between finance, works and the public health inspectors. Given its importance and the need to move into a programmatic and outcome-focused SWM operation, it is recommended that a separate cost center be established for this purpose under the Works Division. This would also enable the monitoring of public and environmental health to be kept at arms-length from the operational unit. The SWM unit would adopt an outcome-based work program that would be reported internally to the Council through the Head of Administration on a monthly basis.

292. **Performance and environmental reporting program**. The monthly reporting system from the SWM units needs to be directly linked to sector indicators that are reported as part of the monitoring and implementation of the SWM operation. These indicators or performance standards would be reported quarterly at the local authority level, six-monthly at the provincial level and annually at the national level. It is recommended that the MENR (Deputy Director of Local Authority and Director of Policy Planning, jointly) lead the development of indicators in conjunction with the pilot provincial SWM program and the monitoring program proposed as part of the decentralized NREM framework.

293. **Recurrent salary costs (use of casual labor)**. SWM service provision by the public sector is constrained by serious labor relation issues. These issues relate to the status of waste sector workers, the level of remuneration, the level of absenteeism and the manner in which the government channels funds to local authorities through the use of salary subsidies. Collectively these systems ensure that effective service provision over a high proportion of a local authority territory is impossible. Salary costs financed nationally, if the subsidy is to continue, should include provisions that enable issues such as the use of casual labor or the contracting of the private sector do not disadvantage a local authority. Where a local authority can deliver a solid waste service for about 55% of the public sector cost by using a contractor, the financing system should at worst be neutral if not incentivized for a local authority to explore and capture these opportunities. Currently this is not the case and the 45% saving is lost in return for staff salaries that may amount to less than half this amount. It is recommended that the Finance Commission and the MPCLG review all available options to remove such impediments and disincentives and incorporate these into their systems in the fiscal year 2005 or 2006.

294. **Develop a separate local government cadre**. Currently the cadre positions within the local authorities are appointed nationally with, as a result, many of the positions being filled by non-local appointments and currently many of the cadre postings remain unfilled for prolonged periods. The local authorities themselves believe that the formation of a separate local authority cadre that enables staff to be selected locally and appointed from within the local authority is necessary to strengthen their operations. It is recommended that a proposal for establishing a local authority cadre be prepared by the MPCLG and forwarded to the Ministry of Labor and Employment for consideration.

c. Other Institutional Issues

295. **Committee to involve public and media (statutory)**. Solid waste is not just an institutional responsibility. No institution can, without cooperation and input from the public, achieve effective SWM outcomes. The need to build networks and partnerships is strongly recognized in the investment strategy, and requirements and processes for participation have been integrated within the design of the investment plan. At the same time if these partnerships are to endure and the culture of partnerships is to persist, the local authorities need to ensure that their operations are consistent with this culture. It is recommended that the MPCLG require through gazette notification in the first instance and legal reform in the medium term all

committees for all local authorities to, as a default, be open to the public and press. This notification should include the circumstances under which the committee can operate behind closed doors.

296. **Financing systems reviewed**. Current financial accounting systems have limitations with respect to internal control such as reporting financing matters for separate functional responsibilities, physical control and authorization over assets, liabilities, expenses and revenues. The current systems are also weak in reporting functions including external and internal financial reporting. Most systems are manually operated enabling significant opportunity for manipulation and errors especially for those local authorities that operate simple income and expenditure accounts as opposed to a set of linked systems that include a full double entry ledger, rates, billing and creditors registers, cash and asset registers, plant and equipment registers. It is recommended that accounting standards are reviewed and implemented for local authorities in a progressive manner using an off-the-shelf software package.

C. SWM Program Description

1. Goal

297. The long term goal of the SWM program is to have an effective service provision for waste stream management that protects the wellbeing of the Sri Lankan society and their natural environment. The service provision strategies will integrate the needs for safe disposal of residual waste, the expansion of collection and transport systems and expansion of reduction, recycling and re-use programs within institutional arrangements ensuring that the costs of waste management are borne by those that generate the waste and creating incentives to increase efficiency and effectiveness of service provision.

2. Objectives and Outputs

298. The program objectives are provided with supporting objectives for key components of the service delivery system.

299. **Objective A – A Planned Participatory Approach to SWM.** The objective is for decentralized service provision to be based on a planned, programmatic approach for the provision of effective solid waste services. The planning and service provision objective at the provincial level is to prepare and implement provincial level strategic SWM plans that specifies policy and performance targets, final disposal infrastructure needs and to support the informational needs of service provision agencies before 2008. Each province will also develop a final disposal plan that will be assessed for private sector investment and management before 2008. Local authorities within the province will develop SWM service provision plans with explicit service provision performance targets and financing requirements for the collection and transport of collected waste and programs to achieve targets for waste reduction, recycling and processing at the household and community levels in partnership with reputable NGOs.

300. **Objective B – Final Disposal.** The final disposal objective is to provide safe and affordable final disposal infrastructure that manages the social and environmental risks for municipal and urban councils and for 30% of PSs within ten years. Final disposal for GCA is not prioritized in the investment program. The objective of the GCA final disposal is to develop full sanitary landfill operations using private sector capital. [35]

[35] The GCA program has undergone several phases of assessment and is currently being restructured for a specific site that will be offered as a joint venture for private sector investment. Current interest from the private sector is high provided that an appropriate waste stream management commitment and supporting contracting arrangement can be developed. While the GCA is a priority in terms of the scale of the waste problem the use of donor or public funds in the GCA would crowd out the private sector investment, thereby reducing capital available to address the significant investment need throughout the remaining

301. Final disposal options are based on semi-engineered solutions for residual waste streams from clusters of local authorities bundled to obtain cost efficiencies in final disposal operations. Semi-engineered operations will manage environmental discharges, including leachate and gases, from each cluster's final disposal infrastructure. Within the 22 defined clusters[36] (15 km radii based on municipal and urban councils), the policy target is to achieve a local authority participation rate of 80% amounting to 89 local authorities representing approximately 8.5 million people with semi-engineered sites by 2015.

302. Smaller local authorities that are not close to the municipal or urban councils and are not included in clusters will cease wild dumping and dispose of waste at managed sites which include a landfill linked to a composting operation whose primary role is to reduce the environmental risk from leachate. The compost will either provide inert material for daily covering of the site, be available for commercial sale or simply given away. Outside the clusters there are a total 113 local authorities representing 9.6 million people. For the investment, a policy target of 30% participation of non-cluster local authorities (34) representing 3 million people will be using managed sites by 2015.

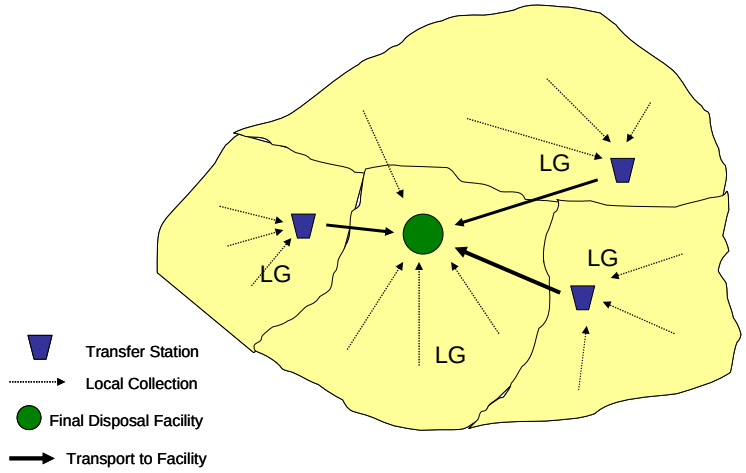


Figure 25: Cluster Approach to Final Disposal

303. **Objective C – Improved Waste Collection.** The waste collection and transport objective is to increase the proportion of waste generated collected for each class of local authority. Collection levels for the municipal and urban councils and PSs are expected to increase within ten years of a province completing their SWM strategic plan. By year 10, the proportion of waste collected will be 80% and 70% for municipal and urban councils respectively and 60% for PSs. To support the increased waste collection rates, it is proposed to provide transfer stations for cluster-based local authorities as well as collection bins, improved transport services and management planning.

304. **Objective D – Increased Waste Reduction and Recycling.** The objective is to reduce the proportion of the waste stream passing to final disposal by increasing the proportion of waste generated, composted and recycled at source by 20%, 21% and 16% in municipal and urban councils and PSs respectively within ten years of a provincial strategic plan being completed. Within each pilot province an NGO will be contracted to demonstrate waste reduction programs through social mobilization and the introduction of waste reduction and recycling programs that are linked to livelihood objectives through microfinance. The contract

provinces. Therefore it is strongly recommended that public sector investment and donor support be directed outside of those areas with commercial possibilities.

[36] See Appendix 10, Volume II, for details of the indicative clusters.

target is set for a household participation rate of 25% of total households of which 70% of their waste will be recycled or composted.

3. Activities

305. The SWM investment program is proposed as the first application of the decentralized NRE planning system. The investment proposal is developed for the two NRE pilot planning provinces of Wayamba and Southern Province.[37]

306. As considerable information on priorities and needs for SWM already exists, the planning process will start from the provincial level. The reasons for the departure from the proposed planning system include: (i) the need for strategic investment that includes more than one local authority; (ii) the need to establish a cost of final disposal to create incentives waste reduction and recycling programs at the local level; (iii) to remove the lack of a disposal option as a reason for not improving overall solid waste service delivery; (iv) a means of creating critical capacity that will enable the planning process to be extended and institutionalized; and (v) to capture financial and economic gains from collective approaches.

a. Strategic planning

307. The strategic planning process[38] will develop a provincial SWM strategic plan that addresses provincial standards for final disposal, waste collection, waste recycling and reduction. The plan will also define the administrative arrangements necessary to ensure that a performance-based service delivery program is developed and managed against agreed indicators and performance targets. A detailed guideline for the strategic planning is provided in Appendix 3, Volume II. A schematic overview of the provincial planning process is presented in Figure 26.

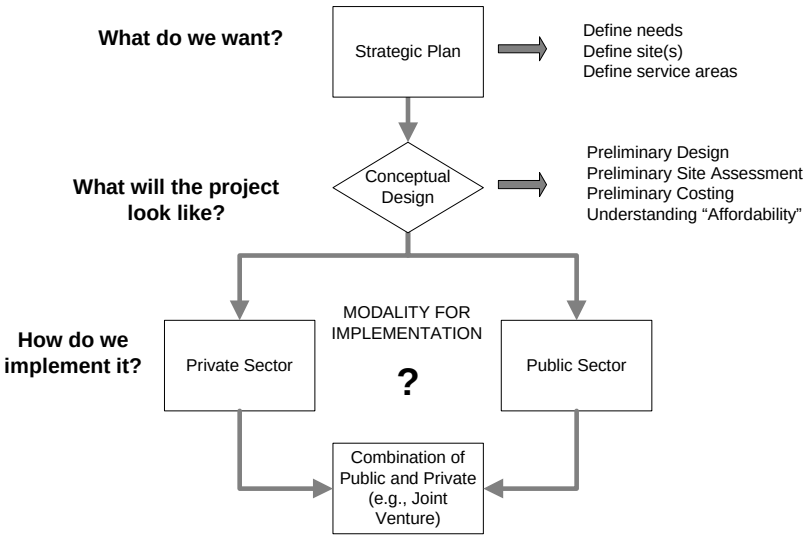


Figure 26: Summary of Province SWM Strategic Plan

[37] Wayamba Province was identified from an assessment of the conditions for likely success. These conditions include: (i) ownership and commitment to decentralized NREM; (ii) a recognized need to respond to issues that are linked to SWM and water quality; (iii) legal support for change through the Provincial Environmental Authority; (iv) capacity to support the process and achieve outcomes; and (v) a willingness to work in collective processes. Southern Province was selected on the basis of the extent of past programs that has created capacity and studied the extent of poverty, the importance of water resources, support from the provincial council and the jurisdiction of the CEA.

[38] See Appendixes 3 and 4, Volume II for details of the strategic planning processes.

308. A detailed strategic planning process comprises of six distinct outputs within a participatory process (see Table 9). The process will be supervised by a planning taskforce under the leadership of the provincial council that comprises representatives of local authorities, NGOs, CBOs and experts. The taskforce would oversee the process and contribute to the collation of datasets and decision-making about data gaps and the interpretation of data.

Table 9: Overview of Provincial SWM Strategic Planning Process

Output	Establish Planning Procedures	Situation Analysis	SWOT Analysis Goals and Objectives	Option Assessment	Draft Strategy	Final Strategy
Process	Form Taskforce Training	Collect Existing Data New Data Collection	Situation Analysis Report Stakeholder Workshop Form Working Group	Issue working groups - define issue - underlying cause - vision/outcomes - gap analysis - alternative action - costs - benefits - recommended approach	Consolidated report on situation analysis and option assessment Draft Strategy Stakeholder Workshop	Finalize Strategy Ratification of strategy by Provincial Council
Responsibility (lead role)	Deputy Chief Secretary and Provincial Municipal Commissioner Local Government	Taskforce members Local Government	Taskforce	Taskforce	Provincial Council Planning Unit Taskforce	Provincial Council Planning Unit Taskforce

309. The major activities that will be included in the strategic planning process include:

310. **Establish planning procedure**. The provincial planning unit or delegated staff will form a taskforce comprising stakeholders. The planning taskforce will identify all the stakeholders in SWM for inclusion in the planning process and consultation programs. Primary stakeholders will be provided with an introductory course on strategic planning and SWM and will define the TORs for the strategic planning process.

311. **Provincial situation analysis**. The planning taskforce members will develop an inventory of data required for the planning process and then work with the local authorities and other taskforce members to collate existing data sources and to oversee the collection of essential data that is not currently available.

312. **SWOT analysis**. The data collated during the situational analysis will be consolidated into a situation report that will be distributed to all stakeholders as resource material for a stakeholder workshop. A two-day SWM stakeholder workshop will be used to identify key issues that need to be addressed during the planning process and to define the goals and objectives of the Provincial SWM Strategic Plan. As part of the workshop, issue-based working groups will be formed to undertake the option assessment.

313. **Option analysis**. The option analysis will be undertaken by the issue working groups including (i) waste generation; (ii) waste collection and transport; (iii) waste recycling and reduction; (iv) waste disposal; (v) community programs; (vi) financial management; and (vii) institutional framework.

314. The role of each group will be to complete a component of the planning process and to bring this to the wider planning forum. Specifically the taskforces will:

- Define the issue.
- Define the underlying causes.
- Specify a vision of the expected outcome.
- Complete a gap analysis.
- Provide an assessment of the available options to manage the issue.
- Define the costs and benefits as well as the beneficiaries.
- Provide a recommended set of actions and the required resources.
- Define a performance monitoring plan including indicators and targets.
- Recommend implementation responsibilities.

315. **Prepare draft strategy**. The planning taskforce, under the leadership of the planning unit of the provincial council, will collate the issue groups' reports into a draft strategy document that will be circulated to stakeholders as resource material for a strategy workshop. The SWM hierarchy highlights the major weaknesses in past approaches to SWM, including the National Strategy which was focused on the long-term vision but failed to provide the short-term building blocks to move towards these visions.

316. The draft strategy will be presented to stakeholders for detailed review and comment through a public consultation and workshop program. Once finalized the strategy will be ratified by the provincial council. The ratified plan will provide the basis on which funds are accessed for implementation. To obtain financing it is proposed that the major investments will be developed into management and operational plans by the institution with service delivery responsibility.

b. Local Authority management planning

317. Responsibility for management of solid waste from generation through to final disposal falls on local authorities, including the raising of revenue for financing the costs of management. SWM is often the single biggest program expenditure item for local authorities, especially smaller urban councils and PSs. The investment program will support the development of SWM plans for participating local authorities.[39] The completion and ratification of a SWM plan is a condition on accessing the finance for modernization of their management and collection operations.

318. The management plan for implementing strategic priorities agreed within the Provincial Strategic Plan will define the principal activities for SWM service provision, define key directions in the provision of services and define a performance reporting process that will include a service program budget with service delivery targets for the indicators agreed during the strategic planning process. The plan will outline a monitoring program that will identify the environmental and public health parameters associated with SWM. A detailed guideline for such management planning is provided in Appendix 2, Volume II.

319. A critical aspect of the plan will be an agreed finance and revenue strategy, which will clearly demonstrate the financial viability of the proposed SWM operational programs. The finance strategy will need to demonstrate that rating systems are able to finance operational costs, including final disposal, and that these systems are operating. To assist in this exercise, the TA support for the investment will develop a full cost accounting spreadsheet model for use by the provincial councils and local authorities.

320. An important contributor to providing cost effective and efficient services that are affordable is the manner in which the local authority plans and manages its business. There are significant weaknesses in the local government organizations that need to be addressed including: (i) organizational systems relating to financial management; (ii) decision-making process including public involvement in committees; (iii) clarification of roles and responsibility; and (iv) organizational structure that support the strategy for service delivery.

[39] Appendix 4, Volume II, presents the SWM planning concepts for local authorities.

321. Further descriptions of the issues to be addressed in the management plan are presented in Appendix 4, Volume II. The management planning activities for participating local government involve mostly local authority salary and staff costs. Incremental operating costs associated with the preparation of the first management plan will be supported with resources for data collection, public consultation and the formation of a stakeholder advisory committee.

322. A total of 89 local authorities are expected to be included in the final disposal clusters of which 80% are expected to participate. A further 30% of local authorities outside the final clusters (24 in total) are expected to take up managed site investments such that a total of 120 local authorities will need the above support package.

c. Provision of final disposal

323. Planning for final disposal will adopt two modalities that will be redefined during the Provincial Strategic Plan. First, for local authorities that fall within the proposed clusters a semi-engineered solution is proposed. The clusters are based on 15 km radii around a municipal and urban center with the distance being set to reflect the cost savings available for larger operations. The cost of final disposal for each size of operation is presented in Table 10, highlighting the potential cost savings through bundling of the waste stream.

Table 10: Summary Design Statistics for Final Disposal Infrastructure

Type	Capacity Year One (mt/year)	Capacity Year 20 (mt/year)	Total Cap.Cost Rs. (million)	Total Op.Cost Rs. (million)	Total Waste Vol. (mt)
Landfill – a	15	26	169.1	123.5	147,115
Landfill – b	35	67	296.1	154.8	361,273
Landfill – c	50	105	407	189.9	543,450
Transfer Stat	5	8	10.3	31.9	46,619
Managed Site	5	8	42.9	56.4	46,619

Source: TA Estimates in Appendixes 15 and 17 of Mid-term Report.

324. The second modality is based on non-clustered local authorities which will develop managed sites that are not engineered. The high cost of the proposed managed site landfill operation is due to the use of a compost plant to convert the organic component of the waste stream into an inert material. These cost savings due to economies of scale are significant both in terms of capital and operating costs (see Figure 27).

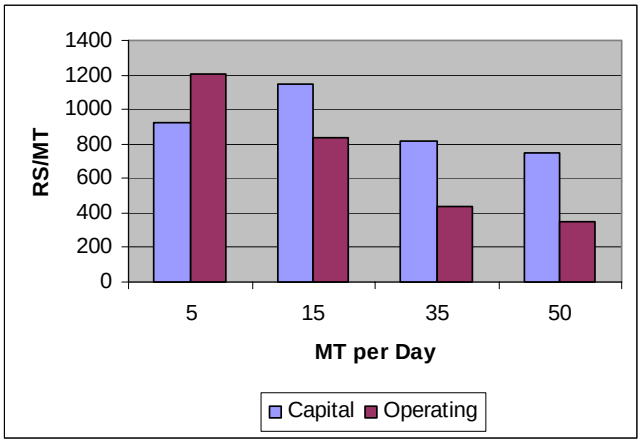


Figure 27: Costs of Final Disposal Options (Rs/mt)

Note: The 5 mt/day is a managed controlled dump site with associated compost operation and is therefore not directly comparable.

325. The cost per tonne data also highlights the trade-off for small local authorities where the capital cost is comparatively smaller than small engineered landfills; however the operating costs are significantly higher. Of the capital cost, approximately Rs.700 of the Rs.900 is due to the provision of a composting system to protect the environment from leachate and to provide inert material for covering.

326. For comparison, the cost of leachate treatment and collection for the 15 mt/day semi-engineered option amounts to approximately Rs.394/mt.

327. For each cluster (see Table 11) a detailed final disposal plan will be developed during the provincial strategic SWM planning process. For the purpose of the preparation of the investment proposal, initial forecasts of waste streams for indicative clusters have been completed. Once the required capacity is identified a site selection process will be undertaken applying a process reported by ERM for the Western Province study in 2001.[40]

Table 11: Clusters – Population

Province	Number of Clusters	Cluster Population	Non- Cluster Population	Cluster Population	Non-Cluster Population
		(2004, '000s)		%	
North West	3	709	893	44%	56%
Southern	4	983	1,153	46%	54%
Central (1)	3	886	1,516	37%	63%
Western (2)	3	3,642	1,490	71%	29%
Sabaragamuwa	2	509	1,059	32%	68%
North Central	1	207	873	19%	81%
Uva	1	300	896	25%	75%
Northern (3)	2	726	804	47%	53%
North Eastern (3)	3	492	905	35%	65%
Total (4)	**22**	**8,454**	**9,589**	**47%**	**53%**

(1) The Nuwara-Eliya Municipal Council has constructed and is operating a landfill at Moon Plains. It will not be necessary to include the cost of a landfill in the analysis.

(2) Colombo is counted as a cluster for population purposes but otherwise excluded from the analysis as a special case not requiring donor assistance.

(3) The 2001 census could not be conducted in Northern and North Eastern Provinces for security reasons. Cluster and non-cluster populations were estimated using the next best available data source, i.e. Department of Statistics "Municipal Solid Waste Statistics 1998".

(4) Total population = approximately 18 million or about 5% less than the actual population of about 19 million. Most of the shortfall is explained by missing data for various local authorities. The 5% under-estimate is not sufficient to alter the analysis materially.

328. The final disposal estimates for Wayamba require 3 landfills (1 for each cluster), two with a capacity of 50 mt/day and one of 35 mt/day. The clusters will also require 6 transfer stations. Outside of the cluster it is assumed that a further 6 local authorities will move into managed final disposal sites. For the 4 Southern Province clusters, a total of three 50 mt/day and one 35 mt/day sites are necessary with a total of 7 transfer stations. A total of 8 local authorities outside the cluster are expected to adopt managed sites. In the pilot provinces a total of 41 trucks and 70 waste collection bins are necessary (see Table 12).

[40] CEA is currently considering the development of a site selection manual for solid waste sites based on the EIA directorate. The integration of this process with the pilot province program is strongly recommended.

Table 12: Indicative Demand for Final Disposal Facilities by Province

Province	Landfill 15 mt	Landfill 35 mt	Landfill 50 mt	Transfer Stations	Managed Sites	Trucks (Lg + Sm)	Collection Bins
1. Pilot Provinces							
North West	0	1	2	6	6	12 + 6	30
Southern	0	1	3	7	8	15 + 8	40
Sub-total	0	2	5	13	14	41	70
2. Rest of Sri Lanka							
Central (1)	0	0	2	10	7	15 + 7	35
Western (2)	0	0	2	20	7	25 + 7	35
Sabaragamuwa	0	0	2	3	6	7 + 6	30
North Central	0	0	1	2	7	4 + 7	35
Uva	0	0	1	2	8	4 + 8	40
Northern	1	0	1	6	7	10 + 7	35
North-Eastern	0	1	2	4	10	10 + 10	50
Sub-total (3)	*1*	*1*	*11*	*47*	*52*	*127*	*260*
TOTAL (4)	**1**	**3**	**16**	**60**	**66**	**168**	**330**

(1) Nuwara-Eliya already has a landfill therefore only two landfills need to be constructed for two clusters.

(2) Colombo is considered a special case for PPP. No landfill required as part of the project.

(3) The number of transfer stations = one for each municipal or urban council plus one for every two PSs minus one for the local authority where the landfill is located, e.g. a cluster with one municipal council, two urban councils and four PSs would have 0 + 2 + 4/2 = 4 transfer stations.

(4) The number of managed sites based on 100% coverage of municipal and urban councils and 30% coverage of PSs, e.g. if there are two urban councils and 30 PSs outside the clusters ➔ 2 * 100% + 30 * 30% = 9 managed sites.

329. When sites are selected, detailed engineering plans will be prepared along with costing for capital investment and operational expenses. Concept level designs and costing, based on semi-engineered landfills that comply with current CEA solid waste guidelines (draft, 2004 CEA) and the proposed discharge standards, are used for planning. Models are provided for a 50, 35 and 15 mt/day semi-engineered operation. Currently, operations that exceed 100 mt/day require a full EIA; however, it is recommended that all sites be regulated by contract or license to enable the introduction of affordable environmental standards and to provide sufficient legal provision for liability arising from each of the sites.

330. After final disposal infrastructure is provided, local authorities will be required to supply to the site which may require the provision of transfer stations from which waste will be delivered to the final disposal operation. Transport is included in the investment to move waste from the transfer station to the final disposal site which is planned on a 24-hour basis to enable an off-peak activity to reduce social disruption, reduce travel times and increase efficacy.

331. On completion of the preparation of final disposal proposals in the clusters, the provincial council planning units will assess the opportunity for private sector investment in the development and operation of the required sites. The nature of a landfill investment is based on an initial investment to develop the site and the supporting infrastructure followed by annual capital investment in operating cells. Donor financing can only cover the initial capital investment and the first four years of cell development (based on a five-year investment period).

332. It is suggested that the initial five to seven years of capital input is provided by donor funds, followed by a transfer of responsibility for capital investment to the GOSL or the private sector. The assessment process for PPP, outlined in detail in Appendix 7, Volume II, will compare public provision with both full PPP and subsidized PPP options. It will be a requirement of the province to complete this assessment and to demonstrate ongoing sustainability before accessing funding options for final disposal. A schema of the assessment process is provided in Figure 28.

333. Private sector involvement will be considered not in terms of privatization of existing operations but in terms of providing scarce investment capital for new investments. The nature of final disposal investment is that it provides essential public goods that may not always be fully viable based on current tipping fees. One option is to provide output-based subsidies to the operator for a predetermined period during which time the cost of service would enable the operator to achieve viability at less than full cost recovery tipping fees. While the subsidy represents a public cost, it may be a lower cost option than fully financing the entire operation including capital costs from the public purse. The MPCLG should enter into discussions with the MOF to demonstrate the economic gains from such an approach and then incorporate the outcomes into the national policy.

334. Local authorities not included in the clusters are still legally required to provide appropriate final disposal. For those authorities prepared to complete a SWM plan that includes final disposal, finance will be provided for developing their own site. This financing will be provided on a competitive basis with a 30% forecast of non-cluster local authorities participating. The local authority will need to identify sites and prepare a fully costed design.

335. All proposals for final disposal funding will need to be included in the annual plans for the respective authority and submitted for funding through the Council to the proposed NRE sector funding mechanism.

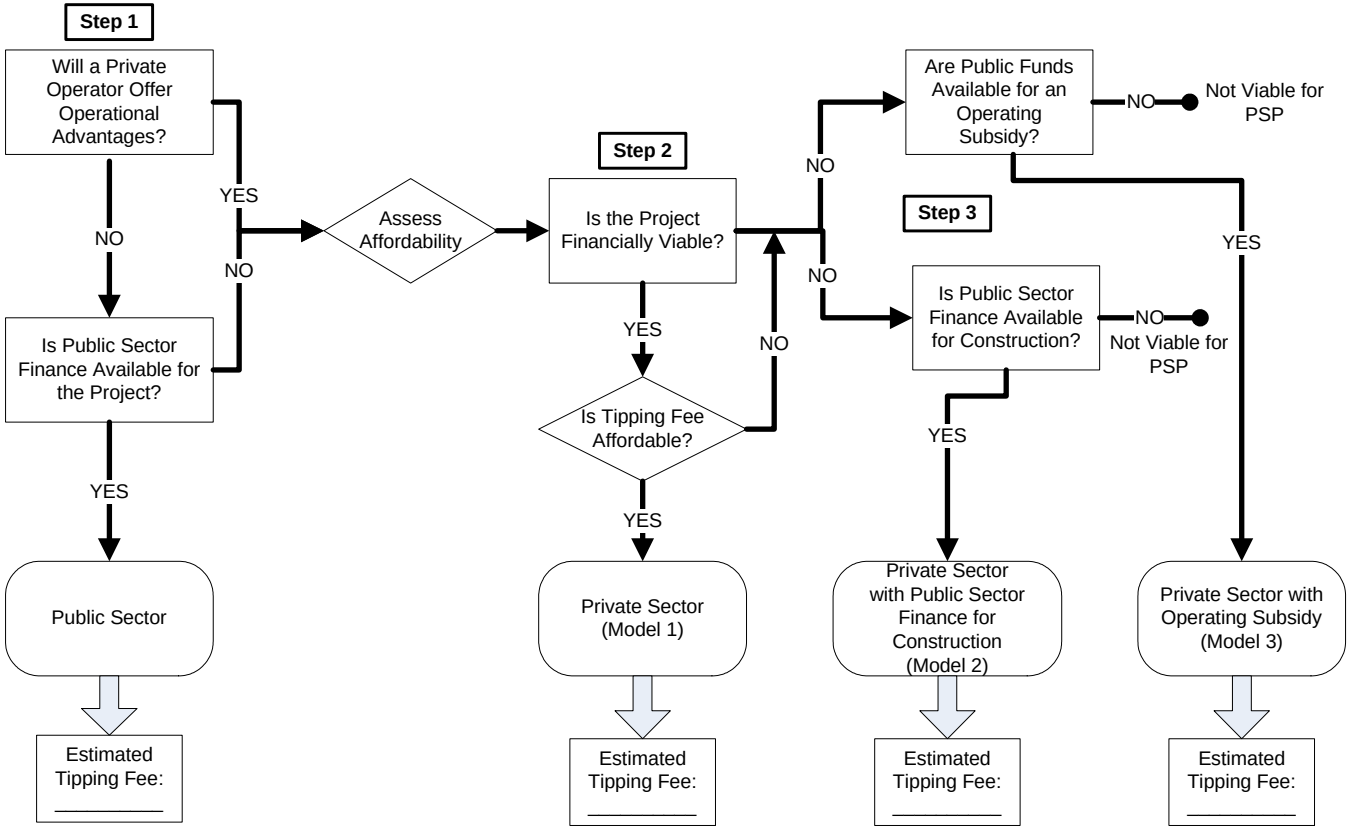


Figure 28: Schema of PPP Assessment Process

d. Local Authority collection and transport investment

336. Current collection systems are typified by both low coverage standards and unreliable collection and transport systems. The underlying causes for these will be addressed through two sets of activities.

337. **Strengthening of organizational systems**. Local authorities need to be more efficient in their service provision roles. The SWM programs will support local government systems through the provision of training, technical support and equipment relating to:

- organizational procedures including programmatic budgeting, planning, financial accounting and public consultation (Appendix 8, Volume III);
- decision-making procedures including delegation and public involvement in steering committees (Appendix 8, Volume III);
- information systems and performance reporting for financial management, planning and budgeting and environmental management (Appendixes 6 and 7, Volume III);
- urban classification of built up areas to enable the coverage of rating systems to expand;
- the preparation of operational planning for SWM (Appendix 3, Volume II);
- the introduction of a SWM by-laws; and
- the provision of finance for improved collection equipment (Appendix 13, Volume II).

338. **Introduction of community recycling and reduction programs**. Community waste reduction and recycling programs in Sri Lanka have proved relatively ineffective as stand-alone solid waste initiatives. Significant success has been achieved when these schemes are linked directly to livelihood improvement systems for the poor and women through social mobilization and community-based micro-credit programs. Experienced NGOs will be contracted to demonstrate the community recycling and reduction programs to local authorities within a province that will later become self-supporting.

339. The following SWM program is built on the Arthachariya Foundation (AF) model (see Appendix 11, Volume II) that has the following features:

- community awareness and mobilization programs;
- a focus on waste reduction and recycling as a means of mobilizing micro-credit resources for sustainability;
- identifying and linking community waste agents to industry and markets; and
- a focus on the poorest of the poor and the provision of benefits of SWM programs for women.

340. The AF has developed a model in several secondary cities in Sri Lanka with the following elements:

- Identification of the primary, secondary and external stakeholders of SWM;
- Mobilization of the community particularly the low income groups for SWM at source in order to achieve zero waste at household level;
- Development of a stakeholder partnership among CBOs of the community formed by AF, local authorities, government institutions, schools, private sector, donors, technical, research and training institutions;
- Capacity building of CBOs and federations of CBOs in order for them to achieve financial and institutional sustainability; and
- Linking SWM with livelihood activities of the participant households through microfinance and micro-enterprise development.

341. As part of this strategy AF has successfully developed a seven-step model to minimize the amount of solid waste being disposed by local households to the roadside in a manner that enables households and women, in particular, to increase their incomes through savings and increase nutritional standards through home gardens. The home composting program is used for home gardens from which some produce is often sold (or traded) or in some instances the compost itself is sold to other households. The sales enable the savings schemes to be established which, in turn, lead to the introduction of microfinance. Microfinance is used for social distress in household or small enterprise development including sewing, mushroom production, candle retail outlets, boarding houses and a range of other small enterprises.

342. Once established, the CBO SWM groups are federated to enable the NGO to withdraw from the community, leaving a range of livelihood activities in place. Increasingly, the CBO and their federation is able to express their voice with local authorities and representatives to seek improved service delivery to disadvantaged areas. In return the local authority is faced with markedly lower costs of collection and disposal – data from the Southern Province indicates that for the participating households a 70-80% reduction in waste is achieved (which amounts to about 15% of the total waste stream). This would represent a saving in the order of Rs.150 to Rs.180 for every tonne of waste collected in a local authority or about US$50,000 per annum for 100 mt/day of waste collected. A detailed description of the community process and model is presented in Appendix 11, Volume II. The NGO contract will last for three years and will be used to develop partnerships between the local authorities and civil society based on the significant cost benefits that the community programs provide to local authorities as well as to the communities themselves.

4. Inputs

343. The following section identifies the physical quantity of inputs. Details of the design and construction of the inputs is presented in Appendix 12, Volume II.

a. Semi-engineered final disposal models

344. The final disposal models were developed as engineered concept designs for three sizes of daily operation (50, 35 and 15 mt/day) according to a semi-engineered standard. Key design parameters are presented along with the TA understanding of the CEA classification of these models.[41] The major design standards follow the CEA guidelines for discharge management, gas venting and site management. Due to the likelihood of increased standards a maximum economic life of 20 years has been used. Detailed designs, costings and drawings are provided in Appendix 12, Volume II.

Table 13*:* Model Landfills Classification based on their Waste Disposal Capacity

Landfill Model	Start-up Quantity (mt/day)	Assumed Annual Increase	Quantity after 20 years (mt/day)	Total Volume (mt)	CEA Classification of Landfills	Volume Requirement (m^3)
Model 1	50	4%	105.34	543,450	Class C (50-200 mt/day)	883,106
Model 2	35	3.5%	67.29	361,273	Class C (50-200 mt/day)	587,069
Model 3	15	3%	26.30	147,115	Class B (10-50 mt/day)	239,062

[41] The TA noted in writing to the CEA that while the designs are for 50, 35 and 15 mt/day that these volumes could increase to accommodate increased volumes and that the designs at the end of their 20-year life would be receiving 105, 67, 26 mt/day due to increased population and the growing waste generation. After discussions with the CEA it was asked at which point in time the CEA classification would apply and it was agreed that this would be at any stage of the economic life. This has been used to develop the engineering standards for the concept design. How the CEA will assess these issues is unclear as proponents will report a 50 mt/day plant that does not require an EIA.

345. The concept models are developed on a constructed cell basis to minimize the active footprint on the site at any one time. The use of a cellular design also spreads the capital investment through future periods in a way similar to a financing arrangement; however this makes donor funding of capital more difficult.

346. **Environmental management**. Given the importance of environmental standards relating to leachate discharge, the concept designs have provided detailed leachate treatment systems. These systems are discriminated between the wet and dry zone, highlighting the dilution effect on BOD concentration in particular. The total volume of leachate between the two zones differs by more than three times, highlighting why a dry zone leachate BOD concentration may be 18,000 mg/l while a wet zone may be 5,500 mg/l.

347. The options preferred for leachate treatment are simple biological systems composed of two primary stages viz. anaerobic and facultative ponds in series, followed by a constructed wetlands. On the basis of the assumed quality of the influent, it would be necessary to include a final polishing stage (constructed wetlands) in order to ensure that the effluent has BOD below 30 mg/l, in keeping with the CEA requirement for effluent discharge to inland surface water. Even though the selected treatment processes require minimum operational and maintenance skills, it is important that the treatment plants are not neglected. Particularly, the constructed wetlands need to be maintained carefully, something which must be considered to be a risk given the capacity and experience in SWM in Sri Lanka. If the effluent quality is lower than assumed, then it may be possible to omit the wetlands, although this option is not recommended since it provides further treatment prior to influent discharge.

348. The details of the proposed leachate treatment units for the two scenarios with respect to the three models are given in Appendix 12, Volume II.

b. Managed site models

349. The smaller and non-cluster local authorities with initial final disposal waste loads of 5 mt/day increasing to a maximum of 7.99 mt/day in 20 years are supplied with a managed site landfill and is classified as a Class A (<10 mt/day) operation by CEA. There is no need for strict adherence to the CEA specifications for Class C landfills; however key areas (e.g. buffer zones, minimization of leachate generation, etc.) of the design reflect the CEA specifications for Class C landfills.

c. Transfer stations

350. Transfer stations are used to facilitate the optimization of the vehicle and collection crew productivity. They may be used to consolidate loads of collected waste from different vehicles and they are often located to minimize the time and the distance which collection vehicles have to travel beyond their normal collection round. Transfer stations can also perform an important function in waste reduction and recycling since they provide an opportunity for either informal waste scavenging or more organized waste stream separation prior to recycling.

351. A transfer station is situated locally to the collection area where collection vehicles can discharge their load so that it can be reloaded onto larger vehicles for economic transportation to distant landfill. Regardless of the type of transfer station used, most facilities have common objectives and potential benefits that include:

- A reduction in transportation costs by bulking up waste loads from, for example, 1.5 mt in a 5.4 m^3 capacity tractor-trailer to payloads in excess of 5 mt using larger bulk haul vehicles;

- Flexibility in scheduling waste deliveries to the final destination by providing temporary storage on-site at the transfer station and the option to schedule onward deliveries to avoid times of peak traffic flows and congestion;

- An increase in the efficiency of the collection vehicles, by reducing the time involved in transporting municipal solid waste to the final unloading point, thereby minimizing the number of collection vehicles and collection crews required to collect a given quantity of waste (i.e. effectively increasing the time available for waste collection);

- A reduction in number of vehicle movements required to deliver municipal solid waste to the final destination, thereby minimizing the negative impacts of waste haulage from vehicle exhaust emissions, wear and tear on the roads and nuisance to residential communities and other road users along the haulage routes;

- The possibility of sorting and recovery of waste prior to dispatch to the final disposal point, potentially reducing the transportation costs; and

- The means to ensure that collected municipal solid waste arrives at the final disposal site in suitable vehicles for safe unloading.

352. The bulk haulage of municipal solid waste by tractor-trailers is often not considered to be economic due to low travel speeds, low payloads (maximum 1.5 mt), lack of tipping (discharge) facilities and difficulty in maneuvering. In most circumstances, depending upon the actual distance of haulage undertaken, waste transport is undertaken more economically through the provision of a transfer station(s) and the haulage of waste, in larger payloads, in bulk haulage vehicles. When collection vehicle travel long haulage distances or take time to complete a round trip to the disposal facility, then the collection ability and the capacity of the collection vehicle is not being used to the fullest amount.

353. The volumetric design parameters are based on a total of 2,900 mt/annum with a maximum daily waste delivery of 8 mt/day. Further details are found in Section 2 of Appendix 12, Volume II. Transfer stations are being provided to those local authorities that are not immediately adjacent to the landfill site within a cluster. A total of 60 transfer stations are included in the investment plan.

d. Transport and collection inputs

354. The investment program places a high priority on increasing collection and the transport of waste to final disposal infrastructure. To achieve the benefits of the infrastructure will require a significant increase in transport investment. The investment plan allocates a total 168 new trucks.[42] Collection systems are also supported through the provision of resources for collection receptacles for which 330 concrete bins that retain about 1 mt of waste and are covered (currently being successfully used in Nuwara-Eliya) are included in the investment. For the collection bins, alternative options may be selected during the planning process; the design here is only for establishing the financial requirement in the investment.

e. Information technology

355. The need for information technology for local authorities is outlined in several reports (see Appendixes 6, 7 and 8, Volume III) and the following section provides the summary of the technology requirements and the supporting training package.

[42] The TA has resisted suggestions for compactors; the composition of the waste stream means that the density of waste is high and the gains from compaction on collection vehicles is therefore limited. Further, the increased repairs and maintenance cost for small local authorities may be prohibitive and the provision of high-sided trucks would also enable trucks to be used for alternative local authority business if required.

Table 14: Indicative Information Systems Administrative Unit Needs for the SWM Investment

	Province	MC	UC	PS
Participating Local Authorities	9	17	18	70
Procurement per administrative unit				
Computer	5	4	3	3
Printer	1	1	1	1
Software	1	2	2	1
Server	1 (high end)			
LAN	1			

356. To support the use of the above technology the following training package is required to support the local authority staff to implement the programs.

357. The typical local government EIS training has a fundamental requirement for end users and EIS staff to have a minimum proficiency level. The Sri Lanka Computer Driving License (SLCDL) qualification provides sufficient skills and competence to enable the effective use of computers. Specifically the SLCDL has five key areas of competency: (i) the use of a computer; (ii) word processing; (iii) spreadsheets; (iv) presentation software; and (v) database software.

358. Training will be provided for five people per local authority in:

- System and Application Users – SLCDL; and
- Application specific training relating to data collection and processing.

359. The typical provincial government EIS training has similar proficiency level requirements as the local government EIS training, including:

- System and Application Users – SLCDL + Application Specific;
- Sys Admin – SLCDL, Networking, Network and DB Administration, Application Specific Administration;
- Data Specialists – SLCDL, Database Management, Statistics;
- Thematic Specialists – SLCDL, Specific Thematic Training, GIS Usage; and
- GIS Specialist – GIS + Analysis.

360. The typical national government EIS training has similar proficiency level requirements as the local and provincial government EIS training, including:

- System and Application Users – SLCDL + Application Specific;
- Sys Admin – SLCDL, Networking, Network and DB Administration, Application Specific Administration;
- Data Specialists – SLCDL, Database Management, Statistics;
- Thematic Specialists – SLCDL, Specific Thematic Training, GIS Usage; and
- GIS Specialists – GIS + Analysis.

f. NGO contract for community SWM and livelihood program

361. The NGO contracts will be a three-year program and will include provision of staff and operational expenses for the implementation of a Community Solid Waste Management and Livelihood Program. The total cost of the program is budgeted at US$200,000 and will cover the cost items in Table 15. The contractor is expected to provide access to micro-credit finance as part of its own business program in an amount of US$250,000 to US$280,000.

Table 15: Resource Requirement for a Three-Year NGO Contract (US$)

Activity	MC Level	UC Level	PS Level	Coord. Office	Totals
Training	600,000	450,000	250,000		1,300,000
Material inputs	1,200,000	800,000	500,000		2,500,000
Schools	750,000	450,000	300,000		1,500,000
Salaries and travel	1,500,000	1,250,000	900,000	1,750,000	5,400,000
Educational material	450,000	300,000	250,000		1,000,000
Meetings	300,000	150,000	100,000	450,000	1,000,000
Rent	360,000	250,000	180,000	360,000	1,150,000
Equipment and furniture	125,000	125,000	125,000	250,000	625,000
Motor cycles/vehicles and fuel	250,000	125,000	125,000	3,000,000	3,500,000
Monitoring	180,000	100,000	100,000	450,000	830,000
Administration 10%	571,500	400,000	283,000	626,000	1,880,500
Totals	**6,286,500**	**4,400,000**	**3,113,000**	**6,886,000**	**20,685,500**

g. SWM planning systems inputs

362. The planning processes at the provincial level will be new processes and functions for the provincial council and as such will require definition and establishment. The investment program will finance the process, a minimum amount of equipment and data collection exercises. This will be supported by additional training and technical assistance. The technical assistance package is provided on a per province basis for two pilot provinces only. The remaining provinces will be supported by the domestic technical assistance package only.

Table 16: Pilot Provincial Strategic Planning Inputs (US$)

Item	Number	Unit Cost
Inception Workshop	1 for 2 days 60 people	1,600
Planning Equipment	1 computer, printer, peripherals and consumables	5,000
Working Groups (7)	8 people per group 5 meetings for one day	4,000
Strategy Workshop	As per above	2,500
Report Preparation	l/sum	1,000
Data Collection	Existing – 500 New data – 2500	3,000
Training	Courses SWM – awareness Strategic planning Option assessment (14) Community-based SWM Report writing	2,900
Contingency		**15,000**
Planning Process Costs per Province		**35,000**
Final disposal site assessments	15 @ 1000 5 @ 3000	30,000
Supporting TA per province (International TA support is envisaged for two provinces, after which the domestic TA will operate independently)	International 8 person-months - Planner 5 person-months - SWM Specialist 2 person-months - Finance Specialist 1 person-months Domestic 10 person-months	160,000 40,000
Total including TA		**265,000**

363. The planning inputs for participating local government are mostly local authority salary and staff costs. Incremental operating costs associated with the preparation of the first management plan would be supported by a sum of US$3,000 per local authority to cover the incremental costs of data collection (US$1,000) for establishing baseline data for SWM performance indicators and for public consultation and input to the planning process (US$2,000).

h. PPP technical assistance

364. The PPP assessment process is a critical component of the SWM program in that it represents the mechanism through which the annual capital investment will be sourced, assuming that follow-on donor funding is not available. The assessment of the investment will be undertaken by the SWM planning taskforce under the guidance of the Provincial Planning Unit; however there is currently no capacity or skill base on which to assess private sector involvement. The investment includes the provision of technical support for this input (see Table 17). The technical assistance input will also provide training to local counterparts in both the planning taskforce and the MPCLG/SLILG to develop domestic skills which can support the remaining provinces. The investment includes 10 person-months of domestic consultant input for each of the remaining provinces to address PPP issues.

Table 17: Proposed Technical Assistance for the PPP Programs

Position	Planning Assessment Phase	Transaction and Tender Process	Total
Planning and Transaction Adviser (International)	1.5	1.5	3
Financial Analyst (Domestic)	1	1	2
Technical Adviser (International)	1	1	2
Lawyer (Domestic)	0.5	1	1.5
Community Consultation Specialist(Domestic)	1	0.25	1.25
Total	**5**	**4.75**	**9.75**

i. Local Authority training programs

365. With the 13th Amendment to the Constitution of Sri Lanka in 1987, the existing local government system was not redesigned for the many different procedures and systems required to be carried out by staff and councilors. A sustained effort is now required to build quality into the local government system. Recent studies carried out by the SLILG indicate that secretaries of local authorities, who have been given the main task of advising and guiding their Councils under the PSs Act, require extensive training. There are also a number of areas such as financial management, legislation, rules and regulations, management capacity, planning and budgeting, environmental management and technical training needs where staff and councilors have never received training in their particular areas of responsibilities. To meet this shortfall, local government staff and councilors require training in the following areas:

- Strengthening of planning processes;
- Financial management - accounting and budgeting;
- Human resource development and management capability;
- Developing legislative drafting and law enforcement capacity;
- NREM - monitoring, data capture, management and analysis;
- Public relations;
- Meeting procedures;
- Provisions of Local Government Act and Ordinances on roles and responsibilities; and
- Computerization – spreadsheets, financial management packages, MS Office.

366. **Local government training provided by SLILG**. The development of training modules and programs by SLILG are mainly carried out on the basis of training needs identified in consultation with the provincial manpower training units (MTUs) and provincial commissioners for local government. Many of these training programs are conducted by the MTUs with the financial and technical assistance of SLILG. The Institute also receives funding from donors and has been assigned funding for training under the JICA SWM Project. The two major areas of involvement in this program are (i) SWM of local authorities and (ii) preparations of by-laws in SWM for local authorities. Funding has been also received from the ADB for financial

management training for urban local authorities, as part of the Urban Development and Low Income Housing Project.

367. Training is currently being carried out for selected local authorities in the Central and Western Provinces, under the Sustainable Cities Program. As part of this program UN-Habitat, in collaboration with SLILG, are in the process of developing 12 training modules in local authority management.

368. The Institute is also being funded through the European Economic Commission in carrying out the implementation of *Managing Information for Local Environment in Sri Lanka* (MILES). The objective of this program is to support SLILG in its capacity as a training center for local authorities to use information technology for improved participatory decision-making. As part of this program, it is proposed to develop information systems for selected local authorities.

369. All the above programs are addressing training in areas that are considered to be essential in the development of local government capacity for implementing natural resource management. Such programs are also developing the capacity of SLILG as the prime local and provincial government training provider in Sri Lanka.

370. **Future actions**. For developing local and provincial governments capacity for implementing natural resource management, **it is recommended** that:

- Annual budget allocations be provided for training in both provincial and local government authorities;
- Central government's annual financial assistance to SLILG of Rs.3 million is increased to a more realistic level (i.e. Rs.20 million);
- Intensive training be provided to provincial MTU training officers to enable them to pass on such training to local government authorities councilors and staff;
- The policy of transferring trained local government officers to other sectors of the public service be changed so that local governments receive the full benefits of the training provided;
- The duplication of training from different donors be coordinated to avoid confusion among the recipients of such training; and
- The large number of vacant positions in local government and provincial authorities be filled as the lack of staff, in many instances, causes delays and efficiencies in the various authorities.

371. **Training costs**. The budgeted costs for the local government training program are provided in Table 18, of which three details the estimated costs for carrying out a training program for local government staff and councilors through the SLILG. The total cost of the program is US$36,000 per year for a period of three years.

372. Provincial councils also have a training function through the provincial MTUs. SLILG will, in addition to providing the above courses for the first three years, provide a training of trainers program for the MTUs in each province. A total of four training sessions per year will be provided for the above courses for two years starting in year 2 such that the completion of the SLILG three-year program will be taken up by the MTUs. For the nine provinces this will require 4 sets of 3 courses per year at a cost of $3,000 per course for a total of $48,000 per annum.

Table 18: Local Authority Training Costs

	Number	Cost/year	Total Cost
1. Training – Local Government Staff			
1.1 Financial Reporting including accounting	20 staff/course - 3 courses/yr	3,000	9,000
1.2 Budget Preparation	20 staff/course - 3 courses/yr	3,000	9,000
1.3 Management Plans – Municipal Commissioners, Secretaries and Senior Staff	20 staff/course - 3 courses/yr	3,000	9,000
1.4 Organizational Structures	20 staff/course - 3 courses/yr	3,000	9,000
1.5 Performance Measurement	20 staff/course - 3 courses/yr	3,000	9,000
1.6 Computerization – data systems/spreadsheets	20 staff/course - 3 courses/yr	3,000	9,000
1.7 Environmental Reporting	20 staff/course - 3 courses/yr	3,000	9,000
2. Training – Local Government Councilors			
2.1 Roles and Responsibilities	20 clrs/course - 3 courses/yr	3,000	9,000
2.2 Decision-making Processes	20 clrs/course - 3 courses/yr	3,000	9,000
2.3 Meeting Procedures	20 clrs/course - 3 courses/yr	3,000	9,000
3. Training – Councilors and Staff			
3.1 Public Relations	10 clrs & 10 staff/course - 3 courses/yr	3000	9,000
3.2 Legal Provisions of relevant Acts and Ordinances	10 clrs & 10 staff/course - 3 courses/yr	3000	9,000
Total Costs		**36,000**	**108,000**

5. Implementation Arrangements

a. Overview

373. The SWM investment will prioritize the provision of safe final disposal infrastructure based on semi-engineered solutions for collected waste stream over 15 mt/day. To minimize the proliferation of solid waste final disposal sites, the difficulty in finding sites and to capture the significant economies of scale, a cluster approach will be adopted with the waste stream bundled across local administrative areas. For smaller locations, final disposal sites will use a managed site approach that is linked with composting to minimize the risk to society and the environment. It is proposed to adopt the NREM planning system, however SWM is a strategic priority, and legal requirement, and will be planned from final disposal back to collection and then to waste reduction, etc.

374. Once final disposal infrastructure has been planned, local authorities will be required to supply to the site. This will require significant improvements to the manner in which they collect and transport waste within the cluster. Investment at the local government level will be based on achieving a business plan that demonstrates an ability to finance the ongoing operation. If this can be demonstrated, investment funds are proposed for the modernization of the local authority solid waste service delivery system, including plant and equipment, vehicles, administration systems and, inside a cluster, the provision of transfer stations.

375. The final disposal operation will be developed either through investment by the provincial council (through donor or domestic financing) or through a private sector operator. Where the provincial council finances the investment the subsequent operation of the site will be provided by a private operator through a management contract of concession. The structure of the operation arrangement will be defined individually site by site and could include involvement in the initial investment or a simple management contract. Alternatively, once operational, each site could be competitively offered to the private sector who would bid for the rights to the waste stream.

376. The final disposal operations will be financed through tipping fees to be paid by the local authorities to the provincial council. The provincial council will pay the operator who will either be a private sector investor and operator, management contractor and/or an operating entity formed by the provincial council itself. The tipping costs of final disposal will create incentives to reduce the liability on a local authority through waste reduction and recycling programs. The models currently operating in Sri Lanka provide a strong basis for undertaking community

programs for this purpose. Resources will be made available for the piloting and demonstration of such programs in each province.

377. Overall execution of the SWM program will fall to the MPCLG as the primary executing agency with support from the MENR as the secondary executing agency while the implementing agencies will be the provincial councils with local authorities providing sub-implementation input.

b. Provincial strategic planning systems

378. The provincial strategic planning process will be implemented using the CREST framework at the provincial level. The provincial council may choose to delegate the operation to another part of the provincial council but the Deputy Chief Secretary shall be the chairperson to ensure ownership. The planning taskforce will be responsible for the implementation of the pilot provinces and should present the process of how such systems will be institutionalized within the province. The schedule of tasks is provided in Figure 29.

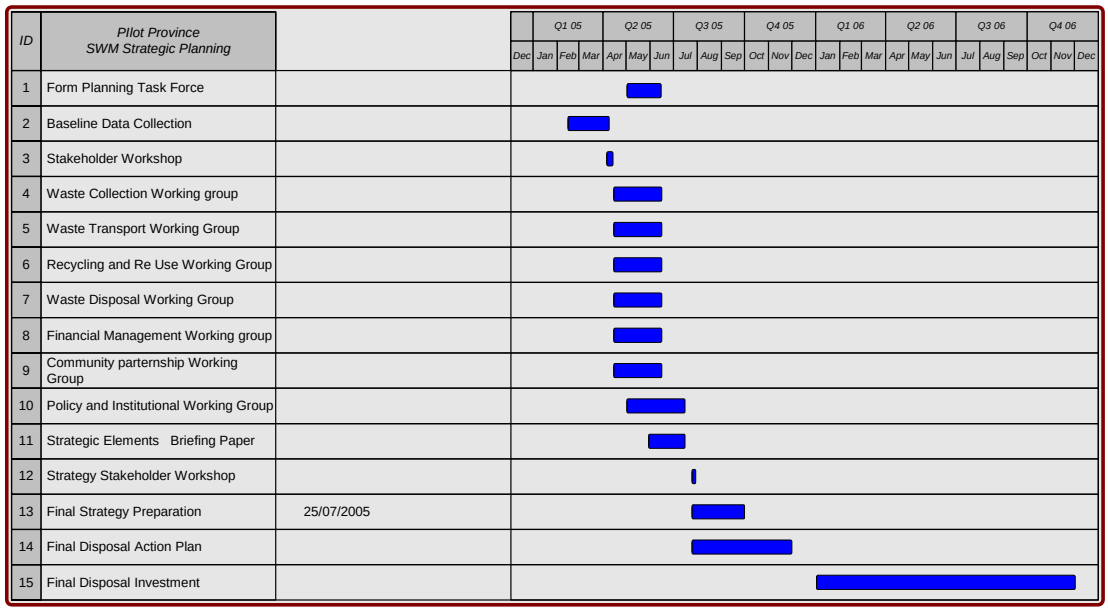


Figure 29: Indicative Schedule of Strategic Planning Process and Follow-on Investments

379. The implementation of the Wayamba pilot province will provide participation and training opportunities for the second priority province (recommendation is for the Southern Province). This will provide staff from the Southern Province exposure to the program and the planning processes while offering chances to receive training in strategic planning. As the process moved forward, the Southern Province staff can initiate the development and implementation of a strategic planning process in the Southern Province. The proposed sequence for the expansion of the program to other provinces is provided in Figure 30.

ID	Schedule of Provincial Planning	Start	End	2004	2005				2006				2007			
				Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Pilot Province(Wayamba)	3/01/2005	9/30/2005													
2	Southern Province	3/30/2005	12/30/2005													
3	CEntral Province	8/30/2005	7/28/2006													
4	North East Province	1/2/2006	11/30/2006													
5	Sabaraguma Province	3/1/2006	12/29/2006													
6	North CEntral Province	6/1/2006	3/30/2007													
7	Uva Province	6/1/2006	3/30/2007													

Figure 30: Proposed Sequencing of Provincial Strategic Planning

c. Local Government planning

380. The implementation of local government SWM planning will be established through participation in the provincial strategic planning process with much of the data and assessment being based on local authorities. Priority will be assigned to those local authorities who are required to complete a management plan as part of being a cluster member. For non-cluster local authorities priority will be based on political commitment and ownership to introduce a SWM plan. It is recommended that the municipal commissioners be responsible for the overall implementation of the local authority SWM planning processes to ensure integration with the provincial SWM plan.

381. At the local authority level the overall responsibility for the preparation of a SWM management plan will be the municipal commissioner/secretary with both the administrative head and the head of the proposed SWM unit providing the technical and operational inputs to the planning process. The local authority process will also be supported with the creation of a ratepayers/stakeholders advisory committee to oversee the process and to ratify the plan prior to its presentation to the Council.

382. The Council's community development staff will be responsible for community consultations and will prepare a community profile to be included in the management plan. The organizational profile will be developed by the administrative head as part of the formulation of the proposed SWM unit in the Works Division to ensure separation of service provision from monitoring programs. Monitoring programs will be undertaken by the provincial health inspectors who will be required to provide the monitoring component of the plan.

383. The overall plan will be coordinated by the administrative head with inputs from the Works, Monitoring, Community and Financing Departments.

384. For the Wayamba pilot province a total of three SWM clusters have been identified. The proposed Kurunegala cluster comprises seven local authorities including the municipal council and six adjacent PSs. The other clusters are urban council-based and involve six PSs. The initial phase of the pilot SWM planning process in the North West Province involves 15 local authorities and these will be completed over a six-month window following the completion of the Provincial SWM Strategic Plan. A further 17 local authorities that fall outside the clusters will be developed using a managed site model according to their willingness to participate and the availability of resources.

385. Implementation of the management plan will usually involve local resources although modernization programs linked to collection and transport systems will be through application to

the LLDF and organizational strengthening inputs will be directed to the proposed environmental funding mechanism.

d. Final disposal programs

386. The final disposal implementation will be based on the provincial plan that will focus on specific proposals for each cluster and a generic model for the non-cluster local authorities. The provincial planning unit or planning taskforce will be responsible for completing a final disposal plan that has fully specified final disposal needs along with identified sites.

387. Once complete, the planning taskforce will develop a detailed investment proposal for each site that includes detailed designs, financial and economic costing and detailed implementation schedules. Each proposal will be formally assessed by the provincial council for their suitability for PPP investment and management of the operation.

388. **Institutional arrangements**. When a proposal is completed and the provincial council decides on the modality for implementation, the operational responsibility will fall on the entity that will operate the final disposal site. This could be a private investor or a management contractor who would operate a publicly provided facility.

389. It is recommended that each provincial council establish a solid waste entity under the Companies Act that will be the vehicle through which final disposal operations are managed or contracted to third parties. The company, effectively a holding company, will partition the liability for any commercial and litigation risk away from the wider provincial council. The capital in the company would be held by the provincial council while the directors would be appointed from: (i) the provincial council representatives; (ii) supportive local authorities with waste supply contracts; and (iii) eminent people living in the province.

390. No directors should be selected beyond the above criteria in order to retain a strong vested interest to ensure that the most cost effective solutions are implemented and managed. Being provincial council-owned the tipping fees would pass directly to the holding company on a monthly basis who would then, according to contractual obligations, transfer the funds to the operator.

391. Under the scenario where a provincial council may develop a final disposal site, the management of this site would be contracted to the private sector. The basis of this arrangement will vary based on when the private sector party is engaged, the basis of engagement (management contract only or an investor through lease or concession) and the role in the contract the private sector was expected to undertake. Each site will need to define the specific detail of the site, interests of all parties and the legal requirements. The TA PPP expert has assembled options for this arrangement.

392. A critical aspect is the responsibility for future capital investment. The semi-engineered models are designed on a cellular basis where the site infrastructure is developed and the void space defined. To maximize the use of the void space while reducing the risk of environmental effects the void is filled on an annual cell basis, where the leachate drainage, gas ventilation and capping is provided to ensure site integrity on an annual basis. The capital investment schedule for a 50 mt/day semi-engineered site is presented in Figure 31. The effect of this is to require capital to be introduced over the life of the operation beyond the involvement of a single donor. In these circumstances the GOSL can either (i) seek new donor involvement for another phase of investment; (ii) use its own scarce investment resources; or (iii) involve the private sector. Various options that involve mixed capital structures are also possible. Given the extent of the investment, the TA recommends that the private sector involvement be sought in the form of a concession or lease agreement.

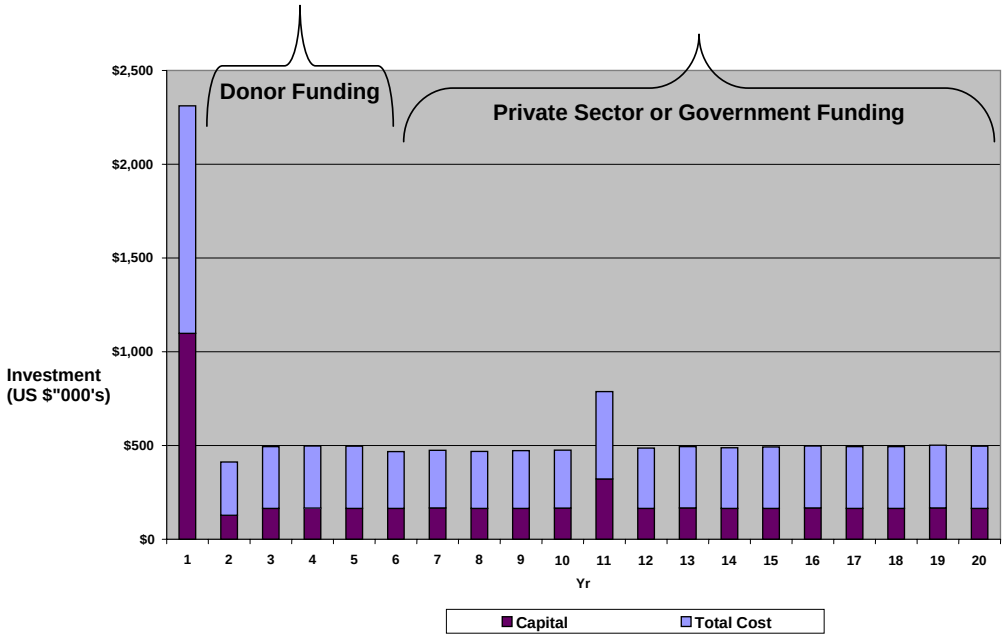


Figure 31: Capital Investment for a 50 mt/day Model

393. **Tipping fees**. The tipping fees required to recover capital and operating costs for a 50 mt/day semi-engineered site based on a discounted cost stream for 20 years is Rs.589/mt. If a private operator is involved and the operation is financed through the capitalization of construction costs for 5 years with 70% debt financing (@15% for 5 years) the breakeven tipping fee (before return to management and ownership) would be approximately Rs.600/mt. Based on a waste generation per capita of 0.5 kg/day the average household of 4.6 people would face a final tipping cost of around Rs.500/annum which amounts to 45-50% of the estimated WTP for SWM suggesting that it is affordable if the public get sufficient service. Many people currently pay this or more through informal arrangements with private and public sector operators to obtain an enhanced level of service.

394. Options for the public sector to provide initial capital through either donor or GOSL grant funds would reduce the required tipping fee to levels slightly less than Rs.300/mt.[43]

e. Waste reduction and recycling

395. Implementation of community-based waste reduction and recycling programs would be achieved in two stages. Stage one would introduce methods and capacity into a province to demonstrate successful approaches and possible benefits of community-based schemes. Stage two would involve the provincial and local authorities actively promoting and extending the models across all participating local authorities as part of an employment and self-help component of their SWM program.

396. For the demonstration stage within the pilot province, it is recommended that the AF be contracted to provide a community-mobilized SWM program into Wayamba. The scope of this contract at the community level would be limited to one municipal council, two urban councils and up to 24 PSs over a period of three years. However the awareness and public dialogue components of the program would be extended throughout the province. It would be beneficial if

[43] These fees do not include the capital charge for the funding of follow-on investment after the economic life of the landfill.

the contractor was an integral part of the relevant planning processes for their pilot sites and the province as a whole.

397. The NGO contract will therefore provide for a total of 186 staff inputs to the program (see Table 19).

Table 19: Summary of NGO Personnel for SWM

	Team Leader	Program Manager SWM	Program Manager Microfinance	Program Manager Training	Accountant	Local Authority Unit Manager	Facilitator	Accounts Clerk	TOTALS
Central Program Office	1	1	1	1	1				5
Municipal Council Level						2	12	2	16
Urban Council Level						3	15	3	21
Pradeshiya Sabha Level						24	96	24	144
Totals	**1**	**1**	**1**	**1**	**1**	**29**	**123**	**29**	**186**

398. A critical success factor in community-based programs is that SWM cannot stand alone as a durable program among the low income and poor sections which account for a sizeable portion of the population. This finding is consistent with findings by other NGOs and some municipal councils. The proposed approach will introduce SWM as an entry point to livelihood programs that use micro-financing of enterprise development for the poor and low income groups. .

6. Estimated Project Cost

399. The total Project cost for the first seven years of investment is estimated to be US$125 million with a total base cost of $110 million. Approximately 10% of the total base cost is for land purchase or use. Total investment costs amount to $90.3 million (82% of total base costs) with construction costs, excluding land, amounting to nearly 50% of total base costs (see Table 20).

400. The distribution of capital investment by province highlights the population distribution density, the number of local authorities and the importance of the Western Province, which excludes Colombo district (see Table 20).

Table 20: Summary of SWM Capital Investment Costs (US$'000's)[44]

Sri Lanka
Solid Waste Management Program
Expenditure Accounts by Components - Base Costs
(US$ '000)

	Southern Province	North West Province	Central Province	Western Province	Sabaragamuwa Province	North Central Province	Uva Province	Northern Province	North Eastern Province	Total	Physical Contingencies %	Physical Contingencies Amount
I. Investment Costs												
A. Construction												
1. Land Acquisition	1,826	1,352	1,002	1,904	978	550	565	1,184	1,409	10,770	10.0	1,077
2. Civil Works												
Landfills	4,110	3,292	2,487	4,290	2,489	1,328	1,328	3,130	3,292	25,747	10.0	2,575
Transfer Stations	449	384	683	1,283	193	129	129	384	256	3,890	10.0	389
Managed Sites /a	2,944	2,208	2,576	2,576	2,208	2,576	2,944	2,576	3,678	24,286	10.0	2,429
Subtotal Civil Works	7,503	5,885	5,747	8,149	4,890	4,033	4,401	6,090	7,227	53,924	10.0	5,392
Subtotal Construction	9,329	7,237	6,749	10,053	5,868	4,583	4,966	7,274	8,636	64,694	10.0	6,469
B. Equipment												
1. Operational Plant & Support Equipment	853	817	804	1,332	601	470	510	856	928	7,172	10.0	717
2. Computer Equipment	151	135	135	163	92	69	75	104	106	1,030	10.0	103
Subtotal Equipment	1,004	952	939	1,495	693	539	585	960	1,034	8,202	10.0	820
C. Vehicles												
1. Vehicles - Large	428	336	413	659	234	187	202	331	355	3,144	10.0	314
D. Design & Supervision												
1. Detailed Design	466	365	357	506	301	250	273	378	449	3,343	10.0	334
2. Construction Supervision	391	307	301	426	254	210	229	319	377	2,814	10.0	281
Subtotal Design & Supervision	857	672	658	932	555	460	501	697	826	6,157	10.0	616
E. Technical Assistance												
1. TA Support for Private Sector Participation	45	123	45	45	45	45	45	45	45	484	-	-
2. SWM Strategic Plan	292	276	276	276	276	276	276	276	276	2,500	-	-
Subtotal Technical Assistance	337	399	321	321	321	321	321	321	321	2,985	-	-
F. Training												
1. IT Training	97	75	86	93	49	37	45	60	71	613	-	-
2. Training at LA Level	497	373	373	373	248	124	124	248	373	2,732	-	-
Subtotal Training	594	447	459	466	297	162	169	308	444	3,345	-	-
G. NGO Support for Community Based Organizations	200	200	200	200	200	200	200	200	200	1,800	-	-
Total Investment Costs	12,749	10,242	9,738	14,125	8,169	6,453	6,945	10,092	11,815	90,327	9.1	8,220

[44] Includes the capital investment covering a 7-year period.

D. SWM Investment Financial and Economic Justification

1. Approach

a. Cluster basis of analysis

401. The appropriate unit of SWM from a planning and management point of view is the *province*; however, administrative capacity at the provincial level is insufficient. Therefore, a cluster-based approach is proposed whereby clusters are defined spatially (e.g. 15 km radius) and administratively (e.g. municipal and urban councils and PS).[45] Participation in SWM is expected to be high *inside* the clusters (e.g. up to 80%). A SWM plan will be prepared at the provincial level while capacity at the local authority level will be strengthened over time. Facilities inside the clusters will include large (usually 35–50 mt/day) semi-engineered landfills and transfer stations with associated transport. Participation outside the clusters is expected to be low (up to 30%). Infrastructure will include small (5 mt/day) managed sites based primarily on composting organic waste into inert material and a residual controlled dumping site. These will be supported by associated collection and transportation infrastructure.

402. A total of 22 clusters have been identified nationwide (see Table 21); 14 clusters have a municipal council as local authority and 8 have an urban council as local authority. Southern Province has the most clusters with 4 and Uva and North Central Provinces the fewest, with one each.

Table 21: Clusters – By Local Authority

Province	# Clusters	Municipal Council Clusters	Urban Council Clusters
North West	3	Kurunegala	Chilaw; Putalam
Southern	4	Galle; Matara	Hambantota; Hikkaduwa
Central	3	Kandy; Matala; Nuwara-Eliya	
Western	3	Colombo; Gampaha	Kalutara
Sabaragamuwa	2	Ratnapura	Kegalle
North Central	1	Anuradhapura	
Uva	1	Badulla	
Northern	2	Jaffna	Vavuniya
North-Eastern	3	Batticaloa; Ampara	Trincomalee
Total	**22**	**14**	**8**

403. The population inside and outside the clusters is summarized in Table 22. The national average of 47% inside the clusters and 53% outside the clusters hides some important provincial differences with inside cluster populations of <25% in North Central and Uva Provinces and >70% in Western Province. The size of the population of Western Province acts to increase the overall average.

Table 22: Clusters – Population

Province	Number of Clusters	Cluster Population	Non-Cluster Population	Cluster Population	Non-Cluster Population
		(2004, '000s)		%	
North West	3	709	893	44%	56%
Southern	4	983	1,153	46%	54%
Central	3	886	1,516	37%	63%
Western	3	3,642	1,490	71%	29%
Sabaragamuwa	2	509	1,059	32%	68%
North Central	1	207	873	19%	81%
Uva	1	300	896	25%	75%

[45] The cluster-based approach is described in Chandrasiri, S. "Investment Plan for SWM in Sri Lanka: A Province-Specific Cluster-Based Approach".

Province	Number of Clusters	Cluster Population	Non-Cluster Population	Cluster Population	Non-Cluster Population
		(2004, '000s)		%	
Northern (1)	2	726	804	47%	53%
North-Eastern (1)	3	492	905	35%	65%
Total (2)	22	8,454	9,589	47%	53%

(1) The 2001 Census could not be conducted in Northern and North Eastern Provinces for security reasons. Cluster and non-cluster populations were estimated using the next best available data source; i.e. Dept of Statistics "Municipal Solid Waste Statistics 1998".

(2) Total population is approximately 18 million or about 5% less than the actual population of about 19 million. Most of the shortfall is explained by missing data for various local authorities. The 5% under-estimate is not sufficient to alter the analysis in a material fashion.

b. Basis of cost estimate

"With Project" Scenario

404. The SWM strategy prioritizes final disposal that has been either neglected or unachievable in past SWM programs. Each cluster will have landfill capacity defined by the population, the quantity of solid waste collected vs. uncollected and the extent of recycling and composting. Engineering models have been prepared of the capital and operating costs of landfills of three sizes (15, 35 and 50 mt/day).

405. To promote collection and transportation efficiency, landfills will be supported by a network of transfer stations.[46] For capital cost estimation purposes, an important assumption concerns the required number of transfer stations. The number of transfer stations in a cluster is a function of the number of local authorities.[47]

406. The rural population outside the clusters will be serviced by a series of lower technology less capital intensive facilities for a 5 mt/day managed site. The sites are managed in two ways: (i) all appropriate solid waste will be composted in a facility that accounts for almost 80% of the capital cost of the managed site[48]; and (ii) the remainder is subject to managed disposal as opposed to the current practice of uncontrolled dumping. A network of engineered collection bins[49] and small trucks will support the collection and transport of waste to the managed sites.

"Without Project" Scenario

407. It is necessary to consider the cost implications of developments in the SWM sector in the absence of the project. The basis of the cost estimate in the without project scenario are as follows:

- If there is no project, there are no clusters, hence the participation rate is correspondingly low;
- There are *no* landfills or transfer stations; and
- The present system of collection and largely uncontrolled dumping observed throughout the country will continue.[50]

[46] This is important given the rough calculation of the Municipal Engineer of Nuwara-Eliya that collection and transport accounted for 88% of the total daily cost of operating the Moon Plains landfill.
[47] The landfill will be located in one municipal or urban council. Each other municipal or urban council will have a transfer station. There will be a transfer station for every two Pradeshiya Sabhas. For example, a cluster with two municipal councils and four Pradeshiya Sabhas will have three transfer stations to support one landfill.
[48] The engineers have estimated that of a base capital cost of Rs.31 million for a managed site, the composting facility accounts for Rs.24.2 million, or 78%.
[49] The enclosed bins have a capacity of about 1 mt and cost Rs.40,000. They contribute to environmental improvement by eliminating odors, scavenging by animals and aesthetic improvement.
[50] The cost of these "semi-managed" sites = the cost of a managed site *minus* the composting facility.

c. Basis of benefit estimate

408. Regardless of how it is generated (e.g. by households, farms, hotels, schools, commercial enterprises, institutions, etc.), solid waste is either collected or left uncollected. Collected waste may be composted, recycled, incinerated or sent to final disposal. Other than a very small quantity of medical waste, incineration is not expected to play a short-term role in SWM in Sri Lanka due to the nature of the waste stream. Landfills in the proposed investment are not expected to include facilities to convert waste to energy for subsequent sale due to their size and location.

409. As the SWM program is implemented, there will be a divergence in the flows of uncollected, composted, recycled and landfilled solid waste compared to the without project alternative, as follows:

- *Uncollected*: The percentage of uncollected waste is expected to decrease.
- *Recycling*: The percentage of waste that is recycled will increase.
- *Composting*: The percentage of waste that is composted will increase.
- *Final Disposal*: The percentage of waste going to final disposal will increase initially (with the expansion of collection programs), then decline over time as recycling and composting programs expand in size.

410. Because participation rates are higher inside the clusters, the benefits in the with project scenario are based on *greater* quantities of waste as compared with the without project scenario where there are no clusters. While community programs may be expected to result in reduced waste generation at the household level, the benefits associated with reduced collection costs are deliberately excluded from the analysis on the grounds: (i) that most people who get involved in community SWM schemes have few alternatives and a zero value on their time thereby limiting the benefit; and (ii) any benefit is offset by reduced quantities of waste available for composting, recycling, etc.

411. Therefore, expected financial benefits include[51]:

- The sale of recycled products, including paper, plastics, metal and glass;
- The sale of compost; and
- Reduced landfill charges.

412. Expected economic benefits include:

- Cost savings from the use of economic prices;
- Environmental benefit of composting which convert organic material to an environmentally inert material;
- Environmental benefit of recycling;
- Environmental benefit of managed disposal versus uncontrolled dumping;
- Environmental benefit of collection of previously uncollected solid waste;
- Aesthetic benefit of reduced quantities of uncollected refuse;
- Social benefit of recycling and employment of the unemployed persons;[52]
- Social benefit of composting and employment; and
- Social benefit of a collection program.

[51] It is assumed that there is an economic but not a *financial* benefit associated with project-induced changes to uncollected waste volumes.
[52] Women appear to represent the greater majority of workers in these community-based recycling enterprises, e.g. at the AF plastics recycling facility in Galle, 12 women were employed full-time and one male engineer employed on a part-time basis.

413. Data limitations prevent the quantification of several significant environmental benefits that would bolster arguments in favor of SWM:

- *Transfer Stations*: benefits from reduced transport costs; scheduling vehicle movements to avoid peak hours; increased efficiency of collection vehicles; reduced vehicle movements; increased sorting and recovery of waste; and safe unloading.
- *Reduced Waste Generation*: proper pricing of collection and community education and awareness programs will result in reduced waste production.
- *Tourism:* benefits from a cleaner, more attractive environment.
- *Public Health:* benefits from a cleaner, less vermin-infested environment.
- *Water Quality:* benefits from the elimination of the current practice of using untreated solid waste as fill in low-lying, wetland areas.

2. Assumptions

414. An analysis such as this involves, literally, hundreds of assumptions. On the cost side, five detailed models of SWM facilities[53] have been built by the project engineers. The many assumptions pertaining to unit costs, quantities, choice of equipment, scheduling, etc. are all included in the supplementary annex of Appendix 13, Volume II. On the benefit side, many assumptions are made with respect to the calculation of unit benefits and the quantities of waste streams to which these benefits apply. Again, these assumptions are included in the annexes to Appendix 13, Volume II.[54]

415. A few major assumptions bear noting:

- *Population and cluster size*: Population and its growth drive household solid waste production. Population data are taken from the 2001 Census of Population and Housing. There may be a concern with double counting; specifically, while the population estimates of the municipal and urban councils are believed to be accurate, it is possible that the reported population of the PSs may include parts of the populations of the already-counted municipal and urban councils.[55]
- *Non-household solid waste*: Solid waste is generated from a variety of industrial, commercial and institutional sources as well as from households.[56] While it appears obvious at first glance that waste from non-household sources should be included in waste estimates, in fact it is not clear that local authorities are legally required to collect it. However, as waste from these sources may be significant while local authorities may be required to collect it in the future, it is assumed for the purposes of this analysis that non-household solid waste equals 0.2 kg/capita/day.[57]
- *With project scenario – policy targets*: The policy targets for percentage waste collection, recycling and composting drive the estimate of benefits. To the extent that these targets are exceeded or reached faster, benefits will increase. Correspondingly, should local authorities fall short of the targets, benefits will fall short of estimates.

[53] Three landfill models (15, 35 and 50 mt/day), one transfer station model and one managed site model.
[54] Detailed supplementary annexes are available from the Project Office.
[55] Double counting is not believed to be sufficiently significant to alter analytical results.
[56] A JICA estimate of solid waste flows in the provincial town of Nuwara-Eliya found that flows from all non-household sources, when expressed in per capita terms, reached 0.5 kg/person/day.
[57] The figure is set at 0.2 kg/capita/day in acknowledgement that there is less industrial, commercial and institutional activity in rural areas than in the urban areas for which data have been collected.

- *Without project scenario*: Incremental costs and benefits are based on a continuation of current activity; that is, semi-managed dump sites (e.g. sites without composting facilities).
- *Capital cost*: Each cluster is assumed to have one large (50 mt/day) landfill even if waste generation calculations indicate that more than one such landfill is required. Facilities are assumed to be constructed over a five-year period, starting in year 2, with year 1 being devoted to the preparation of a provincial SWM plan.

3. Project Costing

416. **Individual models**. Engineering models have been estimated for three landfill sizes, one transfer station and one managed site with composting facility. The salient capacity and cost data are summarized in Table 23.

Table 23: Cost Summary – Individual Models

Type	Capacity Year 1 (MT/day)	Capacity Year 20 (MT/day)	Lifetime Cap. Cost (Rs)	Lifetime Op. Cost (Rs)	Lifetime Waste Vol. (MT)	Unit Cap. Cost (Rs/MT)	Unit Op. Cost (Rs/MT)
Landfill	15	26	141,670,482	123,501,568	147,115	963	839
Landfill	35	67	296,097,140	154,751,878	361,273	820	428
Landfill	50	105	407,006,198	189,935,243	543,450	749	349
Transfer Station	5	8	9,536,717	29,355,200	46,619	205	630
Managed Site	5	8	42,925,184	56,370,071	46,619	921	1,209

417. **Facilities estimate by province**. The cost is a function of facilities constructed. The facilities that form the basis of the cost estimate are summarized in Table 24. Twenty-three landfills will be built, 19 of which will be of the 50 mt/day size.[58] Sixty transfer stations and 66 managed sites will be constructed and 171 trucks will ensure collection and transport.

Table 24: SWM Facilities by Province

Province	Landfill 15 mt	Landfill 35 mt	Landfill 50 mt	Transfer Stations	Managed Sites	Trucks (Lg + Sm)	Collection Bins
1. Pilot Provinces							
North West	0	1	2	6	6	12 + 6	30
Southern	0	1	3	7	8	15 + 8	40
Sub-total	*0*	*2*	*5*	*13*	*14*	*41*	*70*
2. Rest of Sri Lanka							
Central (1)	0	0	2	10	7	15 + 7	35
Western (2)	0	0	4	20	7	27 + 7	35
Sabaragamuwa	0	0	2	3	6	7 + 6	30
North Central	0	0	1	2	7	4 + 7	35
Uva	0	0	1	2	8	4 + 8	40
Northern	1	0	2	6	7	11 + 7	35
North-Eastern	0	1	2	4	10	10 + 10	50
Sub-total (3)	*1*	*1*	*14*	*47*	*52*	*130*	*260*
TOTAL (4)	**1**	**3**	**19**	**60**	**66**	**171**	**330**

(1) Central Province requires only two landfills for three clusters because Nuwara-Eliya already has a landfill.
(2) Western Province requires four landfills for three clusters because: (a) Colombo (Cluster #1) is a special case for PPP and is excluded from the project; and (b) The volume of waste generated in Gampaha (Cluster #2) requires the construction of the equivalent of three landfills each of 50 mt/day capacity.
(3) The number of transfer stations = 1 for each municipal or urban council plus 1 for every two PSs minus 1 for the local authority where the landfill is located, e.g. a cluster with 1 municipal council, 2 urban councils and 4 PSs would have 0 + 2 + 4/2 = 4 transfer stations.
(4) The number of managed sites based on 100% coverage of municipal and urban councils and 30% coverage of PSs, e.g. if there are 2 urban councils and 30 PSs outside the clusters, then 2 * 100% + 30 * 30% = 9 managed sites will be required.

[58] See footnotes to Table 39 for detailed explanation of why 22 clusters require 23 landfills.

418. **Investment cost**. Landfills are constructed on a cellular basis with one cell (equal in size to one year's solid waste) built in each of 20 years. As a result, civil works costs continue throughout the 20-year engineering life of the landfills. However, in terms of reporting on investment costs for donor consideration, only those civil works costs occurring in the first seven years of the project are reported.[59] The facilities referred to in Table 24 are constructed over a seven-year period. Associated costs include land acquisition, civil works, equipment and various design and contractor costs.[60] Amounts for technical assistance, training and contracts for NGOs in support of community-based organizations[61] are added to these costs; however physical and price contingencies are not included.

4. Justification

a. Benefits and policy targets

419. Incremental benefits flow from changes in the way in which solid waste is managed. Management changes result in altered flows of uncollected, recycled, composted and landfilled solid waste. Benefits increase as (i) uncollected waste is collected; (ii) more waste is recycled and composted; and (iii) waste sent to final disposal is sent to a managed, engineered site.

420. The policy targets on which incremental benefits depend appear below for municipal and urban councils and PSs in Tables 25, 26 and 27 respectively.

Table 25: Policy Targets – Municipal Councils

	With Project			Without Project		
Category	Waste Generated (kg/p/day) present	Waste Generated (kg/p/day) Yr 10	Waste Generated (kg/p/day) Yr 25	Waste Generated (kg/p/day) present	Waste Generated (kg/p/day) Yr 10	Waste Generated (kg/p/day) Yr 25
Uncollected	40%	20%	10%	40%	40%	40%
Collected	60%	80%	90%	60%	60%	60%
Composted	5%	20%	35%	5%	5%	5%
Recycled	10%	15%	20%	10%	10%	10%
Landfilled	45%	45%	35%	45%	45%	45%

Points to note in Table 25:

- Uncollected waste is cut in ½ (40% → 20%) by year 10 and again by ½ (20% → 10%) by year 25.
- The year 25 target for composting (35%) requires a seven-fold increase from current levels. While ambitious, the 35% target still represents ½ of the organic content (65%) of solid waste. The large increase is more reflective of current low levels of composting than overly-ambitious targets.
- Recyclables comprise 27% of solid waste, therefore doubling recycled content (10% → 20%) over 25 years implies that 75% of potentially recyclable materials will be recycled by year 25.

[59] The implicit assumption is that by the end of year 7 the private sector is fully engaged in the project so that donor funding may wind down.
[60] These costs include Detailed Design of Civil Works (6.2%), Contractor Mobilization (1.0%), Construction Supervision (3.23%), Contractor's Performance Guarantees (1%), Land Acquisition (@ Rs.300,000/acre and Resettlement and Compensation.
[61] The cost of the SWM Plan was estimated in Table 4 of Appendix 10 and training cost is presented in Table 3 of Appendix 19 (see Mid-term Report). IT equipment costs and IT training costs were estimated by project experts in the IT field and are presented in Tables 9 and 10 of Appendix 19 (see Mid-Term Report). Contracts for NGOs to support CBOs are estimated notionally at $200,000 per province spread over three years.

Table 26: Targets – Urban Councils

	With Project			Without Project		
Category	Waste Generated (kg/p/day) present	Waste Generated (kg/p/day) Yr 10	Waste Generated (kg/p/day) Yr 25	Waste Generated (kg/p/day) present	Waste Generated (kg/p/day) Yr 10	Waste Generated (kg/p/day) Yr 25
Uncollected	50%	30%	20%	50%	50%	50%
Collected	50%	70%	80%	50%	50%	50%
Composted	4%	20%	30%	4%	4%	4%
Recycled	5%	10%	15%	5%	5%	5%
Landfilled	41%	40%	35%	41%	41%	41%

Point of interest in Table 26:

- Targets for urban councils are set at less ambitious levels than for municipal councils. More solid waste is left uncollected. Less is composted and recycled.

Table 27: Policy Targets – Pradeshiya Sabhas

	With Project			Without Project		
Category	Waste Generated (kg/p/day) present	Waste Generated (kg/p/day) Yr 10	Waste Generated (kg/p/day) Yr 25	Waste Generated (kg/p/day) present	Waste Generated (kg/p/day) Yr 10	Waste Generated (kg/p/day) Yr 25
Uncollected	60%	40%	30%	60%	60%	60%
Collected	40%	60%	70%	40%	40%	40%
Composted	3%	15%	25%	3%	3%	3%
Recycled	2%	6%	10%	2%	2%	2%
Landfilled	35%	39%	35%	35%	35%	35%

Points of interest in Table 27:

- In recognition of weak capacity, policy targets for PSs are lower than in urban councils.
- The percentage of uncollected waste will be reduced by 50% over 25 years.
- The percentage of composted waste will increase to 25% over 25 years or about 40% of the organic content of solid waste.
- Community-based recycling initiatives will expand in PSs where employment for the unemployed is presumed to be attractive. The target is 10% recycling by year 25 or about 35% of the recycled content of solid waste.

b. Unit benefits

421. To monetize benefits from changes in waste flows, unit benefits are required. Details are included in Appendix 13, Volume II; however the unit benefits that have been derived are summarized in Table 28.

Table 28: Unit Benefits

Benefit Category	Specifics	Unit	Amount
Financial Benefits			
• Recyclables	Weighted average	Rs/kg	4.42
• Compost	Bulk sale price	Rs/kg	3.50
• Reduced landfill charges	Life cycle operating cost (50 mt/day)	Rs/mt	349
Economic Benefits			
• Economic costs	Standard conversion factor	%	90%
• Composting environmental benefit	Life cycle operating cost (50 mt/day)	Rs/mt	168

Benefit Category	Specifics	Unit	Amount
• Compost as inert material to replace landfill soil cover	Soil cost per m^3	Rs/m^3	160
• Recycling environmental benefit	Life cycle operating cost (50 mt/day)	Rs/mt	168
• Aesthetic benefit from reduction in uncollected solid waste	WTP – Benefits transfer	Rs/hh/mth	44
• Decrease in uncollected solid waste environmental benefit	Life cycle operating cost (50 mt/day)	Rs/mt	168
• Landfill environmental benefit	Life cycle total cost (50 mt/day)	Rs/mt	1,098
• Social benefit – recycling – employment of the poor	Daily wage and production of small recycling facility in Galle	Rs/mt	2,000
• Social benefit – composting – employment	Labor cost vs. design capacity of 5 mt/day managed site with compost	Rs/mt	677
• Social benefit – solid waste collection	Benefits transfer from study in Kandy and Kalutara	Rs/hh/yr	528

422. Some points to note in Table 28 include:

- *General*: The inter-connected nature of the four waste "products" (e.g. an increase/decrease in one forces change in the others) means that it is important not to treat the different solid waste streams as independent profit centers by analyzing them separately. SWM is meant to be comprehensive with efforts in one area (e.g. reduction is uncollected solid waste percentages) leading to rewards in several areas (e.g. more material available for composting, recycling and proper final disposal). Separate analyses would risk missing important linkages.
- *Recyclables*: Currently only a small percentage of waste is recovered from the waste stream and recycled. There are several reasons for this, starting with a lack of appreciation for the value of recycled plastics, paper, metal and glass. Even when appreciation exists, there are problems with input supply (e.g. collecting and preparing raw materials such as plastic bags and bottles economically) and in marketing the outputs. The AF has succeeded on a small scale at manufacturing recycled plastic pellets for sale to plastics manufacturers. One such manufacturer is DKW Industries in Hatton. DKW pays Rs.90/kg for "virgin" polyethylene that it imports and a maximum of Rs.40/kg for clean, used plastics. As a result, DKW has a strong financial incentive to increase purchases of plastic pellets from CBOs. Still, new markets will have to be developed to absorb the expected quantities of recycled materials.
- *Compost*: Even in the absence of markets in which to sell compost, composting is an important SWM strategy. Solid waste loses 45% of its weight when composted, so even if solid waste is composted and landfilled, benefits will be realized in reduced transport charges and extended landfill life. While small markets for compost limit financial benefits, economic benefits remain high due to current practices. For example, it is common practice in Sri Lanka for municipalities to sell or even give away solid waste for landowners to use as fill. The environmental impact, especially in low lying wetland areas, is considerable. Unsold compost can be given away as a free, non-polluting substitute for untreated waste currently used. Economic benefits will be significant.
- *Uncollected*: Reducing the quantity of uncollected solid waste implies financial benefits because there is more material to compost, recycle or landfill. People will enjoy an aesthetic benefit from the reduction in uncollected waste. So too will tourist operators. Furthermore, while it is impossible to establish a direct cause → effect relationship between accumulations of unmanaged solid waste and rising public health costs, one suspects strongly that public health costs will decline as uncollected refuse is removed from neighborhoods, treated and disposed of in a managed fashion.

- *Landfilled*: Some of the greatest environmental benefits will be generated by the engineered disposal of solid waste. This is explained by stratospheric BOD levels of unmanaged solid waste that take years to dissipate. As a result, the environmental benefit of sending a metric tonne of solid waste to a semi-engineered landfill will be enjoyed over many years, albeit at declining levels.

5. Financial and Economic Analysis – Provincial Level

423. The model of costs and benefits were run separately for each province. The results of the financial and economic analysis are summarized in Table 29. In keeping with the preliminary nature of the exercise, FIRR and EIRR are rounded to the nearest percent.

Table 29: Financial and Economic Internal Rate of Return (US$ millions)

Province	Financial Analysis			Economic Analysis		
	NPV ($ m)	B:C ($B per $1 C)	FIRR (%)	NPV ($ m)	B:C ($B per $1 C)	EIRR (%)
1. Pilot Provinces						
North West	-$4.5	$0.51	5%	$3.5	$1.40	17%
Southern	- $4.7	$0.60	7%	$6.7	$1.61	19%
2. Rest of Sri Lanka						
Central	-$3.2	$0.65	7%	$6.9	$1.82	21%
Western (1)	-$5.4	$0.62	7%	$13.2	$2.00	22%
Sabaragamuwa	-$3.5	$0.51	5%	$2.9	$1.43	17%
North Central	-$3.2	$0.40	4%	$0.5	$1.11	13%
Uva	-$3.1	$0.45	5%	$1.4	$1.25	15%
Northern	-$3.5	$0.62	7%	$6.0	$1.69	20%
North-Eastern	-$5.9	$0.42	4%	$1.5	$1.16	14%

(1) NPV = net present value is calculated using a discount rate of 12%.
(2) B:C = benefit cost ratio = NPV of net benefits (discounted @ 12%) divided by NPV of net costs.

424. Three measures of viability are estimated. Net present value (NPV) gives an indication of the *absolute* level of incremental benefits. The benefit cost ratio (B:C) indicates the *relative* level of benefit by expressing the number of dollars of benefit per dollar of cost. Internal rate of return (IRR) expresses the *robustness* of the project. Financial internal rate of return (FIRR) ranged from a low of 4% in North Central and North Eastern Provinces where a high percentage of population remains outside the clusters to a high of 7% in Central and Western Provinces where some solid waste infrastructure and/or PPP is already in place.[62] Single digit returns in all provinces suggest that, without financial incentives, the private sector may not find an investment in SWM an attractive proposition.

425. Significant environmental and social benefits will accrue from the investment in facilities and associated programs. EIRR ranged from 13% and 22%. In all provinces, there was a significant disparity between EIRR and FIRR. This difference acts as an argument in favor of a policy of capital and/or operational subsidies to private sector operators to encourage entry into the industry. The interconnections between the four solid waste products are such that falling short of policy targets in the recycling and composting will exacerbate the differences between FIRR and EIRR. Therefore, the *failure* to meet policy targets in composting and recycling actually *strengthens* the argument in favor of capital or operating subsidies.

[62] Though less than Central and Western Provinces at one decimal place, FIRR in Northern Province rounds *up* to 7% due to high population density (and the waste it generates) in Jaffna.

a. Sensitivity analysis

426. Sensitivity analysis was carried out (Table 30) by comparing percentage changes in the major items of cost, benefits and policy targets to changes in FIRR or EIRR. In all cases, FIRR was insensitive to changes in capital costs. In two provinces with low FIRRs,[63] FIRR was sensitive to changes in operating costs. FIRR was insensitive to changes in the prices of compost, recycled products and tipping fees. FIRR was insensitive to shortfalls in meeting *individual* policy targets. Conversely, FIRR was sensitive to shortfalls in *multiple* policy targets.[64] Therefore, while missing one policy target for collections, compost or recycling is not serious, missing more than one policy target can be very serious.[65]

Table 30: Sensitivity Analysis - Financial

Province	Costs		Benefits: Prices			Benefits: Policies				
	Cap Cost	Op Cost	Com-post	Re-cycle	Land-fill	Uncoll ected	Com-post	Re-cycle	Co + Re	Un +Co +Re
1. Pilot Provinces										
N. West	-0.71	-0.74	0.58	0.73	0.15	-0.19	-0.48	-0.72	-1.24	-1.47
Southern	-0.70	-0.61	0.52	0.65	0.14	-0.18	-0.42	-0.70	-1.16	-1.37
2. Rest of Sri Lanka										
Central	-0.63	-0.59	0.51	0.62	0.12	-0.18	-0.44	-0.55	-1.02	-1.22
Western	-0.63	-0.63	0.58	0.63	0.05	-0.19	-0.53	-0.59	-1.16	-1.39
Sabuwa	-0.70	-0.72	0.60	0.67	0.15	-0.24	-0.51	-0.68	-1.23	-1.51
N Central	-0.72	-1.18	0.74	0.87	0.15	-0.31	-0.65	-0.78	-1.50	-1.86
Uva	-0.70	-0.97	0.64	0.77	0.14	-0.25	-0.56	-0.67	-1.27	-1.56
Northern	-0.69	-0.63	0.51	0.65	0.16	-0.16	-0.43	-0.52	-0.98	-1.15
N Eastern	-0.75	-1.09	0.70	0.85	0.18	-0.24	-0.60	-0.75	-1.40	-1.68

Un = uncollected; Co = composted; Re = Recycled

427. Sensitivity analysis was conducted on economic benefits (Table 31). The number of economic benefit streams ensures that EIRR is very insensitive to a change in any one economic benefit.

Table 31: Sensitivity Analysis – Economic Benefits

Province	Financial	Collections	Composting	Recycling	Landfill
1. Pilot Provinces					
North West	0.35	0.14	0.11	0.15	0.16
Southern	0.34	0.13	0.11	0.14	0.16
2. Rest of Sri Lanka					
Central	0.30	0.12	0.10	0.15	0.14
Western	0.24	0.09	0.10	0.19	0.17
Sabaragamuwa	0.33	0.12	0.11	0.15	0.16
North Central	0.35	0.14	0.12	0.17	0.16
Uva	0.33	0.14	0.11	0.16	0.16
Northern	0.34	0.14	0.11	0.13	0.16
North-Eastern	0.37	0.15	0.12	0.15	0.18

[63] North Central and North Eastern Provinces.
[64] Except Western and Northern Provinces (with relatively high FIRRs) where sensitivity was neutral.
[65] In North Central Province, a 10% shortfall in three policy targets (Un+Co+Re) implies an 18.6% decrease in FIRR.

6. Financial and Economic Analysis – National Level

a. Implementation sequence

428. Financial and economic analysis has been conducted at the national level. The various provincial programs are initiated over a six-year period in 2005 (Table 32). The staging and order of implementation mirrors that of the strategic planning exercise with North West and Southern Provinces leading the way as pilot programs, followed by the other provinces.

Table 32: National Implementation Schedule

Province	2005	2006	2007	2008	2009	2010
#1 - North Western	1					
#2 - Southern		1				
#3 - Central			1			
#4 - Western			1			
#5 - Sabaragamuwa				1		
#6 - North Central				1		
#7 - Uva					1	
#8 - Northern						1
#9 - North Eastern						1

b. Results

429. The same three measures of viability – NPV, B:C and IRR – were estimated for the national SWM program from both the financial and economic perspectives. The results are summarized in Table 33. As with each of the provinces, there is a significant disparity between national EIRR (15%) and national FIRR (6%). As with the analysis at the provincial level, the national analysis leads one to the observation that, in order to encourage PPP and to achieve environmental outcomes, capital and/or operational subsidies may be in order.

Table 33: Financial and Economic Analysis - National Level

Viability Measure	Units	Financial Analysis	Economic Analysis
Net Present Value (NPV)	US$ millions	-$27.6	$14.9
Benefit:Cost Ratio (B:C)	$B/$1C	$0.55	$1.25
Internal Rate of Return (IRR)	%	6%	15%

7. Risks and Constraints

430. The risk of FIRR and EIRR being adversely affected by cost overruns, benefit shortfalls and policy target misses have been covered by the sensitivity analysis. Several risks and constraints potentially endanger the successful implementation of a SWM program in Sri Lanka. Most are covered in depth in other reports. It suffices to list them with minimal explanation in Table 34.

Table 34: Risks and Constraints

Category	Severity	Comment
Engineering	Low	• Landfill technology is well-known, especially at the relatively simple level envisaged here (e.g. no capture of energy, no incineration).
Technical Capacity	Low	• Most required labor is unskilled or semi-skilled.
Managerial Capacity	Medium	• Experience in managing landfills is minimal in Sri Lanka. Managers will require training and experience.

Category	Severity	Comment
Administrative Capacity	High	• Even though a cluster-based approach is proposed in recognition of weak administrative capacity at the municipal and urban council and Pradeshiya Sabha levels, administrative capacity is still required at important times, none more so than in the siting of a final disposal facility.
PPP	Medium/ High	• There must be buy-in from the private sector; otherwise the program will fail; however, unless policy and legislation is such that the private sector is attracted to the solid waste sector, PPP is by no means assured. • The combination of low FIRR and high EIRR opens up the possibility of capital or operational subsidies to private sector firms to encourage entry into the industry.
Security/Safety	Low *	• In most parts of Sri Lanka, security and safety are not concerns. • In Northern and North Eastern Provinces, however care must be taken.
Policy and Legislation	Medium/ high	• Government policies and legislation have encouraged neither solutions to the solid waste problem nor entrants to the sector. • While it appears that there is a new understanding of the need for appropriate policies and legislation as a pre-condition of donor involvement in the SWM sector, the necessary pieces of legislation remain to be put in place while policies still need to be elaborated and tested over time.
Environmental Standards	Medium/ high	• There is an improving understanding of the need to revise environmental standards as a way of encouraging PPP, yet the new standards have not been put in place yet.
Financing Mechanisms	High	• A practical way must be found and demonstrated effectively to deliver program funds to the targets of the funds in the municipal and urban councils and Pradeshiya Sabhas.
Market Mechanisms	High	• The importance of proper pricing to encourage responsible environmental behavior cannot be under-estimated; however, Sri Lanka is a country without a long tradition in market-based approaches to the solution of environmental problems.
Political	High	• Historically, problems have occurred when it comes to site facilities, especially landfills. A classic problem of “NIMBY” (Not In My Backyard).
Supply	Medium	• Successful implementation of a SWM strategy depends on a steady supply of untreated solid waste. • Collection and delivery is the legal responsibility of the local authorities.

8. Conclusions and Recommendations

431. The investment is therefore rated as financially non-viable and economically viable highlighting the public good nature of the benefit stream. The disparity between high EIRR and low FIRR at both national and provincial levels acts as a powerful argument in favor of capital or operational subsidies in early years to encourage private sector entry into the SWM market in Sri Lanka. It needs to be made clear, however, that any subsidies are short-term in nature and will be phased out over time. As such, the GOSL may consider applying for assistance through the World Bank Output Aid Program to demonstrate the effects of using the subsidies in the interim phase to achieve public sector policy outputs.

IV. INTEGRATED NATURAL RESOURCE MANAGEMENT

A. Overview

1. Social Context

432. Sustainable land resources is a priority investment identified by the lead group but does not include land administration and titling which are already being addressed within the public policy and investment program.

433. Land-based issues have always rated highly in the National Environment Action Plans and SOE reports with several projects linked directly to land resource management. One lesson from these was that efforts were neither sustained nor institutionalized. Consequently, current plans and priorities as reported in the CFE document yet again identify land management as a priority and proposing actions that are general, such as the Soil Conservation Act will be implemented. These issues are diffuse, mostly non-point source, issues that occur over differing scales and present themselves in differing contexts, over extended timescales. These differences are defined by the nature of the biophysical resource, the land use and the social context of the land users.

434. Land resource management is an integral part of local livelihoods and the pressures that local communities necessarily respond to. One of the key reasons for the lack of durability of past programs has been the limited manner in which NREM has been integrated with livelihood development needs. Instead projects continued on the assumption that livelihood would be integrated into a sector-based model and have continued to confront jurisdictional and authority constraints when moving beyond sector mandates. All evidence suggests that in the design of a project, livelihood can be integrated into a sector approach, however these projects fail during implementation and the process is not sustained.

435. Sector-based arrangements fail as they do not enable the full range of livelihood issues to be brought to the table and incorporated into programs and interventions. To minimize these constraints, special project implementation arrangements are made using the presence of donor funding to create institutional systems that can overcome or minimize the constraints to implementation. Consequently, most initiatives have to be donor-driven to enable the use of special arrangements. Such special arrangements and weak real involvement of local stakeholders have been major contributing factors in the failure of most donor-driven initiatives.

436. To adopt a true livelihood perspective requires the intervention to step out of the sector administrative straightjacket and operational model. This requires systems to address land resource management in the context of the land users decision-making and with an ability to achieve collective decisions. Sector agencies do not have the resources, or mandate, to work at the local level on multi-sector programs. Confronted by this reality most past projects have mobilized NGOs and CBOs. Sector experiences with these modalities are mixed at best. There have been extremely good outcomes and some very bad. The conclusion is that such arrangements are constrained by the inability of GOSL sector agencies to enter into true implementation partnerships with CBOs and likewise for many CBOs and NGOs to develop true partnerships with local beneficiaries. Where the CBO or NGO is a simple contractor, success has been limited at best with many significant failures.

437. Other factors also limit the ability to develop an implementation arrangement that can be sustained through CBO-GOSL partnerships. The arrangements that work are mostly limited to donor-funded initiatives which means there is no continuity of the partnerships and CBO's role becomes redundant. Where the initial programs are broadened to include a livelihood approach many programs and CBOs continue to be sustained at the local level highlighting not the need for significantly more resources but better access to existing resources.

438. Clearly one of the critical needs in the area of land resources is the need to develop more sustainable financing systems that support the implementation modalities required for diffuse and differentiated land resource problems. Land resources include a wide range of interventions most of which relate to diffuse non-point source responses that are often multi-sectoral. While such programs rate high on prioritization processes most "projects" have proved non-sustainable due to: (i) a lack of ownership by resource users and decision-makers; (ii) reliance upon parallel implementation arrangements such as project management units; (iii) the lack of institutionalization; and (iv) the lack of financial sustainability.

2. Changing the Bundle of Ecological Attributes

439. When considered from an outcome perspective, it is apparent that the protection of ecological services attached to land-based ecosystems is common to all of the priority land resource and wetland issues.

440. The objective of the TA is to "develop an investment plan that will enable the MENR to finance management systems for achieving natural resource and environmental outcomes through the implementation of the National Environmental Policy". While donor support is a key requirement in this process, the TA is also charged to review and propose means for the provision of sustainable financing for implementation. Sustainable financing systems and operational approaches to NREM are an essential part of the investment plan given the likely exit of donors from the sector. This section introduces one set of opportunities for developing funding mechanisms for a range of ecosystem functions.

441. Ecosystem attributes link to the social construction of landscapes and include natural features of beauty, cultural landscapes, uniqueness and biodiversity that need to be considered in addition to the typical use functions that underpin economic development. While tourism depends upon these attributes, the tourism sector has little involvement in how to conserve these attributes and then how to manage the exploitation of these in a sustainable manner. This places the tourism sector in a vulnerable position as the very attributes they value may be destroyed for the purpose of extractive uses by the existing resource owner.

442. Typically different land resource interventions involve the bundling of ecosystem uses, functions and attributes in differing ways. The notion of use is well understood, however ecosystem functions such as the regulation of water flows, protecting water quality, providing habitat, waste assimilation, controlling salinization, etc. are not well represented in the current institutional framework. Even to date this persists due to the development of the NRE sector from production sectors, such as forestry, irrigation and water resources.

443. In some instances, the bundles of different functions and attributes sought in public policy or sector interventions may overlap or be shared by different groups such as those supporting recreational programs also support flood protection values of wetlands to Colombo city and the use right enjoyed by fishers. All the ecological services as defined by the various functions and attributes share very distinctive characteristics, that is they are diffuse, involve substantial numbers of resource users, have complex institutional jurisdictions and authorities and lie outside or external to existing land markets and management decision-making.

444. As a direct consequence of their external nature these attributes and the associated services are undersupplied by institutions designed to promote usage. This has significant impact on the provision of services that depend on these attributes including: (I) the provision of services to other parts of the economy such as hydro-generation, water supply systems and irrigation; (ii) the potential for developing and growing the economic contribution arising from visitation services and recreation; and (iii) the management of risks to urban populations relating to floods, water quality and biodiversity.

3. Financing

445. One approach to sustainable financing is to develop these attributes and functions as specified rights that over time become commodities through the bundling of ecosystem functions and attributes that support both direct and indirect users. Once bundles of services are created, financing the provision of these services can be sought not only from direct resource users but also the indirect users or beneficiaries. Internationally, the range of commodities being specified and transacted as part of providing improved NREM outcomes is expanding rapidly. The ability to create standard specified bundles of attributes creates new property with the potential of becoming an asset. For example, the recognition of carbon as an asset enables the asset to be valued, traded and consequently factored into resource use decision-making. Once an asset is formed, the owner or steward of the asset faces totally different incentives to provide greater care and stewardship.

446. Possibly the most obvious recent development is the notion of carbon being brought and sold as part of the global management of rising carbon dioxide levels. Prior to climate change and global warming no such bundling had occurred and as such the carbon assimilation attributes of forests had not been converted into property. Other examples of the new commodification of such attributes are summarized in Table 35.

Table 35: Examples of New Environmental Services Commodities (Landell Mills, 2000)

Environmental service	Potential Commodity
Watershed protection (e.g. reduced flooding; increased dry season flows; improved water quality; maintained aquatic habitat; soil contaminant control; reduced downstream sedimentation)	Watershed management contracts; water quality credits; water rights; land acquisition/lease; salinity credits; transpiration credits; conservation easements; certified watershed-friendly products; stream flow reduction licenses; salmon habitat credits; reforestation contracts; protected areas
Landscape beauty (i.e. protection of scenic "view-scapes" for recreation or local residents)	Entrance rights; long-term access permits; package tourism services; natural resource management agreements; eco-tourism concessions; photographic permits; land acquisition; land lease
Biodiversity conservation (e.g. role in maintaining ecosystem functioning, maintaining options for future use, insurance against shocks, improved choice, existence values)	Protected areas; bio-prospecting rights; biodiversity-friendly products; biodiversity company shares; Debt-for-nature swaps; biodiversity credits; conservation concession; land acquisition; biodiversity management contracts; logging rights acquisition; tradable development rights; conservation easements
Carbon sequestration (i.e. absorption and storage of carbon in forest vegetation and soils)	Assigned amount units, certified emission reductions, emission reduction units, carbon offsets/credits, tradable development rights, conservation easements

447. For example, soil erosion and land rehabilitation projects identified in CFE involve bundling of several watershed attributes linked to the provision of hydrological services demanded both by the direct user of the land and in a collective manner by hydro-generation, downstream irrigation and water supply users. The offsite users currently do not contribute to the protection of the "watershed attributes" and, as such, these attributes can be expected to be undersupplied with the resultant costs to the national economy.

448. Given current concerns over power generation, water shortages, etc. any mechanism that increases the supply of these functions has significant value for Sri Lanka. If offsite users compensated onsite managers for providing the reliable services, the supply of these services would be increased or at least more guaranteed.

449. Likewise, the proposed Environmentally Sensitive Area (ESA) or wetlands program bundles attributes that are not specified including flood protection, nutrient cycles, fisheries and recreational values in certain locations. Further bundling could also be attributed to the aesthetic

attributes that form landscapes which existing or potential tourism and recreation users' demand.

450. Increasingly, as populations increase and the demand for natural resources expands, the importance of ecological functions and attributes also increases relative to direct use due to their diminished provision from the effects of direct resource use on the supply of ecosystem services. The difficulty for the NRE sector is that these services are not represented in the present institutional arrangements such as property rights, legal framework and management framework, etc. that were designed to commodify economic development by reducing the transaction costs for those attributes, i.e. the direct use attributes resources.

451. As ecological functions and services have significant threshold effects, resource management requires cooperation or collective agreement between those that demand services and the on-site manager that can influence the provision of services. For example, there is little point in 10% of farmers agreeing to protect a watershed when the remaining 90% continue to degrade the remainder of the watershed as the net effect will continue to be declining watershed attributes.

452. Obtaining collective actions is difficult in a society that is based on "market transactions" defined by specified property right whose transaction is driven by individual preferences, decisions and goals. The advantage of markets and property rights arises from the low cost of transaction through standardization and commodification and the personal motivation of individual buyers and sellers. The downside of market transaction systems is that they also carry quite high costs for achieving coordination and collective approaches to decision-making (see Figure 32). For the provision of ecological services this is further complicated by the distance between resource manager or those that affect the supply of services and those that demand the services. The net effect is services are undersupplied and the current institutions are not yet supportive of these attributes.

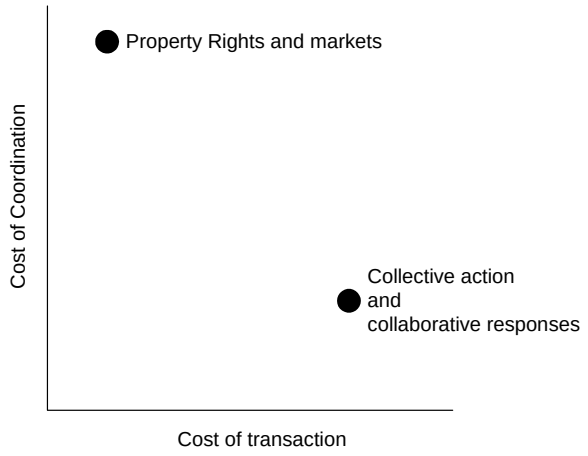
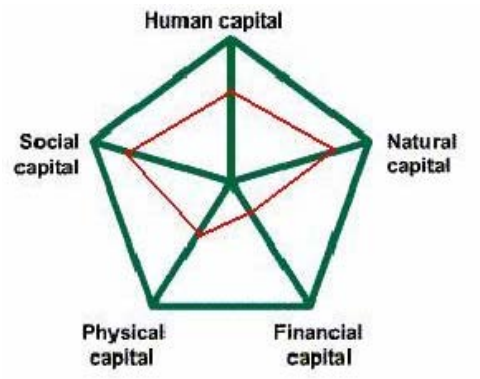


Figure 32: The Dilemma of Property Rights and Coordination

453. While markets create greater efficiency for production systems, they create significant failings for attributes that lie outside the bundles of attributes specified as part of property rights. The need for collaboration across those that demand as well as those that use resources highlights why sector agencies fail to manage the correct supply of these attributes. Increasingly sector agencies contract NGOs and CBOs to develop this consensus and collective vision to reduce the cost of reaching agreements for the protection of NRE.

4. Links between Poverty, Livelihood and Ecological Services

454. The status of natural resources is not influenced by policies but they are influenced by the decisions of people. Those that damage resources do so in the context of striving to achieve a standard of living from combining the resources or assets available to them. While an important component of their development assets, natural resources cannot be considered in isolation from other forms of capital including financial capital, physical (infrastructural capital), human and social capital that resource users have at their disposal. For example, a fisher that has access to ice and markets (physical capital), knowledge of fish stocks and boats, and is part of local fishing community, will have a far different range of livelihood options than an artisanal fisher that relies on selling at the lake edge with no ice or market access. The importance of this for NREM planning purposes is that we cannot develop management systems for natural resources in isolation from the wider livelihood context of civil society. Figure 33 presents the range of development capital and demonstrates how these can be portrayed for an individual or community in a pentagon form.



Natural capital includes the stocks of natural resources (forests/plants, air, water, soils, fisheries, etc.) that people draw on for pursuing their livelihood.

Human capital refers to the "stock" of skills, knowledge, experience of the people (or "intellectual capital"), ability to labor and health that is drawn on for livelihood generation.

Social capital is the social resources that people draw on in pursuit of their livelihood, including their social networks and connections, membership in formalized groups and relationships of reciprocity and exchange.

Physical capital is the basic infrastructure and production equipment needed to support livelihood.

Financial capital refers to the financial resources that people use and includes stocks (such as savings or stores of goods and products that can be converted to cash or goods), as well as flows.

Figure 33: Development Capital or Assets

5. Proposed Natural Resource Strategy

455. The proposed strategy is based on linking the concepts of livelihood, decentralized planning and the bundling of ecosystem services to target the achievement of integrated natural resource management for the purpose of sustainable livelihood. The goal of the program is "to ensure the provision of ecological services through appropriate use of natural resources and the environment so that livelihoods are both improved and sustained".

456. The objective is to introduce the NREM framework (CREST) to implement an integrated natural resource and environment management program that supports livelihood in the rural landscape and for specially delineated ecologically differentiated zones. This would involve the use of collaborative sub-national planning systems, resource mobilization and the institutionalization of programs. The program would seek donor funding to establish both capacity and planning systems, and investment that support the overall goal. The program would adopt the principles of a sector project, with pilot programs that are extended over wider areas to be adopted as a functional responsibility of sub-national organizations.

457. An important aspect is to introduce funding mechanisms that can support both the processes and associated programs in an ongoing manner. These mechanisms need to

continue to disburse beyond donor involvement to continue activities as well as extending the approach to new beneficiaries.

458. The following two sections present the findings and outcomes of two pilot case studies that tested this approach.

B. Pilot Case Study - Aranayake Integrated NREM

1. Introduction

459. The Aranayake case study area was used to test the concepts of CREST – especially at the SKS and PPM level – and to evaluate the effectiveness of the system for program based on local NRE needs. The case study was also used to develop an indicative investment budget for the CREST implementation program.

460. The case study planning process identified a range of physical targets relating to priority needs for which action plans were identified. These were then used to develop indicative investments for "model" SKS and PPM units from which estimates of investment requirements were made. The following section presents a summary of case study SKS and PPM planning process.

2. The Aranayake Divisional Secretariat

461. The Aranayake DS area was divided into five Sampath Kalaapa (SK) by stakeholders followed by a series of planning workshops. The objective was to identify problems, solutions and investment opportunities for sustainable NREM at local level through a participatory approach while evaluating the proposed approach. Specifically the SKS consultation process aimed to: (i) understand the NREM problems associated with SK at local levels; (ii) identify appropriate solutions for these problems and alternative options for investments at local, zonal and divisional levels; (iii) prepare an action plan for investment on sustainable SK management; and (iv) identify and test suitable institutional modalities for implementation of action.

3. Social Profile of Aranayake Divisional Secretariat

462. Aranayake DS belongs to the Kegalle District and the Sabaragamuwa Province. The DS area consists of 61 GN divisions and the total population living in the division is 64,865 (2002 estimates). The DS area is predominantly rural. The road follows the river network and is associated with urbanization and human interaction. All three ethnic groups, i.e. Sinhalese, Tamil and Muslim, reside in the area, but the Sinhalese predominate with 91% of total population. Townships along the river are mostly Muslim communities while the interior agriculture lands are occupied by Sinhalese. The upper catchments of the watershed consist of tea estates with associated Tamil communities.

463. Only a quarter of the total population has access to an acceptable water supply through either pipe, private or common well and less than 20% have adequate sanitation systems. Most of the poorest live in rural GN divisions and their main livelihood is derived from both farming and, increasingly, wage labor.

464. **Demarcation of SK.** Each demarcated SK involved several GN divisions. The DS area was divided into SK, based on slope, aspect, catchment and land use. Finally, the DS was categorized into five SK with some falling across administrative boundaries even though attempts were made to reach some agreement among communities to demarcate the SKS boundaries within current administrative boundaries.

4. The Consultation Workshops

465. One divisional level workshop was conducted at the Aranayake DS office. This was the preliminary consultation process which aimed at creating awareness among key officials and NGO representatives with an interest in NREM. The DS level consultation started with an in-depth discussion on issues, followed by group discussion.

466. The DS level workshop was divided into three main sessions. In the first session the IPENS objectives and proposal for decentralized integrated NREM, sub-divisional institutional arrangements and the social survey findings were presented to participants. In the second session the participants were divided into SK committees and prepared a list of natural resource issues, identified actions already taken to solve such problems and what additional support was needed. The final session was a discussion on institutional modalities including coordination of the participatory NREM program under the leadership of the DS.

467. Participants of the DS level workshop included the DS, Assistant DS, CEA Regional Office, Chairman and Secretary of PS, Divisional Medical Officer and the Public Health Inspectors, selected GN officials, NGO representatives, Samurdhi officials, LUPPD officials and key officials of other line agencies.

468. Five SK consultation workshops were then held, one at each of the identified SK, using brainstorming, small group discussions and participatory action plan writing. The SK workshops aimed at the following: (i) verification and endorsement of the demarcated resource zones; (ii) assess the spread of different natural resource issues by GN divisions; (iii) identify appropriate actions to solve such problems and the responsible CBOs that can be involved in the process; (iv) external support and facilities needed to implement local action plans; and (v) problems and prospects for SK modality under the present local administrative and institutional arrangements. The SK workshop involved the representatives of all the CBOs in the zone, GN officials, Samurdhi and farmers. On average the number of participants in each workshop ranged from 20 to 40, including community leaders, principals of schools and religious leaders, and private property owners. In the consultation workshops, women represented nearly 40% of the total participants.

5. Divisional Action Plans

469. At the DS level workshop, several major issues were identified for further consultation with the community and action plans prepared accordingly. It was found that some issues were commonly held over many zones and GN divisions, while some were more specific in one or two SKS areas. The participants felt that most NREM issues relate to the degradation of land and soil in the upper catchments and described a number of issues (see Table 36).

Table 36: Major Issues Associated within Aranayake

Major Issue/Problem identified	Importance	Description
Deforestation, encroachments, illegal tree felling	Very High	Problem is acute in four GN divisions in the upper reaches of the watershed.
Soil erosion, land degradation	Very High	Very serious issue in private small land holdings. No attention paid by private land holders.
Household garbage and waste disposal to the river	Very High	This was seen in almost all the villages and urbanized locations along the river.
Sand mining in/along the river	High	Middle part of the catchment. Sand mining reduced due to lack of sand mining locations in the river.
During droughts, water level goes down and solid waste is deposited in the water ways and the river basin	High	A major issue in all locations. Particularly extensive use of polythene.
Breeding of mosquitoes and spread of diseases	High	Almost all locations. Problem is acute in areas close to the river and urban centers such as Dippitya and Ussapitiya.

Major Issue/Problem identified	Importance	Description
Drying up of wells, streams and water shortages	High	Particularly in upper stream areas. Illegal water tapping and no systematic water distribution.
Decline of water quality and the threat of water-borne diseases	High	Almost all locations.
Improper toilet use and poor sanitation practices	Very high	Severe problem in the estates located near the upper streams.
Both from agricultural lands and industries, chemicals reach the river water	High	Major problem for locations in both sides of the river.
Pollution of river by wastes from toilets, urban garbage	Very High	Major problem in the urbanized areas along the river.

6. SKS - Action Plans[66]

470. With the overview of issues, each SK then entered into their own planning process. One SK plan is presented here. SK 1 covers approximately 3,713 ha with a population of 16,061. The boundaries to the north are with Mawanalla, in the east with Hettimulla and on the south with Yatiyanthota. The land use includes about 265 ha under paddy and about 2,000 ha under other crops, usually in plots of land of less than 0.8 ha.

471. **Problems identified.** The following priority issues were identified by the participants:

- Deforestation and decline of forest cover;
- Soil erosion and damages to river bunds;
- Inadequate attention to proper toilet use and poor sanitary practices;
- Scarcity of drinking water and pollution of drinking water;
- Removal of domestic wastes into Maha Oya and other natural water ways; and
- Encroachments in Maha Oya reservations.

Table 37: Distribution Issues by GN Divisions

GN Division	Deforestation	Soil erosion	Poor sanitary practices	Scarcity of drinking water	Removal of domestic wastes in to Maha Oya	Encroachments	Poor use of agricultural lands
Udawewala	No	No	No	No	No	No	**High**
Galathara	No	No	No	No	No	No	**High**
Kandewaththa	No	No	No	No	No	No	Moderate
Apalawa Waththa	No	No	No	No	No	No	Moderate
Wakirigala	No	No	No	No	No	No	Moderate
Deewela Udagama	No	No	No	No	No	No	No
Asmadala	No	No	No	No	No	No	No
Kanda Mulla	No	No	No	No	No	No	No
Debathgama Pallegama	No	No	**High**	**High**	Moderate	No	No
Kalugala	Low	**High**	**High**	No	No	No	No
Kumarapura	Moderate	Low	No	**High**	Low	Low	No
Kehelwaththa	No	No	Low	No	No	No	No
Dampalgoda	No	No	Low	No	No	No	No
Ganthuna Udagama	**High**	Moderate	No	No	No	Moderate	No
Jambugasmada	**High**	Low	No	No	No	Moderate	No
Ganthuna Madagama	No	No	No	No	No	No	

Categorization based on percentage participants identifying the issue as acute. High: >70%; Moderate: 70–40%; Low < 40%.

[66] Actions plans for all SK are presented in Volume III and in the GreenTech Ltd Report (see Mid-term Report).

472. **Action responses**. Participants spent time identifying preferred responses to address the priority issues (see Table 38) with the process revealing a good knowledge of potential solutions and preferred programs.

Table 38: Community Action Plan

Issue/ Problem	Proposed actions to solve the problem	Place	Responsible Organization	Responsible CBOs
Deforestation	Awareness creation and provision of knowledge to people.	Ganthuna Udagama, Jambugasmada, Kumarapura, Kalugala	CEA, PS, DS, Police, DA	FO, Parisara Kamitu, SS
	Setting up plant nurseries.	Ganthuna Udagama, Jambugasmada, Kumarapura, Kalugala	DA, FD, CEA	FO, SS
	Practice soil conservation methods.	Ganthuna Udagama, Jambugasmada, Kumarapura, Kalugala	DA, CEA	VO
	Strengthening of rules and regulations.	For the total zone	GN, DS, Police	VO
Poor use of agricultural land	Provide necessary knowledge to officers.	Udawewala, Galathara, Kandewaththa, Apalawa Waththa, Wakirigala	DA, DS	FO, RDS
	Improve the irrigation system and provide knowledge on proper water use.	Udawewala, Galathara, Kandewaththa, Apalawa Waththa, Wakirigala	Govijana Kendraya	FO, RDS
	Prohibit use of paddy lands for construction work.	For the total zone	DA, GN	FO
	Provide legal support to clear land ownership issues.	For the total zone	DS, DA, Agriculture Development Officer	VO
Scarcity of Water	Awareness creation and provision of knowledge to people.	Debathgama Pallegama, Kumarapura	PC, PS, Water Board, DS	FO, RDS, WO
	Identify target places.	For the total zone	PC, PS, Water Board, DS	FO, RDS, WO
	Planning of water supply systems.	Debathgama Pallegama, Kumarapura	PC, PS, Water Board, DS	FO, RDS, WO
	Construction of rainwater tanks, common wells, tube wells.	Debathgama Pallegama, Kumarapura	PC, PS, Water Board, DS	FO, RDS, WO

CEA -Central Environment Authority
DA -Department of Agriculture
DS -Divisional Secretariat
FD -Forest Department
FO -Farmer Organizations
GN -Gram Niladhari
PC -Provincial Council
PS -Pradeshiya Sabha
RDS -Rural Development Society
SS -Samurdhi Samithiya
VO -Volunteer Organizations
WO -Welfare organization

473. The process continued to work with the community groups and stakeholders to clarify physical targets for the proposed action plans. The targets have been used to develop an indicative investment package for each of the SK case study which were used to specify the overall investment program.

7. Lessons Learned and Conclusions

a. Technical feasibility assessments

474. The SK plans were developed through field level consultation and based on community experiences. The ideographic knowledge may have limitations, for example, soil conservation methods proposed may need further fine-tuning through proper measurement, suitable methods, and compost preparation should include an assessment of both demand and supply. As such while the process provided evidence of a capacity and willingness to plan, the planning outcome will benefit from increased technical input. SK processes need access to technical feasibility assessment of actions proposed before forwarding them for funding, a function that currently fits the mandate and jurisdiction of the DS.

b. Social communication and awareness creation at SKS level

475. The SK is new and will need to be marketed among agencies who have mandates and jurisdictions in or adjacent to the planning process. It is important that SK should not be another project initiative but preferably more of a community and local initiative. To create understanding and greater social recognition, clear social communication and awareness creation should be included during the pilot program.

c. Training and capacity building

476. SK consists of stakeholders, CBO representatives and local officials such as GN and Samurdhi farmers. Their interest and line of responsibilities differ leading to issues regarding work sharing, monitoring and fund utilization. Some members can act as “task coordinators” or designated officials for implementation of special activities or NREM services by the DS. Proper training and orientation for task coordinators, volunteers, as well as CBO representatives are required to improve their capacities to provide natural resource services at local level.

d. Networking and coordination

477. As revealed during the consultation workshops there are a number of activities that are to be carried out in conjunction with other SKS units. This inter-SKS linkages and relationships should be built gradually and on an as needed basis. NGOs, CBOs and other interest groups must be involved as partners in the process of implementation of inter-zonal projects. Although there is no need for establishing a separate institutional mechanism for this purpose, a physical system (local resource management center[67]) in each zone (or PPM) will promote a sense of wellbeing among local stakeholders, school children, interest groups and private property owners in the area.

e. Technical and financial investment for zonal activities

478. Participants identified that not all activities require outside support. At the SK level there are two or three types of activities:

- Those activities at the micro or household levels such as re-plantation of reservations, home gardening and household compost pits which do not require outside assistance. Most of such activities could be incorporated or implemented through existing programs of government agencies and DS office.

- Activities requiring technical support such as feasibility assessment, training and awareness building, etc. Such activities may or may not have existing financial outlay.

[67] The investment plan for the pilot province includes these resources through the information groups.

- Activities that form inter-SKS and inter-divisional programs such as soil conservation, re-establishment of reservations, sanitation facilities, etc. These projects need financial support and input from outside technical expertise.

f. Prospects and challenges

479. There are positive and inhibiting factors that need to be addressed in the collaborative NREM (CREST) program. On the positive side, the presence of dynamic government officials and leadership of DS in the area will be the key strength of the process. There are also interest groups such as NGOs and strong CBOs at grassroots level who are interested and prepared to take responsibility to implement various NREM initiatives. As far as linking livelihood activities with resource utilization goes, small groups formed by women under Samurdhi for micro-credit and savings could be used as a local mechanism for community resource mobilization.

480. On the other hand, the community as a whole often lacks concern for the environment and natural resource conservation placing greater priority on immediate livelihood needs.[68] Current attitudes towards safe environment, irresponsible practices of waste disposal, lack of ethnic harmony and limited adherence to rule for collective actions on NREM initiatives pose challenges and require education and awareness programs. This difficulty is reinforced by the low degree of community trust in government institutions to address such problems due to: (i) no proper legal action against environmental polluters; (ii) a lack of effort by law enforcement authorities such as the police; and (iii) a lack of action taken to resolve land disputes and reservation and riverbed cultivation, etc.

481. Clearly there is a role for mobilizing local communities as partners in NREM at stages of the management cycle including planning, implementation and monitoring and evaluation.

C. Ecologically Sensitive Areas – Koggala Wetlands Management Case Study

482. The approach, as described in the Aranayake case study, is necessary for most rural landscapes where there is more balance between conservation and livelihood or development goals with higher conservation goals. The management of ESA raises additional management challenges as these elevate ecological objectives above those of most resource users. While ecological integrity may support the livelihood of local stakeholders, often the benefits flow to either the public good or to offsite private benefits.

483. To provide for these management needs, a second case study used the CREST program to assess local NREM systems using Koggala Wetlands as an indicative site. The case study aimed to test and review the CREST proposal and to use the proposal to define indicative investment needs.

484. In early 2004, the GOSL approved a wetlands policy statement based on the lessons learned and developed from previous wetlands projects supported by the RNE from 1991 to 1995. This initiative reviewed Sri Lanka's wetlands and undertook a number of site assessments and management planning exercises. The project was a response to the GOSL's signing of the RAMSAR Convention in 1990 when it was agreed that most "wetland ecosystems are presently indiscriminately exploited for residential, industrial, commercial and agricultural development and its increasing pace, as dumping grounds for industrial and urban refuse". In common opinion it was concluded that wetlands were then considered wastelands.

[68] This is a common finding of most livelihood programs using the Livelihood Framework, and requires particular attention to be applied to the issue of short versus long-term livelihood strategies.

485. Management of wetlands was considered difficult due to a number of factors:

- Prioritizing for protection was impossible since knowledge in wetlands was not well documented and often diffuse;
- Determination of site specific conservation measures was not possible since up-to-date data on the type and severity of threats for individual wetlands were missing;
- No blueprint or plan was available;
- No wetlands protection strategy existed since there was no specific government "wetlands agency"; and
- Existing legislation was inadequate for ecosystem conservation as it was single sector based.

486. In response, the GOSL established a National Wetlands Steering Committee and completed 10 wetlands conservation management plans and site assessments for a further 15 wetlands. The project developed a wetlands cell in the CEA with support for capacity building during the process of project implementation. The project was followed up with a further initiative which sought to implement a planning process at Muthurajawela marshes and Negombo lagoon. Through these initiatives the GOSL has recently promulgated a National Wetlands Policy, but there has been no commensurate improvement in the implementation of effective wetlands management.

D. The National Wetlands Policy

487. The policy defines the role of wetlands in the following manner:

- *Wetlands*, which are a national heritage, need to be conserved, restored and sustainably managed for the benefit of present and future generations, recognizing that they are environmentally sensitive and ecologically important areas.

- *Wetlands* provide important ecosystem services including flood retention and detention areas; sediment traps; sources of water; aquatic habitats; source of groundwater replenishment; source of natural products and raw materials and sites for recreation and tourism.

- *Wetlands* also represent a unique biodiversity, green lungs of the cities, kidneys of the landscape, field laboratories of nature and provider for agriculture.

488. This policy seeks to be consonant with, and give effect to, the NEP and other national policies while respecting national commitments toward relevant international conventions, protocols, treaties and agreements to which Sri Lanka is a party, including the Ramsar Convention on Wetlands of International Importance (1971), the Convention on Conservation of Migratory Species of Wild Animals (1979) and the Convention on Biological Diversity (1992).

489. The need for a National Policy on Wetlands was defined in terms of:

- Wetlands are threatened by human activities including reclamation, waste disposal, industrial and domestic effluent discharge, harvesting of vegetation for firewood and other uses and invasive exotic species. The degradation of wetland habitats carries a high economic, social and ecological cost.

- Although a number of legislative and policy instruments impact on wetlands management, a separate policy framework is desirable in view of the specific threats these ecosystems face and the opportunities they offer for sustainable management.

490. The policy clearly positions the issue of wetlands within the scope of the investment plan in terms of protection of ecological services and links to the tourism and recreation industry. The objectives of this policy are to:

- protect and conserve wetland ecosystems;
- prevent illegal utilization of wetlands;
- restore and maintain the biological diversity and productivity of wetlands;
- enhance ecosystem services from wetland habitats;
- assure sustainable use of wetlands and traditional practices by local communities; and
- meet national commitments as a signatory to the Ramsar Convention on Wetlands.

491. **Institutional context.** Institutionally, Sri Lanka wetlands often fall into "no man's land" with authority, jurisdiction and mandates being widely spread. Wetlands represent the typical institutional framework for Sri Lanka as they require cross-sectoral management inputs from a sector-based administration. This is further compounded by management needs being defined by ecosystem boundaries and not administrative regions. As such most cut across jurisdictions of local administrations and other landholding agencies. The institutional need is to develop a mechanism that provides the necessary horizontal interplay between agencies and interests as well as the necessary vertical interplay for coordination purposes while not reaching to levels that make the management problem redundant. While these needs refer to agency and public institutions they also refer to the community and user institutions which lie outside the public sector.

492. While coordination mechanisms can be built it does not ensure good governance which given the threats to wetlands remains a significant implementation issue. In this regard, the ongoing solid waste problem, the reclamation of wetlands and the illegal encroachment are key issues. For these reasons, the building of responsibility for specific sites at the local community level is a strong recommendation of both the new policy and the proposed arrangements for implementation of the management plans.

493. The policy states "*Local Level Wetlands Management Committees will be established with the assistance of government agencies responsible for wetlands, under the provisions of the National Environment Act and divisional, district and provincial level committees will be established as appropriate to facilitate these committees*" and that "*the principles of sound wetlands ecosystem management will be integrated into sectoral plans at all levels. Development activities in wetland areas will be required to be consistent with such plans*".

494. The management framework for wetlands will be site-based management facilitated through coordinating committees. The policy states that "*A multi-stakeholder National Wetlands Steering Committee will be established for the purpose of advising on wetland issues and a National Wetlands Management Unit established by MENR to oversee and facilitate policy implementation*". In the short term, the policy proposed that wetlands be gazetted under provisions of the NEA as ESAs while in the medium term a Wetlands Management Act will be developed. Since its preparation, the provision for gazetting areas has been ruled by the Legal Draftsman Office to lie outside the powers of the NEA and as such the policy proposal is being revisited.

E. Management Guidance

495. The policy provides a basis for developing delivery systems and mechanisms to ensure that these are sustained by stating that:

- All wetlands will be zoned and classified according to the levels of ecological, utilitarian, international, national and local significance, inventorized with clearly defined ownership through appropriate legal reforms where necessary, and managed sustainably on the basis of appropriate management mechanisms.
- Privately owned wetlands will be brought under appropriate management systems, if necessary through appropriate legal reforms.
- Wetlands management will be integrated into land use plans at all levels.
- The restoration of degraded wetlands will be given priority.
- Sustainable use and equitable benefit sharing, habitat conservation and integrated management at all stages, will involve participatory and collaborative processes.
- Active and informed participation of civil society in the conservation of wetlands will be encouraged.
- Sustainable financing mechanisms through local and foreign sources will be developed for the management and wise use of wetlands.

F. Strategy for Ecologically Sensitive Areas

496. It is proposed to apply a similar vision as the one used for the integrated NREM landscape program using the CREST planning process in tandem with developing the necessary institutional framework for site management. Once a management system and plan are in place investment resources would flow to the outcomes of the ESA - site-based planning process. Investment would be required to both create a financing mechanism for delivery of services and for supporting programs defined within the proposed decentralized planning framework.

497. The ESA program is defined based on the Koggala case study site and is built on the social and institutional consultation undertaken. Koggala Wetlands has ecological attributes that typify those of ESAs and was therefore used as a typical site from which an indicative investment profile was prepared to define the investment package for an agreed number of ESA sites. The Koggala Wetlands Plan and the recent Special Area Management Plan were used to guide the investment design. Koggala offers the advantage of already having an existing, albeit dated, management plan which serves as a good resource document for the purpose of designing the investment.[69]

498. Currently the management plan has the following investment requirements identified:

- Formation of local wetlands institutions:
  a. Management planning;
  b. Use rights, land ownership and jurisdiction. This would include the issuance of formal user right to current fishers with agreed catch rates;
- Monitoring and evaluation;
- Hydrologic studies for rehabilitation:
  a. Shrimp production;
  b. Fish production;
  c. Mangrove use;
  d. Ecological functions;

[69] The recommendations for Koggala Wetlands were developed prior to the Boxing Day 2004 tsunami which impacted the wider region.

- Salt exclusion management program;
- Management conservation programs;
- Environmental protection program:
  a. Economic development zone water treatment;
- Eco-tourism attraction development;
- Visitor center and recreation programs for day visitation;
- Excursions;
- Bird watching;
- Wetlands tourism and canoeing;
- Sanitation facilities for visitors and local communities;
- Upstream industries management for water quality, the use of the cleaner production center and their programs;
- Financing systems based on visitor fees, cutting rights, flood beneficiary fees and use right fees or contributions; and
- CEA environmental monitoring.

G. Koggala Wetlands Case Study

499. Koggala Wetlands is situated along the southern coast 15 km east of Galle and is solely situated in the Galle District of the Southern Province. The lagoon which covers 727 ha and its catchment come under the jurisdiction of Imaduwa, Akmeemana and Habaraduwa DS areas. The lagoon area is surrounded by a narrow mangrove and marsh area, paddy lands and a wider catchment of some 64 km^2, characterized by coconut, tea and rubber plantations and the remains of secondary jungle. Along the southern border there is a 0.5 to 1 km coastal belt that includes the 3rd International Free Trade Zone, a small airforce base and tourist resort.

500. There have been different attempts to manage the lagoon hydrology, including opening of the sand bar, resulting in the inundation of over 200 ha of paddy land with salt water that have transformed into marshes with considerable conservation value. Further, it moved the sand barrier and as a result the Provincial Council constructed a new groyne system. This increased the overall salinity which resulted in the Irrigation Department building three dams and a 3 km bund to manage the intrusion of salt water. To support this, they introduced the Pilana Warabokka Salt Water Exclusion Scheme protecting 710 ha of paddy lands. This sequence of linked action - response actions by differing agencies is typical of the difficulties facing management of wetlands within one system of agreed objectives. Instead management is based on a series of sectoral and provincial initiatives each pursuing their own interests and often conflicting objectives.

501. The main economic activities of the Koggala system are agriculture, fishing and tourism. The main agricultural crops are coconut, paddy, cinnamon, tea and rubber. In more recent times there has been an increasing trend for agricultural land to be converted into other uses. The coir industry is an important employment sector especially for women. The Koggala Free Trade Zone has had a significant impact on the local economy. Many families are increasingly linked to tourism, in paid employment, or the provision of services to factory workers.

1. Case Study Process

502. The process used was essentially the same as that applied in Aranayake but with modifications. The initial stakeholder forum was organized through the District Secretariat as the wetlands site does not rate as a high priority at the provincial level. Secondly, the definition of SK were restricted in that they all fell within the boundaries of a DS but did not include the total DS region. The overall process was based on an initial district level consultation, then a series of divisional SK forums through which action plans were developed and then completed with a coordination meeting at the District Secretariat.

503. The following sections outline the action planning process at the divisional level.

a. Akmeemana Division (SK) Plan

504. Akmeemana is located in the upper elevation of the wetlands and considered as an important conservation area. The DS area consists of 58 GN divisions, however only 14 fall within the Koggala Wetlands area.

505. **Demographic characteristics.** The total 2002 population in the division is approximately 64,000 comprising 96% Sinhalese and 3% Muslims who mostly live in small townships. Tamil and other ethnic groups consist less than 1% of the total population. The density of population is rapidly increasing in the area and currently ranges from over 5,000 to as low as 160 by GN division. The trend of increasing population density is matched with an increasing price of land and resulting in the conversion out of traditional agricultural productions.

506. **Key wetlands management issues.** The divisional level consultation identified several problems related to wetlands including soil erosion, scarcity of water for cultivation and domestic purposes, large-scale quarries, illegal settlements, poor toilet and sanitary facilities, accumulation of red soil and declining soil fertility. These issues are not common to all GN divisions (see Table 39).

Table 39: Major NRE Issues Associated with the Wetlands Area of Akmeemana

Major Issue/Problem identified	Magnitude	GN Divisions affected
Water scarcity and drying up of lowlands	Very High	Problem is acute in 4 GN divisions in the upper reach of the wetlands - Pilana, Meegoda, Padinnoruwa, Hiyara North
Soil erosion, land degradation	Very High	Very serious issue in private small land holdings - Pinnaduwa, Thalahitiyawa, Kadurugashena
Household garbage and waste disposal into the river	High	This has seen almost all the villages and urbanized locations - Akmeemana, Pilana, Padinnoruwa, Hadugoda, Meegoda
Flooding	High	Water stagnation due to blocking of waterways - Padinnoruwa, Thalahitiyawa
Large-scale quarries	Very High	Major problem due to political support and lack of legal actions against this - Pinnaduwa, Thalahitiyawa
Illegal settlements in high slope areas	High	Pilana, Halgasmulla, Eluwilayaya
Drinking water scarcity. Drying up of wells, streams and water sources	Very High	Particularly in upper stream areas. Illegal water tapping and no systematic water distribution - Meegoda, Nivithipitigoda, Hiyara North, Halgasmulla, Hadugoda, Mataramba
Accumulation of red soil in paddy lands	Very High	Pinnaduwa, Hadugoda, Amukotuwa
Improper toilet usage and poor sanitary practices	Very high	Thalahitiyawa
Problems arising due to new highway	High	Water logging, increase of mosquitoes breeding places – Halgasmulla

507. The stakeholder consultation process prepared indicative actions plans for priority issues (see Table 40) that were used for planning purposes and to develop detailed implementation plans during the SK consultative workshops.

Table 40: Action Plan to Resolve and Mitigate NRE Issues in the Akmeemana DS

Issues	Solution/Mitigatory Measures	Main Agencies Responsible	External Support Needed	Physical Targets	Tentative Cost Estimation
Scarcity of water for cultivation. This issue arises due to digging of Pilana Ela by private contractors without a proper plan. As a result the water level has decreased than the level of paddy fields.	• This is the starting point of the Pilana Ela. Increase the height of the outlet. • Provision of a proper plan for digging. • Provide financial and technical facilities to farmer organizations to construct small dam.	Department of Agrarian Services (DAS), Irrigation Department and DS Office. FO could undertake the community contracts.	Prepare an irrigation design and small grants for FO to construct the dam.	• Preparing of technical designs by the Provincial Irrigation Department and Department of Agrarian Services for the Pilana Ela reconstruction. • One person-month of technical input from engineers.	Consultant: Rs.150.000. Reconstruction through community contract by the FO; approximate cost/grant Rs.250.000.
Large-scale quarries causing NRE problems. There are 3-10 quarries recently started and operating and no agency taking adequate actions.	• It is essential to stop environmentally harmful activities in the area. • Strengthening of rules and regulations against illegal activities in the protected areas.	Pradeshiya Sabha (PS) must take strict actions. DS office should restrict issue of permits. Police and CBO can work together to minimize environmental effects.	Proper coordination among agencies. Networking of institutions.	• Policy decisions and institutional coordination required. • PS should not issue permits.	
Soil erosion. Cultivation of high elevation tea small holding etc. Start of factories	• Limit or stop excessive land de-fragmentation activities done by the large-scale companies. • Introduce proper soil conservation systems.	DS Office, DAS. NGO for awareness building.	Maintain proper linkage between government organizations.	• Land use planning for each land plots in the high elevation area. At least 300 land plots covering 80 acres need soil conservation. • Institutional coordination between TSHDA and DS office required. • Introduce income-generation activities (IGA) such as livestock and plant nurseries (120).	1 acre requires 840 m of soil conservation. 120 IGA unit for poor women @ Rs 1,500 = Rs.180,000.
Flooding. This is due to the blocking of natural waterways by excessive land de-fragmentation activities and constructions works.	• Strengthening of rules and regulation against land de-fragmentation and land regularization.	DS Office. FO. PS.		• Institutional coordination. • Action against polluters. • Restrict issuing permits for construction work in sensitive areas.	
Accumulation of red soil in paddy lands. Clearance of productive lands for large-scale construction works due to urbanization.	• Stop excessive land de-fragmentation activities done by the large-scale companies. • Introduce proper soil conservation systems.	PS. DS Office		• Land development in coordination with RDA.. • Compensation from RDA for the land accumulated red soil due to highway construction.	
Poor sanitary practices. Poverty and lack of awareness, discharge of garbage and fecal matters to Madola.	• Financial facilities to construct toilets. • Awareness programs on correct sanitary practices.	DS Office. NGOs and CBOs.		• GN level community health awareness programs=20-30 participants. • Provision of latrines for 200 households.	Rs.30,000/program. Latrines Rs.2.000/unit

Issues	Solution/Mitigatory Measures	Main Agencies Responsible	External Support Needed	Physical Targets	Tentative Cost Estimation
Scarcity of drinking water. Due to clearing of trees, setting up quarries for stones, highland tea cultivation and drying of streams. This is due to "Hirigal" pits (Eluwila yaya).	• Extend the existing drinking water supply project. This project is administrated by the Water Consumer's Society with the help of Samurdi animator and DS office. • This is due to the large-scale quarries. It is therefore essential to stop environmentally harmful activities in the area. • Construction of a tank to collect water coming from Mabaula protected area. • Stop illegal environmental activities in the area		Financial support from GOSL or another funding agency to extend the project for other 25 families.	• One (1) community water resource conservation activities: Micro-project for 12 GN divisions located in sensitive areas. Micro-project implementations through Village Environment Committees. • Financial support to construct tube wells (10).	Package cost for a micro-project is Rs.40.000. One (1) community water supply scheme: Tentative cost: Rs.250.000. At present their rural development society has Rs.50,000.
New settlements in unsuitable areas (Slope >60o). Due to lack of legal actions and political patronage some powerful persons support their clients to encroach lands.	• Strengthening of rules and regulations. • Maintain proper linkage between government organizations.	DS Office. Police		• Policy and institutional coordination. • Allocation of land for second generation families. • Land regularization by DS office. Incentive and Expedite land legalization program. • Settlement and zoning plans for easy reference.	Cost Rs.120.000/plot.
Problems arise due to new highway. Water logging and increase of mosquitoes breeding places.	• Conduct EIA. • Provide compensation for the people affected.	DS Office, PS, NGOs		• Institutional coordination between RDA and DS office. • Compensation and rehabilitation of damaged waterways through RDA and PS funds.	

508. The action plans and process outcomes for the other two SK divisions are provided in Appendix 13, Volume III, and highlight different resource use patterns within the overall wetlands. The coastal belt (Habaraduwa DS) focused on issues linked to the changing hydrology and the effects of increased salinity on fisheries and tourism, the loss of water quality and safe access to drinking water due to the effects of the industrial estate, excessive use of fertilizers upstream, and land ownership relating to the use of islands. The central SK was based within Imaduwa DS with priority issues linked again to changing salinity and its effects on land use, water supply, the presence of waterborne diseases, odors, smells and pollution from Koggala industrial estate and the effects of upstream land uses.

509. An important lesson from the Koggala case study was that one of the biggest benefits of the proposed approach was the provision of platforms for collective discussions and agreement which often provided parties with the first chance to address issues of their interaction and the need to manage externalities of resource use. One example was a discussion on the intensification of land use in the upper catchment due to increased population and the lack of alternative employment. These stakeholders felt little or no opportunity and responded by increasing output with the use of agrichemicals and fertilizer. This was perceived to significantly impact downstream stakeholders including the tourism sector that was selling lagoon experiences. The tourism sector also required additional labor and employees that could be supplied from the upper catchment area as opposed to workers from other regions. The provision of horizontal interplay opportunities provided a strong basis for moving towards a collective win:win response. The CREST planning model worked well in the differentiated SK that were defined within the administrative boundaries. The linkages between SK are intensive placing increased importance on the consolidation of the SK plans into an overall management plan to address the externalities. Given the predominance of ecological objectives associated with ESAs this is not surprising if the management of Koggala is to be effective.

510. There was significant interest from all stakeholders, however a combination of interagency competition (especially between local and line agencies) and the lack of priority assigned to Koggala by the Provincial Council meant that previous management attempts failed to develop consensus on the problems to be addressed. An important difference at Koggala was the presence of strong NGO, CBO and private sector groups on which implementation programs should be developed. Most of these groups were rated as being important for implementation programs by other stakeholders.

511. The case study planning process was able to clearly demarcate roles and responsibilities in what can only be described as a complex ecosystem and an equally complex institutional and agency environment (for Koggala, see Table 41).

Table 41: Stakeholder Guidelines and Indicators for Implementation and Monitoring Wetlands

Key Activities	Stakeholder(s)	Interest Groups	Guidelines	Monitoring Indicators
Soil conservation in the upper elevation (Akmeemana)	DS Office Agrarian Dept TSHDA NGOs	FO Env. Societies CBOs	• Identify locations • Provide training and incentives	• Extent of protection • Number of persons engaged • CBO participation
Industrial waste disposal	Hotels Factories DS Office NGOs Municipal Councils Pradeshiya Sabha	NGOs Env .Societies CBOs	• Identify locations • Implement 'polluter pay' systems • Introduce new and safe methods	• Reduction in environmental damages • Participation of stakeholder • Number of meetings conducted
Protection of traditional fish and medicinal plants	Fisheries Dept Agrarian Dept Wild Life Dept	NGOs Env .Societies CBOs	• Provide training and incentives • Increase awareness	• Number of persons engaged • CBO participation
Land regularization and protection of sensitive areas	DS Police CEA Survey Dept Forest Dept	Farmer Organizations Trade Associations Env. Groups NGOs	• Obtain political support and technical facilities • Establish a coordination unit for land legalization • Involve NGOs and CBOs in community mapping	• Extent of land encroached cleared • Type of legal disputes resolved • Number of families obtain titles
Water resources (streams) protection	DS Forest Dept Agriculture Dept	Farmer Organizations Trade Associations Env. Groups NGOs	• Awareness programs • Plan and implement community water supply schemes • Implement soil conservation practices • Prevent solid waste disposal to waterways	• Number of persons with access to safe water • Reduction in waterborne diseases • Number of acres under soil conservation • Number of km of clean water stretches
Stop salt water intrusion into paddy lands	DS CEA Forest Dept Agriculture Dept	Farmer Organizations Trade Associations Env. Groups NGOs	• Construction of appropriate bunds • Investigations into appropriate methods of preventing salt water intrusion	• pH levels of the soil • Re-emergence of traditional plant and fish species • Monitoring of water level rises and decreases
Re-plantation in cleared forest areas	Forest Wild Life Dept Village Environmental Committees NGOs	NGOs School Environment Societies Highland Farmers	• Participatory mapping of locations with NGOs and CBOs	• Extent of reforestation • Number of community projects implemented • Amount of forest resources harvested • Number of persons participated in community projects
Provision of safe drinking water		Water Consumers Society NGOs	• Plan and implement community water supply schemes	• Number of persons with access to safe water • Reduction in waterborne diseases
Provision for toilets and sanitary facilities	DS	CBOs Env. Groups	• Identify beneficiaries • Training and awareness • Coordination of implementation	• Level of adoption of better sanitary practices • Reduction of diseases • Number of persons supported

V. PROGRAM DESCRIPTION

A. Program Goal

512. The **goal** of the program is "To ensure the provision of ecological services through appropriate use of natural resources and the environment so that livelihoods are both improved and sustained". The program will enable Sri Lanka to introduce planned improvement in the sustainability of rural livelihood through ecologically sustainable use of natural resources. The outcome of the program will be to increase livelihood while concurrently improving the management of ecological services. This will be achieved through investment in sub-national demand-driven community livelihood improvement defined through collaborative planning systems to ensure the sustainable use of natural resources.

B. Component One: Collaborative Landscape Management of Natural Resource and Environment-based Sustainable Livelihood

513. This component will introduce programs planned to improve the management of natural resources within a wider rural landscape based on ecologically sustainable livelihood. This will require local needs to be identified and included in development planning, and to manage environmental externalities and cross administrative border effects on the programs to minimize the loss of ecological integrity. The component will specifically address the stated policy goals of moving towards sustainable development.

1. Scope

514. The program is defined for a pilot implementation program based on Wayamba Province with an extension program to include Sabaragamuwa Province based on the evaluation of the CREST program implementation in Wayamba. The planning process is expected to take 15 months at which point it would be evaluated and refined. The first set of action plans will occur over a 3-year period. The second province will start at the end of year 2 and will require a 12-month planning process and 3-year investment implementation program. The overall timeline will be 6 years. Similar proposals are being used for the North East Coastal Communities Project and are also proposed for the Post-tsunami Southern Province Rehabilitation Program. This would suggest that a total of four provinces may implement the program by the end of the current planning window.

2. Sub-component One: Establishing Strengthened Structures, Processes and Institutions for Collaborative Sub-national NREM for Sustainable Livelihood

a. Agency support

515. The proposed use of CREST planning systems for sustainable livelihood is a new approach to sustainable development at the sub-national level. The program will therefore need to create awareness and understanding of the underlying principles as well as the detailed functional allocation. This will be achieved through the provision of information and skills required to implement the program.

516. The program will build the capacity of primary agencies and stakeholders in natural resources at all levels of the government administration including national, provincial, district, divisional and local authorities. The training will focus on building the understanding and skills to move forward on the notions of collaborative sub-national natural resource management through decentralization, deconcentration and devolution processes. The primary focus of the training will be at the provincial and divisional levels with an emphasis on training the membership of the PPS, Natural Resource Secretariat, Provincial Agencies and District Agents of line agencies. At the divisional level the training will focus on the membership of the PPM, DS and local authorities.

517. It is proposed the majority of training would be undertaken by the SLILG in conjunction with the MENR and its supporting agencies. Training will be needed in the current legal allocation of functions and responsibility, NEP, the proposed NREM framework and the CREST program, details of collaborative development, sustainable livelihood approaches and analytics, group formation, community mobilization, information and performance reporting, SEA, financial budgeting, project assessments, resource mobilization and the formation of savings and credit schemes for sustainable livelihood initiatives.

518. Resource mobilization at the sub-national level offers a number of opportunities, however, current capacity for introducing and managing such schemes is limited. Technical assistance is proposed for the implementation of a pilot province program to provide training of trainers and facilitators in the use of the sustainable livelihood framework, ecologically sustainable development, information systems, planning systems, financial management and information services. Further support is provided as technical backstopping of a pilot program and to design and oversee the implementation of the proposed process monitoring and evaluation program. After the evaluation, support is provided for legal drafting of the proposed NREM statutes, both at the national and provincial levels.

519. Program implementation is to occur through the existing institutions with leadership provided through the PPS which will be supported through an NRE taskforce formed as part of the provincial administration. The PPS would be supported through the provision of operational costs for forums and meetings, planning meetings, awareness and media programs and funding for SEA contracting. The NRE taskforce would play a major role in the coordination of provincial processes and would provide the daily operational support for implementation and monitoring. The NRE taskforce will also be supported with the provision of limited office support, equipment including IT equipment, photocopiers, digital cameras and projectors, and information storage systems including the capability to view maps (it is proposed that the LUPPD office would produce the maps).

520. A critical input and support role for the CREST program is the provision of information services and conflict resolution. The program will support the formation of these functions in terms of material development and operational costs for the pilot program.

521. The NRE secretariat will on behalf of the PPS identify planning facilitators who will be trained in the livelihood approach, CREST planning process, analytical methods and facilitation skills. It is anticipated that approximately 50 facilitators would be needed in each province based on a 12-month planning process. Of these, some 30 to 35 would be identified, trained and paid a stipend to complete the planning process. It is envisaged that the facilitators would be drawn from existing agency field staff, past and existing projects and the community itself. The remaining 15 facilitators would be recruited as volunteers for the planning process, who would be provided a slightly reduced training program and would act as a planning team assistant.

522. Divisional support will provide training inputs to the PPM and then fund the preparation of both SKS and PPM plans. The program will support planning process costs, information gathering and reporting costs.

523. National oversight is envisaged through the MENR with support from the MPCLG. For this purpose the Information Services Unit and the Natural Resource Division of MENR will form a CREST implementation unit. This unit will be supported in terms of limited IT application software, and for their operational costs to design, implement and evaluate the results of the CREST program monitoring system. This evaluation would be used to finalize program documentation, systems and procedures as well as provide input to the final drafting of the proposed NRE statutes. A specific sub-task would be to support and monitor resource mobilization programs for which it is proposed to form a team comprising the Provincial, MENR, and MOF representatives. The MENR Natural Resource Division will also be supported for a major review of sector compliance systems for which a taskforce comprising CEA, Judiciary,

eminent persons and NGOs would be a central part. This taskforce would be funded for strategic studies, information collection and awareness and media campaigns for communicating its findings.

b. Strengthening stakeholder participation

524. The program will prepare and support communities to participate in the planning process and implement livelihood development plans. Capacity building will be provided to community level CBO/NGOs delivered through NGO contracts and the CREST planning facilitators. The training will include awareness of the NREM framework and CREST programs, stakeholder rights and responsibilities, livelihood approaches and analytics, training to manage implementation, group formation, leadership and financial management. Where necessary, the program will fund demonstrations of new technology and activities, community monitoring and reporting systems.

525. A key output of this input will be to create demand-driven livelihood plans, the capacity and resources to implement and monitor these, increased governance through providing opportunities for expressing their views and having a voice of what occurs in their SK.

526. **At the CBO level,** group management, NRE awareness and rights training will be provided. Emphasis will be placed on participation of women and marginal groups (landless) in group formation for participation in both the planning and implementation of CREST programs. All groups will receive training in group leadership and group management with linkages to resource mobilization programs including the introduction of savings and credit programs that link to NRE programs.

527. The output will be for community stakeholders to be mobilized, form groups and participate more as equal partners able to identify, plan, implement and monitor programs for livelihood development that are ecologically sustainable.

528. **At the SKS level,** the program will support the provision of a broad awareness program for agency, private sector, stakeholders, DS and local authority staff. These programs will be linked to a series of stakeholder workshops that will define SK, form the PPM and support the SKS planning process with information services. At this level the training and awareness programs would be provided as part of mobilization programs, based on livelihood approaches, ecologically sustainable development, the CREST program, etc. Financial management, program design and assessment, and performance monitoring would be key training inputs at this level.

c. Support for establishing sector financing and PPM livelihood funds (PLF)

529. The program will emphasize the need for greater certainty over financing of plan implementation. The program will support the move to a sector fund for implementation programs that excludes government salaries and service provision costs while supporting the ongoing implementation of planned activities. The program funding will be used to form and capitalize the initial fund for which resource mobilization programs currently being defined by UNEP can contribute. There is no need for investment into the formation of the fund rather it falls into the realm of political and bureaucratic decision-making. Operational guidelines are provided in Appendix 10, Volume III.

530. The sustainability of financing will be supported at the PPM level as a pilot of the decentralized sector funding model. The PLF will finance plan implementation once plans are approved at the PPM level. The PLF will fund NRE and livelihood programs, as well as provide funds for enterprise innovation and technology innovation grants. Funding will also be provided to act as seed finance for the formation of savings and credit groups that would link to existing sources of microfinance in the medium term. Funds would flow from the National Sector Fund to

a bank account held by the PPM under the leadership of the local authority but requiring a dual signature of both the local authority and DS. Funds would be provided for livelihood programs that were included in the approved PPM plan and will include small-scale social infrastructure and income-generating programs. Initial financing would be provided as part of the pilot program but would then be revolved and supplemented with beneficiary cost recovery, community contributions and benevolent contributions. The sustainability of this fund is unknown, however the purpose of the pilot program is to test and identify options for resource mobilization and cost recovery to ensure the PPM is sustained. For this reason the program will provide technical assistance for resource mobilization by the PPMs and the communities they represent. The modality of financing implementation would include:

531. **Assistance to form savings and credit groups.** Here the program would provide funds to establish savings and credit groups focused on livelihood enhancement, including through ecologically benign use of natural resources and with a focus on women and landless households. Lending would follow the models of existing successful microfinance programs such as AF, Sarvoda, etc. and the funds will be on-lent to individual households for social distress or income-generation programs. The program would fund group formation processes and an initial seed capital for the groups formed.

532. **Support to prepare, assess and implement innovation grants.** A key reality facing Sri Lanka society, especially rural communities is the need to move away from their economic dependence on direct resource use. With continuing population growth labor needs to be used to add value to natural resources as the ability to gain income from resource use is limited by the availability of surplus natural resources. The fund will provide a limited number of small grants for novel enterprises (to be implemented through CBOs) that provide employment in non-direct use of resources which target landless households and marginal groups in society – such as women-headed households. The grants can include funds for improving the ability of rural target groups to compete for improved employment prospects, as well as value addition enterprises. The local Samurdhi officer will provide the key focal point in the PPM for this program.

533. **Support to introduce technology grants.** NGOs will be supported to demonstrate new non-traditional resource direct use programs and opportunities including water saving, organic agriculture, IPM, ecotourism development, husbandry and best management practices to address with local issues such as nitrate contamination, salinity, etc. These grants will be prepared by NGOs with proven experience and track records in the areas being proposed.

3. Sub-component Two: Investment for Natural Resource and Environment-based Sustainable Livelihood

534. The activities to be supported by the program are not prescribed in this section but will be identified, prioritized and implemented based on the introduction of the CREST program throughout each province. It is highly probable that new areas will prioritize new or unexpected programs which will be consistent with the lessons learned in nearly all sub-national rural livelihood and natural resource programs. As such the program will adopt a process orientation to provide both flexibility and responsiveness to local needs. Without a high degree of responsiveness the notion of subsidiarity and institutionalization of the program will be lost. As such resources will flow to plan outcomes that are linked to broad categories of allowable expenditure, such as being linked to both improved livelihood and being benign or complementary to ecological integrity. In addition funds can be used for small-scale social infrastructure and the provision of environmental services. Priority will be provided to those activities that are pro-poor and contribute the most towards ecological protection and improvement.

a. Resource mobilization and community-based savings and loans

535. Resource mobilization is a major challenge facing all sub-national governments in Sri Lanka. At the national level funds will be provided for policy research and development for resource mobilization. It is envisaged that these grants will go to academic and intellectual individuals that will develop the operational details of the recommendations provided by the UNEP study. These operational details would form the basis for policy and regulatory development programs under the leadership of the MENR and MOF who would through the use of a joint Cabinet paper propose to introduce a number of resource mobilization tools along with the public education and awareness program to enable the public to see how they will benefit.

536. Savings and credit groups linked to RALEs will be formed and trained to manage finances and project implementation. Training will be provided through contract by NGOs in group management and administration, basic financial systems and disbursement tracking, savings mobilization, credit management, monitoring and evaluation. Savings and credit will be used to provide cost recovery and beneficiary contributions to implementation programs that form the SKS plan and will provide a basis for developing true partnerships, building financial resilience and social capital in the communities as well as ensuring their voice in future decision-making as joint investors in implementation programs.

b. NRE program investments

537. The case studies and social assessment programs completed by the TA highlighted the likely programs to be included in the planning process. The critical message here is the centrality of water, its quality and access to water predominate the social context of people's livelihood, the ecology and sustainability of resource use. The major issues relate to obtaining services linked to: (i) reliable access to safe water; (ii) securing water quality; (iii) the associated need for improved sanitation and SWM; and (iv) the need to protect water supply capacity in catchments.

538. Community awareness is high of these issues but there needs to be systems that assist the community identify the linkages between land use, economic development and water supply and quality. Water–land linkages will develop with increased information and knowledge of local ecosystem links and functions. To support this, the program will provide support for: (i) local sanitation programs; (ii) SWM systems linked to livelihood; (iii) securing safe water supplies; and (iv) land management linked to water protection.

539. Support will also be provided for alternative income-generating activities and the introduction of best management practices. These programs will cost share training and extension services along with implementation grants through the innovation fund modality. This will include community infrastructure that will enable improved livelihood or environmental protection programs to be introduced.

c. Ecological integrity programs

540. Often, past development and programs have caused unwanted ecological effects that may need to be mitigated or remediated, e.g. the effects of sand mining on local communities and their water supplies, nitrate contamination of ground water and deforestation. Such programs will be prepared as part of the PPM plan and will be funded from the national sector fund on a competitive basis.

d. Service delivery programs

541. Funds will be available for the establishment of environment services at the local authority level. Such services could include sanitation services, waste collection, communal land protection, management of sand extraction, etc. These programs will involve training,

awareness and livelihood components and will be supportable from the national sector fund on a competitive basis with the exception that any salary or public sector costs will not be eligible as these are funded through existing GOSL mechanisms.

C. Component Two: Collaborative Management of Ecologically Sensitive Areas

542. Ecologically sensitive areas (ESA) have by simple definition a different set of priorities to the wider rural landscape addressed in component one. The priority for ESAs is to recognize these as differentiated management units, that prioritize environmental and ecological functionality, that require ecologically sustainable livelihood based on passive uses as well as direct use, and require an institutional basis for stakeholder management that is commensurate with both notion of subsidiarity and the scale of the ESA.

1. Scope

543. The program will pilot the application of the proposed CREST planning and implementation process in Koggala Wetlands and will then provide two additional funding packages for sites to be identified by the MENR in conjunction with the MPCLG during the implementation and evaluation of the Koggala program described below.

2. Sub-component One: Establishing Ecosystem-based NREM in Support of Improved Livelihood

544. Ecosystems-based management is increasingly applied in Sri Lanka but usually as a single sector approach. Area-based planning systems have been applied previously, especially the Special Area Management planning models, but these have rarely if ever addressed the full ecosystem, choosing instead partial systems linked to administrative boundaries which have invariably failed to deliver outcomes and be sustained despite their continued use to prepare plans. The proposed use of CREST planning systems for ecologically sustainable livelihood and management of ESAs is a new concept in Sri Lanka. The program will need to create awareness and understanding of the underlying principles as well as the detailed functional allocation. This will be achieved through the provision of information and skills required to implement the program and supporting investments to institutionalize implementation capacity.

545. The program will build the capacity of sub-national agencies and stakeholders in natural resource management at all levels of the government administration including national, provincial, district, divisional and local authority, and create a new level of management at the scale of the ecosystem itself. For a wetlands, this is not defined solely as the aquatic system but also the upstream and downstream linkages to the hydrology. Within this arrangement, training will focus on building the understanding skills to move forward on the notions of collaborative sub-national NREM through decentralization, deconcentration and devolution processes linked to the proposed NREM framework. The primary focus of the training will be at the divisional level with an emphasis on training the membership of the PPM, DS, local authorities and the local stakeholders.

546. As with component one, the majority of training would be undertaken by the SLILG, FD[70] and national NGOs in conjunction with the MENR and its supporting agencies. Training will be needed in the current legal allocation of functional responsibility, NEP, the proposed NREM framework, the CREST program, ecological sustainability, details of collaborative development, sustainable livelihood approaches and analytics, group formation, community mobilization, information and performance reporting, environmental assessment, financial budgeting, project assessments, resource mobilization and the formation of savings and credit schemes for sustainable livelihood initiatives.

[70] Based on the AusAID and FD NREM training program.

547. Resource mobilization at the sub-national level offers a number of opportunities, however, current capacity for introducing and managing such schemes is limited. Technical assistance provided under component one will be used to support this component in the same skill development areas. These include: training of trainers and facilitators in the use of the sustainable livelihood framework, ecologically sustainable development, information systems, planning systems, financial management and information services. Further support is provided for technical backstopping of the pilot Koggala Wetlands program, including to design and oversee the implementation of the planning system and the proposed process monitoring and evaluation program. Further support is provided for the development of a RALE for implementing the overall wetlands management plan based on the existing RALE defined within the coastal fisheries management program of the Fisheries Act. While not directly replicable, the underlying approach and powers associated with any community coastal management plan can be implemented by the community itself which is legally authorized to implement an approved plan. In the case of the ESA pilot, the CREST system will be used to develop a consolidated management plan using stakeholder participation and then a management entity will be formed for the purpose of having the authority of implementing the plan.

548. Program implementation is to occur through the existing institutions with leadership provided through the MENR in conjunction with the PPS (if formed) and the provincial NRE taskforce. The role of the MENR and PPS would be to identify the ESA and to hold initial meetings with the District Secretary in whose jurisdiction the ESA is located. This will require an ESA identification process for which purpose the MENR will be supported to define the criteria that will apply to the definition of ESA, and then supported to hold provincial workshops (2 days) for the identification of the most important ESAs. These areas would need to be recognized in the provincial strategic planning process with management objectives applied.

549. Once an ESA is declared in a mapping exercise it will need to be defined legally and gazetted. Current legal opinion is that there are inadequate provisions within the NEA for this purpose and that any gazetting will need to be achieved either through new legislation, such as the proposed NRE statute. This is important as it helps define the role of the CEA which was proposing itself as the policy-maker, management coordinator and regulator under the NEA provisions, something which is clearly a conflict of interest with a need to regulate its own planning outcomes.

550. The Provincial NRE Secretariat will identify planning facilitators to be trained in the livelihood approach, CREST planning process, analytical methods and facilitation skills. It is anticipated that approximately 12 to 15 facilitators would be needed in each province based on a 12-month planning process. Of these, 9 would be identified, trained and paid a stipend to complete the planning process. It is envisaged that the facilitators would be drawn from existing agency field staff, past and existing projects, and the community itself. The remaining 6 to 10 facilitators would be recruited as local volunteers for the planning process. The volunteers would be provided a slightly reduced training program and would act as a planning team assistant.

551. The program will provide support for training the PPM and would also fund the preparation of both SKS and PPM plans. As some ESA will traverse more than one division, the overall management plan would be prepared at the district level. Once a management plan is in place, an ESA management entity would be created to represent the diverse objectives and to implement the approved management plan.

552. National oversight is envisaged through the MENR with support from the CEA and MPCLG. For this purpose the Information Services Unit of MENR and the Wetlands Management Unit of the CEA will form a CREST Implementation Unit. This unit will be supported in terms of limited IT application software, and for their operational costs to design, implement and evaluate the results of the CREST ESA program monitoring system. A specific

sub-taskforce would be formed comprising the District Secretary, MENR and MOF representatives to support and monitor resource mobilization programs.

a. SKS-stakeholder identification and mobilization

553. The program will support the process of stakeholder identification and mobilization that will involve a public awareness and media campaign, a stakeholder forum for each of the SK. These programs will be developed as a joint exercise between local government and the DS and will work through NGO and private sector chambers, etc. to ensure opportunity to participate is provided to as many stakeholders as possible. Once underway the process will remain open for stakeholders and interest groups to enter. The first workshop will be used by the planning team, under leadership of the Provincial NRE taskforce, to define the SK and to confirm the boundaries on a map. The program will also support the Provincial NRE taskforce to collate and develop a database of all existing reports, datasets and maps relating to the Koggala Wetlands system. These datasets will be copied for use by the various SK planning teams and local stakeholders.

b. SKS planning

554. The CREST planning process will be implemented through each of the SK, with the program providing the identification of planning facilitators that would be trained and used in teams of three that would undertake a rapid assessment social scoping and NRE issue identification within the SK. This assessment phase would be used to create site specific assessment materials to be used as resources during the planning workshop, and will also enable marginalized stakeholders and the poor to be identified. For each SK, a NRE action planning workshop process would be supported by the program to develop a consensus on priority livelihood and NRE needs within the SK.

555. The outcome of the program would be a collective plan to address the needs of the wetlands and the livelihood of those that live within the SK and a clear statement of priorities and resource needs for implementing action plans along with issues that need to be addressed at a higher level.

c. ESA management planning and management entity

556. The development of a single Koggala NRE and ecologically sustainable livelihood management plan will be undertaken, in this case at the DS level. Support will be provided to hold a series of iterative workshops that would take the action plans of each SK and merge these into a single spatial and strategic plan. These workshops would form the basis of both the PPM and PPS plans under the CREST planning process and would address by defining the ecosystem and its boundaries, management priorities, current status and the preferred future status and devise a range of management strategies to achieve this. For this planning process to be successful and to ensure that short-term livelihood needs and desires are not prioritized at the cost of ecological sustainability, CEA wetlands staff, MENR Natural Resource Division staff, university and IUCN personnel would be included in the planning forums. Once a management plan is complete it will be passed to the media and public for comment and a last confirmation of content by the NRE taskforce and then will be ratified by the PPS.

557. Once ratified, the planning document will be used to develop an ESA management entity that will be formed according to the principles of the legal definition of community and stakeholders and using as a precedent the communities coastal fisheries management model. Once formed the entity will have the powers and authority to implement the management plan. The entity will need to be formed as a RALE to enable it to manage resources and enter into legal and economic contracts. The program will support the formation of the RALE, training and institutional strengthening programs linked to leaderships, working with communities and stakeholders, financial management and reporting. As a multi-stakeholder entity it will include

representatives of the private sector and retired public officials who will be able to apply the business and administrative skills they have to the entity. The Koggala management entity will have the powers to allocate resources, recover costs, charge fees, offer concessions and issue permits for the resources within the ecosystem boundaries. As an initial activity the entity will receive funds to implement the plan for the first year including the survey and demarcation of the ecosystem, management zonation, entrance gates and essential public services to create identifiable presence. The entity would receive funds from the program for a period of four years after which time it would be expected to mobilize resources for its ongoing plan implementation and maintenance some of which could be sought through competitive bidding to the proposed sector fund. The entity will be funded for a period of four years to undertake a monitoring and evaluation program that would be used to update the SKS plans in years 4 and 5. This program would be based on community and stakeholder monitoring with the results published in local and provincial media on a half-yearly basis.

558. The outcome of the program should be a fledgling ESA management entity with a strong management plan that is sustained at a level defined by field activities and charges.

d. National environmental policy and legal strengthening

559. Recent attempts to move wetlands management as a gazette notice under the NEA have failed due to lack of legal jurisdiction. Support will be provided for developing the legal basis for ESA gazette notification and their management. The program will provide limited technical assistance for the development of either legal amendments or sections to be included in the proposed NRE statute for this purpose. This will include wide public consultation to be undertaken by the MENR as part of the drafting program.

560. MENR will also receive operational support for an evaluation of each of the sites included in the program to assess process shortfalls and modifications and for the development of a directory of best management practices to be included in the MENR information services unit for future site management programs. Support will be in the form of training in evaluation, transport costs for MENR staff, and a limited budget to contract quantitative outcome surveys.

3. Sub-component Two: Investment in Ecologically Sensitive Area Management

561. The following activities are indicative only as the investment will flow to the plan outcomes and priorities.

a. Ecological restoration and protection

562. The project will support the implementation of the management plan including the demarcation of the ecosystems and its overall monitoring. Resources will be provided through a fund to be managed by the Koggala Wetlands management entity for a number of critical ecological investments which relate to the management of salinity intrusion, the lagoon outlet, the lagoon fishery and water quality, etc.

563. Management of the lagoon fishery will include agreed catch levels that are awarded to local fisher group or groups who will have the power to exclude others and self enforce the management of the fishery. Support will be provided for the development of a community fishery group, a fishery management plan and a fish offtake and stock monitoring program linked to the Koggala monitoring program. Support will be in the form of training for assessment techniques.

564. Water quality is one of the major threats to the ecosystem and arises from a number of sources including the industrial park, upstream agricultural practices, etc. The program will support a water quality monitoring program operated through community groups and schools that aims to identify sources of pollution. Resources will be provided for testing equipment, lab work and for community awareness and training meetings.

565. The ecological integrity of shoreline mangroves has been severely damaged and it is proposed that this be restored as part of the tourism and the fishery management objectives. The program will support a community program of vegetation management with the removal of invasive weeds and the re-establishment of shoreline mangroves in identified places.

566. The outcome will be a wetlands ecosystem with a sustainable fishery, with increased resilience to natural changes and external shocks that is able to increasingly meet the livelihood needs of local communities.

b. Livelihood improvement programs

567. The livelihood needs of local stakeholders will be supported through a range of inputs that include training and capacity building, the provision of sustainable financing, and enterprise development grants.

568. **Human capital.** One of the major risks confronting the Koggala Wetlands is the increasing population and the continued reliance on natural resource extraction for livelihood. While the manufacturing and industrial sectors are creating increased employment opportunities, most of the labor is obtained from in-migration involving people with the prerequisite skills to compete for employment. Opportunity exists for upskilling of local community under and unemployed to be trained to compete for jobs in the tourism and manufacturing sectors through the provision of vocational training opportunities.

569. **Social capital** will be built through the CREST planning and implementation process with the formation and strengthening of groups, empowerment of their roles in decision-making, and the operation of the Koggala management entity. Support will be provided for group formation and training in leadership, community mobilization, group management, negotiating and conflict resolution, and proposal writing.

570. **Financial capital** will be provided and made increasingly accessible through linking the savings and credit schemes to local stakeholders especially the poor and marginalized (often landless and women-headed households). Within each SK group formation will be encouraged and these will be networked with the current set of microfinance providers in the program site. Resources will be provided to mobilize the communities and form savings groups that are then linked to existing microfinance providers. Through this the beneficiary stakeholders will be able to participate in the implementation of the management plan including the cost recovery systems proposed to achieve a more sustainable program of implementation by the management entity.

571. **Physical capital including technology and social infrastructure.** The program will support the provision of grants for new enterprise development where there is a direct link to the management plan objectives. Support will be provided for programs that introduce SALT technology, IPM technology, organic production, reforestation and social forestry, irrigation rehabilitation and tourism product development including traditional boats, island-based tourism and eco-tourism services, and products such as boating and birding programs. This support will be channeled as grants through the Koggala management entity on a cost sharing basis.

572. Social infrastructure will be supported relating to sanitation and SWM will be provided as community social infrastructure programs on a cost recovery basis using current government or donor-assisted programs to protect the wellbeing of local stakeholders as well as the environmental quality of the ecosystem. Similarly, small-scale water supply schemes will be implemented to overcome water shortage and access issue for many of the existing and long-term stakeholders.

D. Component Three: Support for National Capacity to Monitor and Report Sector Performance

573. Component three aims to institutionalize the facilitation, support and policy analysis role of the MENR through the development of oversight functions, policy analysis and NRE monitoring. The outcome of the support targets the provision of improved information for decision-making, assessment of priorities in future planning processes, and for public reporting against Millennium Development Goals (MDG).

574. Support will be provided for the coordination of the overall project. This will not include staff costs and operational expenditure of existing functions but will provide inputs to allow for the smooth introduction of the program. This will include support for public awareness programs and the trainer of trainers that will then extend the CREST planning system on a wider scale. Support will provide awareness and education programs for the stakeholders to be involved in the program and the wider public.

575. During the preparation of the investment, significant gaps in the institutional framework have been identified and future needs specified. These include the need for a significant review and reform of the compliance framework, the development of a NRE statute that supports the proposed CREST program, and funding for policy research contracts that will be identified as the planning process is rolled out. Significant support is provided for the monitoring and information unit with equipment proposed to increase the capacity to store and manage data, to provide the capacity to view spatial datasets and undertake limited spatial analysis, and to provide the capacity to produce reports and information sets. The unit is further supported through the provision of data collection contracts, support for the introduction of provincial benchmarking, maintaining a web-based information system and database development inputs. Collectively, the inputs will provide the ability to prepare focused, benchmarked and quantitative reporting for the sector against MDG and policy targets.

E. Cost Estimates

576. The total program cost based on the two pilot sites and an extension to one further province for the rural landscape integrated natural resource management and a further two ESAs, including contingencies, is estimated to be $30.5 million. The foreign exchange cost is estimated at $7.7 million (25% of total cost). Local currency costs including taxes are estimated to be $22.8 million (75% of total cost). The cost estimates are summarized in Table 42 and detailed tables are available from the MENR files.

Table 42: Project Cost Estimate (US$ '000)

Component	Local Currency	Foreign Currency	Total Cost
1. Base Costs			
A. Integrated Natural Resource Management	12,117	3,185	15,301
B. Wetland Management	8,054	3,531	11.585
C. National Oversight	933	173	1,106
Subtotal – Base Costs	**21,103**	**6,889**	**27,992**
2. Contingencies			
Physical Contingencies	1,552	576	2,127
Price Contingencies	154	231	386
Subtotal – Contingencies	**1,706**	**807**	**2,513**
Total Project Costs	**22,809**	**7,696**	**30,505**

577. No project financing has been determined or finalized as there were no confirmed investors at the time of completion.

F. Implementation Arrangements

578. The process of implementation will be championed by a consortium of Ministries with the leadership provided by MENR and support from MPAHA and MPCLG. This consortium will be the joint executing agencies. In recognition of past failures to institutionalize projects the proposed program will not operate through a parallel project implementation unit but will be implemented through the definition and inclusion of functions within the existing institutional framework. The overall institutional arrangements will therefore span from the national level through to the village level (see Figure 34).

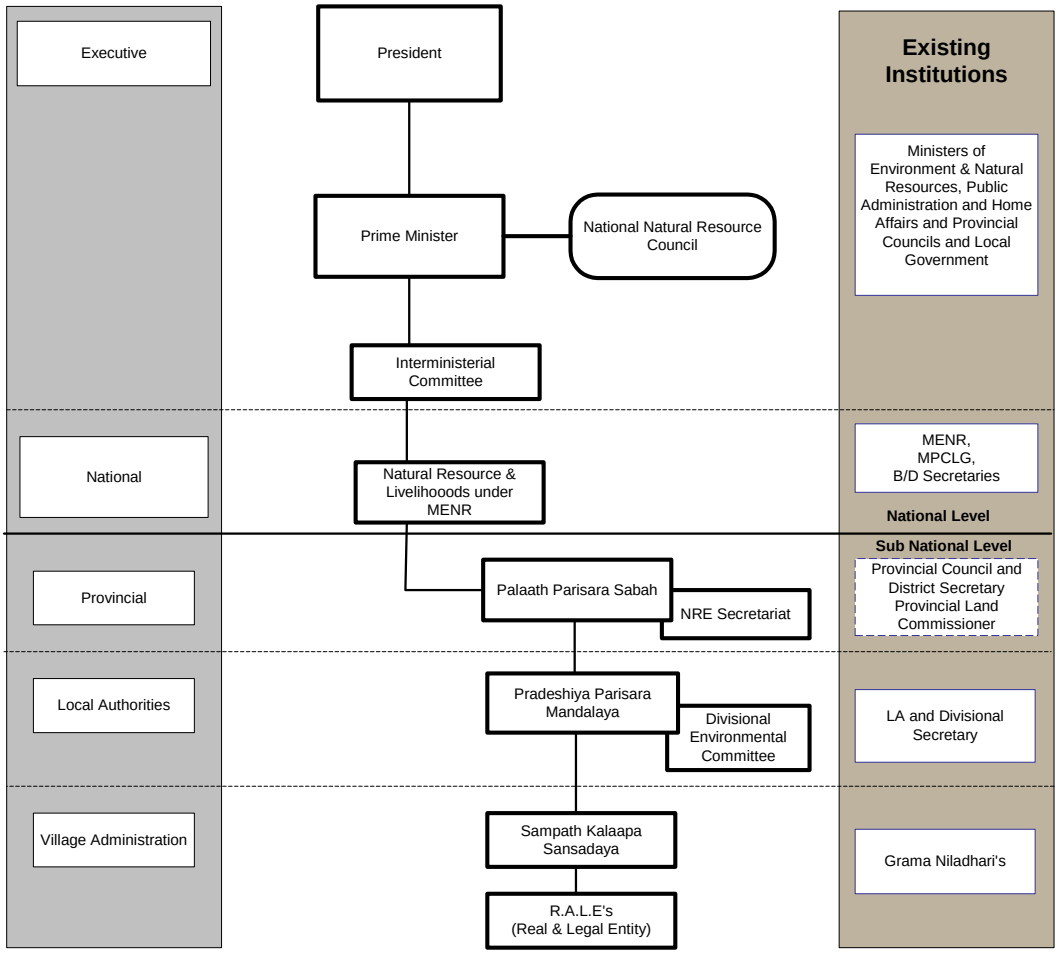


Figure 34: Proposed Institutional Linkages

1. Executive Level

579. The overall program represents a significant change in approach to NREM that requires executive level support and leadership. It is proposed to form a ***National Natural Resource Council*** (NNRC) that would be chaired by the Prime Minister or his/her nominee.

580. The role of the government in giving policy leadership to the management of conservation and development of NRE is crucial to the success of an agenda for sustainable development. Policy leadership will be institutionalized through the NNRC with the Prime Minister chairing the NNRC to provide policy leadership. The NNRC would be multi-stakeholder bringing together government (national and sub-national), non-government, community, private sector and academic interests. The NNRC would be responsible for:

- reporting on the "state of the environment" in reviewing performance and establishing accountability for NRE policy;
- reviewing the PPS reporting of regional NRE strategic plans;
- being a forum where civil society members can report inappropriate application of the procedures. These would then be included in the report of the NNRC to the media following each meeting;
- providing an independent policy voice through the presentation of policy resolutions through the chairman who would pass these to the inter-ministerial committee for consideration;
- ensuring that policy resolutions reflected the notions of subsidiarity, the use of partnerships and the retention of an implementation focus at the national and sub-national levels;
- reviewing the status and application of sector financing;
- providing guidance to the MENR for the leadership of Sri Lanka's sustainable development agenda; and
- reviewing and reporting on the achievement of sector MDGs.

581. It is envisaged that the NNRC will meet biannually and will report through the media on it is programs and findings. The NNRC will be formed by the Prime Minister's Office with assistance from the MENR, and will include three community representatives from each PPS, two agencies members from each PPS, and two representatives from each of the executing ministries (with rank of assistant secretary or higher), the MENR Program Director, representatives of private sector chambers, three local NGO representatives, IUCN and eminent officials and civil society representatives nominated by a panel comprising the Executing Agencies, the Chairman and IUCN.

582. The linkage of the NNRC with the Executive and the Program will be provided through an Inter-ministerial Steering Committee (IMSC) comprising the MENR, MPAHA and MPCLG. The IMSC would be formed through the submission of a joint ministerial cabinet paper that outlined the proposed program and its implementation and would meet quarterly.

583. The IMSC membership will comprise of:

a) Secretary to the Ministry of Environment and Natural Resources,
b) Secretary to the Ministry of Home Affairs,
c) Secretary to the Ministry of Provincial Councils and Local Government, and
d) The Provincial Chief Secretaries who will represent the PPS.

584. The role and responsibility of the IMSC will be as follows:

- Consider sustainable development issues arising from the implementation of the sustainable development strategic plans of the PPS.
- Review progress on national policy and technical actions in support of provincial strategic plans.
- Identify national policy and technical responses to regional sustainable development issues and provide policy directives to the program director.
- Provide reports to the NNRC on the actions taken and findings related to the NNRC policy resolutions and implementation issues.
- Provide an annual report to the cabinet on implementation and achievements of the program over the previous year, expected achievements in the coming year and major constraints that limit achieving stated policy goals

2. National Level

585. Implementation of the program will be coordinated through a dedicated livelihood and NREM unit within the MENR that will provide technical support and function as the technical secretariat for the NNRC and the IMSC. The role and responsibility of the unit will be as follows:

- Establish and maintain close dialogue with PPS through policy communication and technical support.
- Represent the MENR at the technical deliberations of technical secretariats to PPS.
- Develop and implement a systematic monitoring and evaluation of the program both in terms of the pilot process and the overall outcome impact with respect to policy goals.
- Establish and maintain a database and a reporting system on the sub-national NRE programs.
- Review and redefine the process as it moves from pilot program into the extension phase.
- Provide the national oversight functions and recommend the use of data collection and policy analysis contracts within the program.
- Ensure that data and information, including process documentation and sub-contract outcomes are captured within the information management unit.
- Coordinate with the technical divisions of the MENR in providing necessary technical guidance and support for strategic planning and to link this to the proposed provincial benchmarking program.
- Prepare reports to the NNRC for review by the IMSC.
- Provide overall implementation and management of the pilot and subsequent extension program including its administration and performance reporting.

586. The unit will be managed by the Director, MENR Natural Resources Division and will receive further support from three technical positions on a sub-contract basis during the pilot and initial extension phases. These positions include a planner, financing and a monitoring and evaluation role. These positions will have full-time MENR staff counterparts who would be assigned these tasks.

3. Provincial Program

587. The apex of the sub-national NREM framework will be the Palaath level. The Palaath level will define the unit's strategic planning for the use and conservation of NRE. Accordingly, the Palaath constitutes the spatial unit for the identification of sustainable development issues and the management of NRE. The strategic planning and resource management role and responsibility will be undertaken through a PPS or environmental council.

588. The PPS will be a multi-stakeholder forum for planning, implementation and reviewing performance of strategic NREM interventions. Provincial level NREM stakeholders will constitute the PPS. The PPS will thus provide institutional opportunities for government (provincial council, district secretariat and central sector agencies), non-government and private sector to participate in the identification of sustainable development issues and formulating strategic NREM interventions.

589. The PPS as a forum will be supported by a NRE Secretariat established by the respective provincial council and which will support the strategic deliberations and actions of the PPS. The NRE Secretariat will be staffed from provincial council staff and have a full-time Director, a planning specialist, an information officer and three support staff. The location of the NRE Secretariat within the provincial council will vary by province. For example, in Wayamba, it is likely to be linked to the Provincial Environmental Authority and in other provincial councils, it may be part of the planning unit under the Chief Secretary.

590. One function of the NRE Secretariat will be to ensure that the planning process is adequately informed. As a critical input into the preparation for planning, the NRE Secretariat will constitute provincial information teams that will collate existing data as well as contract outsourced strategic assessments on priority sustainable development themes.

591. The NRE Secretariat will also develop a directory of conflict resolution and resource people that reside within the wider community who can be mobilized to address planning process conflicts and gaps in the knowledge of stakeholders on issues relating to rights and responsibilities. This directory will be developed, maintained and communicated by the core information team of the NRE Secretariat.

592. The establishment of the PPS will therefore constitute an institution building process. It will proceed in tandem with the establishment of the subsidiary levels of the decentralized NREM framework. The key phases of the process for the establishment of the PPS will be as follows:

a. Formation of a NRE Secretariat with technical staff which will, in conjunction with the Chief Secretary, identify potential PPS members and invite these to a launching seminar.

b. Establishment of the PPS, launched through a ***Program Launching Seminar*** that will bring together the key top-level policy stakeholders, the Governor of the Province, the Chief Minister of the Province, the Minister for MENR and the Minister for MPCLG. The seminar would introduce the concept of the proposed strengthened NREM framework to key political, public service, bureaucratic, private sector and civil society leaders. A ***Resource and Information Pack*** will be prepared by the livelihood and NRE unit of the MENR.

c. ***Awareness Programs*** will be implemented as outsourced contracts awarded by the NRE Secretariat following the Program Launching Seminar. Awareness raising will be an important component of the institution-building process for the purpose of gathering critical knowledge and for creating participation of the stakeholders in the implementation of the NREM framework. The awareness programs will target different categories of stakeholders with appropriate messages through print, radio, television and the local theatre.

d. ***Primary Stakeholder Workshops*** will accompany awareness programs. These workshops will sensitize and mobilize the different stakeholders for participation in the decentralized NREM planning, implementation and monitoring systems.

e. The **representatives** of the following groups of stakeholders will constitute the PPS:

- Local authority elected and appointed officials.
- Provincial elected and appointed officials.
- District and divisional secretaries.
- Business leaders through the Chamber of Commerce and Trade and Industry.
- NGOs, CBOs and Civic Leaders.
- Academic and Research Institutes.
- Media.
- Trade Unions.

f. The **Chief Secretary** will convene the inaugural meeting of the PPS, chaired by the Chief Minister. The inaugural meeting will constitute committees to prepare draft procedures for the conduct of business of the PPS. The draft procedures will be considered and adopted (as amended if so agreed) and will constitute the basis for the functioning of the PPS.

593. The key actions of the PPS will be as follows:

- Strategic planning of NRE interventions and programs to be undertaken by the respective agencies in the province.
- Identify a planning facilitator cadre and to have these trained and mobilized through the NRE Secretariat. Training will be provided on a contractual basis through SLILG and FD and will draw heavily on the course materials of the current FD implemented SLANRMP.
- Technical assessment of NRE interventions.
- Facilitation of stakeholder consultation, consensus building and collaboration for undertaking strategic NRE interventions.
- Resource mobilization and allocation for NRE programs and services.
- Review the implementation of programs for carrying out NRE interventions and assess the achievement of sustainable development outcomes.

594. The key outputs of the PPS will be as follows:

- Provincial NRE strategic plan.
- Provincial NRE service standards and benchmarks.
- Provincial NRE status reports.

4. Divisional Level

595. The implementation of the Palaath NREM strategic plan involves the provision and delivery of support in undertaking operational actions regarding the use and conservation of NRE. These will be located at the Pradeshiya (divisional) and Kalaapa (sub-divisional) levels. Accordingly, the decentralized NREM framework involves NRE actions at the Pradeshiya and Kalaapa levels. This requires the establishment of appropriate institutional arrangements for planning, implementing and monitoring such actions.

596. The institutional arrangements for locating and undertaking the planning, implementation and monitoring of NRE actions at the divisional level will be a PPM. The PPM will be a divisional level partnership for engaging the PS (local authority) and the DS with other stakeholders in formulating NRE visions and outcomes, and formulating, implementing and monitoring a Service Delivery Management Plan for their achievement.

597. Institutionally a critical issue about the delivery of NRE services at the divisional level is the parallel functioning of the DS and the PS (i.e. the local authority). It dichotomizes the delivery of NRE services between an administrative agent (of the central government and to a limited extent the provincial council) and a tier of sub-national government. This dichotomy accordingly creates parallel provisioning of NRE services through deconcentrated and devolved modes of planning, implementing and monitoring the delivery of services and in the process disperses NREM stakeholders. This institutional dichotomy is dysfunctional. Institutional arrangements for planning, implementing and monitoring NRE actions at the divisional level should build collaborations and partnerships to bridge the dichotomy and to seek efficiencies in the access of resources.

598. The key steps in the process of establishing the PPM will be as follows:

a. Conduct a ***Program Launching Seminar*** at the divisional level. The seminar will:
   - Announce the formation of the PPM under the joint chairmanship of DS and chairperson of the local authority.
   - Describe the planning process.
   - Explain how it will be used to address livelihood and NRE objectives.
   - Discuss how individuals, groups and institutions can participate.
   - Outline the process of how the PPM will be formed.

b. Conduct a workshop to ***Identify the Primary Stakeholders***. The potential members will be convened in a workshop that will finalize membership of the PPM. The workshop will also:
   - Create a master list of stakeholders.
   - Identify candidates for the role of facilitators from technical agencies, NGOs, local authority and civil society groups.

c. Constituting access to the ***Information Taskforce*** of the NRE Secretariat through a local team comprising of the DEO as the focal point, LUPPD staff, Census staff, and university staff when available.

d. Constituting access to the ***Conflict and Resource Persons*** with a group of local legal expertise, retired judicial personnel and senior public officials that will link to the NRE Secretariat. The team will address issues that will arise during the planning process at the divisional and sub-divisional level.

e. The formation of the **Palaath Parisara Mandalaya** will be based on a staged process. Stage one will involve convening of the known stakeholders and in a workshop setting to define the Sampath Kalaapa (SK) resource planning units. Stage two would be to confirm the SK and to form the Sampath Kalaapa Sansadaya (SKS) (see below) which would nominate a representative for the PPM. Once all members are nominated the PPM will become operational.

599. The key actions of the PPM will be as follows:

- Analysis and ranking of problems.
- Stakeholder consultations.
- Consensus building and collaboration.
- Integrated area planning based on collated SKS plans and a spatial management layer.
- Performance assessment and reporting.

600. The following will be the key outputs of the PPM:

- Service delivery management plan.
- Partnership actions.
- Service standards and performance targets.
- Dispute mediation.
- NREM status reports.

5. Resource Unit Level

601. Operational actions for planning, implementing and monitoring in the use and conservation of NRE can be meaningfully undertaken where communities interact with NRE in the context of their livelihood. Such interaction does not follow administrative boundaries and therefore it is necessary to define "resource units" at which level such operational actions can be planned, implemented and monitored. Thus for this purpose, a sub-divisional resource unit or SK will be identified and demarcated for operationalizing the NREM framework.

602. A SK is a geographical unit within a division that carries a degree of homogeneity in NRE problems to constitute a spatial area for NREM operational actions. The rationale for an NREM unit that can constitute the spatial area for operational actions is that it is at this level that people make decisions of what to do or not to do regarding NRE in the context of their livelihood. The SKS is a people's forum where decisions are made on how to resolve issues if public purposes in regard to NRE are to be achieved.

603. The SK units within the area of a PPM will be defined at a meeting of the divisional stakeholder forum following the workshop for the identification of primary stakeholders. The stakeholder forum will be guided by maps provided by the LUPPD, census data, waterways, existing administrative boundaries (especially GN divisions) etc. Once the SKs are defined, base maps will be prepared to assist in the planning process.

604. Following the demarcation of the SK, a team of (3) planning facilitators will initiate a ***SK Planning Process***. They will facilitate a two or three-day reconnaissance program in the SK to review data, collect information from local stakeholders and discuss with the stakeholders the planning process, its purpose and how they can participate. The planning process will be an inclusive one and include all groups with interests in the use and conservation of NRE. The SK planning process will lead to the preparation of a ***SK Operational Plan***. The process will also lead to the institutionalization of the stakeholder group as the ***Sampath Kalaapa Sansadaya*** (SKS). The SKS will be a community-based multi-stakeholder forum and provide a community-based platform for community operational actions for the use and conservation of NRE.

605. The SKS will work through the following actions:

- Community mobilization.
- Natural resource and livelihood assessments.
- Participatory rural appraisals.
- Participatory planning workshops.

606. The key outputs of a SKS will be as follows:

- A SK operational action plan.
- Community voice and oversight over delivery of services.
- Implementation partnerships.
- Dispute resolutions
- Provision of information and reports to the community.

6. Financing and Disbursement

607. It is proposed that the program move toward a sector funding modality. In the interim, however, this will require the use of a program imprest account with the MOF, who flow funds to both MENR for the implementation roles assigned to it and to the Finance Commission for sub-national expenditures. The Finance Commission would channel funds to both the planning process and the implementation through usual budget channels, on the basis of agreed plans and proposals. If the PPM funds are being piloted, funds would be deposited in their account based on the budget required for their plan.

608. The PPM account would be attached to the local authority but would require first the approval of the PPM and the joint signatures of the DS and the municipal commissioner of local government.

609. The funds required for enterprise and innovation grants would be channeled from the Finance Commission who will implement a proposal evaluation process to prioritize applications.

G. Expected Benefits

610. No economic analysis was completed on this program as a whole given the process nature of the program and the continuing uncertainty over the area to be piloted or even accepted. The following section presents the project benefits and impacts in qualitative terms only.

1. Policy and Implementation

611. The project investments will introduce new means of managing sustainable development, and the implementation of the programs will have a significant effect on how resources and livelihood improvements are managed throughout Sri Lanka. The development of effective means for implementing NREM on a system or territorial basis provides significant opportunities for Sri Lanka to start avoiding the high costs associated with remedying past mistakes and able to sustain and extend successful interventions without the need for constant reinvestment into efforts that were not sustained. Ultimately the ability to effectively manage natural resources in a manner that uses scarce financial resources efficiently and avoids the conflicting and competing sector approach which has created significant environmental costs is the expected benefit of the program.

612. One of the key challenges for Sri Lanka's public policy has been the limited ability to make progress in decentralization and the involvement of civil society in the management of their community resources and development programs. The NRE sector has a significant advantage in that if it is decentralized it has little effect on central agencies, as nothing is happening locally at the present point of time and the process is relatively non-threatening. The successful decentralization of a livelihood based NRE program will provide a strong foundation on which other economic and social development programs can be built.

2. Institutional

613. Almost all the project investment targets the strengthening of organizations and the institutions that define NREM and improving livelihood. The impact of the project at the national level will build horizontal coordination between Ministries that depend on each other for the delivery of outcomes. This horizontal interplay will be underpinned by a performance benchmarking system and state of environment reporting that ensure future interventions are increasingly targeted and more efficient. These institutions and MENR, in particular, will be strengthened in its core function areas of policy, monitoring and information services.

614. Sub-national institutional impacts include strengthening of delivery systems at the provincial and divisional level, more coordination of sector and local initiatives, and marked increased in opportunity and capacity for the development of collective management responses that will prove markedly more effective. The integration of NREM with sustainable livelihood will lead to most communities having increased access to services, improved livelihood options, small-scale social infrastructure and enterprise development opportunities. Most importantly, as part of the creation of these opportunities, social capital will be developed around SKS, savings and credit groups, and through implementation partnerships on which ongoing development initiatives will build. For the ESA program, new management entities will be empowered to implement agreed management plans. The creation of such entities with real and economic legitimacy enables resource mobilization programs that will sustain management systems into the future, providing strong incentives for ongoing management innovation.

3. Sustainable Financing

615. The program proposes to move the sector increasingly onto sustainable financing systems that can support the operational cost of long-term programs. The role of the project in resource mobilization and financial management will link to the formation of savings and credit programs, the development of implementation partnerships where the entity is a RALE and ability to raise funds from local contributions. The disbursement mechanism targets the flow of funds through a sector imprest account that if the GOSL chooses will be transformed into a sector fund with decentralized sub-accounts at the divisional level. It is expected that the sum total of resources passing to targeted and planned activities will increase, perhaps significantly as a result of moving into sector funds.

4. Improved Livelihood

616. The integration of NRE planning and investment within a wider livelihood program at the SK level will provide direct benefits for the marginal as well as key resource user stakeholders. This will be supported with training, enterprise development for alternative employment and innovation grants to move resources including labor into higher producing activities. The livelihood program will adopt a focus on poverty reduction, marginalized groups especially women-headed households and those that remain almost entirely dependent on natural resources.

617. The provision of social infrastructure programs linked to water, water quality and sanitation will provide improved livelihood for a large number of direct beneficiaries and indirect or off-site beneficiaries. When linked to training, access to financial resources, strengthened social capital and within decentralized decision-making processes provides community members with a wider range of livelihood options.

H. Risks and Assumptions

1. Subsidiarity

618. The movement of decision-making to the lowest possible level has been a policy directive for a number of years while stated moves to adopt the principle of subsidiarity have been strongly resisted. The proposed NREM planning framework will only provide the expected benefits if subsidiarity is embraced. For this purpose the project proposes piloting and sequencing of components to ensure that the roles and benefits of different stakeholders can be demonstrated.

2. Livelihood Approach

619. Adoption of a livelihood approach is a significant change over what is currently understood or applied. While many will consider this to be participatory or consultative approaches it is far more than this and if benefits are to be achieved there will need to be a strong cadre of trained staff to address the issues. The institutional framework and the use of trained facilitators are proposed to minimize the risk of not applying the livelihood framework.

3. Decentralization

620. Linked to the concept of subsidiarity is the notion of making decentralization an effective policy initiative. Even sub-national provincial agencies have not embraced the empowerment of lower levels of administration with any commitment or purpose. While support was forthcoming throughout the consultations and design process, there is a risk that the central agencies will not either share power with the sub-national agencies or will not respect the outcome of sub-national planning processes. To a large extent this can be managed by the program of skill and organizational strengthening and the proposed systems of financing that direct funds to the implementation of the plans. The project design addresses this by piloting the overall program of decision-making, the formation of the NNRC, and the proposed development and use of laws and statutes. The legal reform will enable the planning outcomes to be statutory and therefore binding on all parts of the State and public.

4. Resourcing of Plans and Outcomes

621. The piloting of the planning system may result in the plans being completed without a guarantee for the resources required to implement the plans. This would raise expectation and would see the benefits not obtained. It is imperative that GOSL commit to implementing the plans that are prepared within the program. For this reason, a GOSL condition may be the agreement to provide funds for implementation of the plan.

ANNEX 1
POVERTY AND SOCIAL ASSESSMENT

I. INTRODUCTION

1. The following report presents the results of the Poverty and Social Analysis (PSA) carried out for the preparation of the Investment Plan for the Environment and Natural Resources Sector (ADB TA 4059 SRI). The report is prepared in accordance with the ADB's requirements presented in the Bank's *Handbook on Poverty and Social Analysis*. The purpose of the PSA is to inform the design of the investment plan by identifying and understanding the social context of natural resources and environmental management (NREM) issues, such as the vulnerabilities, access and other key livelihood issues of groups within communities that are dependent on natural resources.

2. The findings of the PSA have been incorporated into the proposed NREM framework based on a decentralized NRE planning system, linked to an implementation framework built on implementation partnerships, a proposed sector financing model and a performance monitoring program. The initial PSA, prepared as part of the Inception Report in February 2004, identified key social and poverty issues that were investigated further during the TA.[71] Considerable effort has been made by the TA to ensure that social and poverty issues are mainstreamed in the development of the proposed investments for the NRE sector, with community consultation processes beginning immediately after inception.

3. The proposed investment targets the development of decentralized NRE implementation systems through existing sub-national agencies, and integrates NREM with the needs of local resource and environment users. This integration is based on the use of a livelihood framework that considers development as a people-centered process. The proposed NREM framework therefore incorporates the principles of the DFID sustainable livelihood improvement framework[72], which views people as operating in a context of potential assets that interact with external forces creating risks and vulnerability. Within this context, individuals and the community they are part of, have access to certain assets through which they develop livelihood (and poverty-reducing) strategies. They operate within a social, institutional and organizational environment which influences the choices open to them. That is, they have a range of assets, including not only the more obvious such as land, water, fisheries and financial resources, but also infrastructure that is available to them, social networks and organizations that support them to a lesser or greater degree, and skills and knowledge. It is the use and combination of these assets that determine their livelihood outcomes.

4. The DFID sustainable livelihood improvement framework is essentially a systems approach but reflects the manner in which communities view their decisions and choices. The TA consultation program clearly indicates that communities do not compartmentalize issues related to their social and economic wellbeing into the sector orientation of current GOSL administration arrangements unless compelled to do by outside agencies. For them livelihood strategies demand a constant adaptation to shocks and a creative combination and use of the different assets available to them. In essence, the sustainable livelihood framework emphasizes a holistic approach to development that has guided the approach to the PSA. It is through this people-orientation that a livelihood approach is able to effectively provide the integrative approaches that have continually proved to be elusive outcomes of most sector-based programs.

5. The movement towards a livelihood approach has been indicative of the manner in which the PSA and resultant investment have been informed by the work carried out by the TA's

[71] The social field work was contracted directly by the Executing Agency, MENR to GreenTech Ltd.
[72] DFID Sustainable Livelihood Guidance Sheets, 2001.

social field team, who used a participatory process involving Participatory Rural Appraisal (PRA) methodology in both rural and urban settings. The team has worked in cooperation with relevant national and local government authorities, local NGOs, community representatives and the communities themselves.

6. The following sections consider the key social and poverty issues that have guided the development of the investment plan together with the processes outlined in the plan that are designed to promote the understanding of the different interests, strategies and behavior of community stakeholders, and how it is proposed they will be managed.

II. METHODOLOGY

A. Approach

7. The PSA used four approaches. Firstly, secondary data was collected from studies, statistical data and program and investment information from government agencies and other donors, and included projects underway or recently completed in Sri Lanka. Secondly, case studies were prepared in two specific sites in a total of 27 Grama Niladhari (GN) Divisions: (i) the Maha Oya Catchment which represented characteristics of multiple use and management of water and land resources; and (ii) the Southern Coastal Zone that included an example of SWM problems.

8. The third method involved participatory surveys covering different agro-ecological zones to provide the TA with information from a wide range of different community concerns, perceptions and priorities relating to NREM. A total of 108 workshops were held for this third approach, covering all provinces. Finally, later in 2004, a series of consultation workshops were held at divisional and sub-divisional levels in Aranayake in the Maha Oya Catchment and at Koggala in the Southern Provincial Zone. The workshops aimed at addressing specific issues relating to implementation arrangements for integrated NREM and wetlands management, e.g. to obtain feedback on the proposed use of functional resource units (SKS) for the community level plans rather than administrative units. Case studies and surveys took place from March to June 2004 and site specific workshops for the integrated NREM and the Wetlands program were carried out in October and November 2004.

9. The social team, headed by two social scientists, trained and led a number of field teams. For the case studies the lead sociologist together with three PRA facilitators visited both case study sites. For the agro-ecological zone workshops, two sociologists worked with three PRA facilitators and up to 24 assistants. The PRA teams were trained and mobilized in both the case study sites and agro-ecological zones. Local level officials, including DEOs from the CEA, assisted in organizing the workshops. PRA techniques used included natural resources mapping, income and poverty mapping, trend analyses, problem tree analyses, venn diagramming, and knowledge and attitude scaling. These methods allowed information to be gathered from communities on major NRE concerns, such as vulnerabilities and risks, access to resources, social and institutional contexts, strengths, attitudes and knowledge, and cross-cutting issues such as poverty, gender and ethnicity and their relationship to NREM. A report on the participatory survey describing methodology in full together with findings can be found in the Draft Survey Report, Volumes I & II, GreenTech Consultants (Pvt) Ltd, 2004.

10. Case study sites were selected on the basis of their overall contribution to the range of issues required to inform the investment plan. The Maha Oya Catchment was selected as an indicative site for studying integrated land and water management, because it was a known catchment area and accessible (close to Colombo). The Southern Province site from Hikkaduwa to Tissamaharama was selected because several management plans had been devised for the area, (but not necessarily implemented) providing baseline data for both urban and rural areas and involved a range of issues such as SWM, agriculture and tourism. Sampling for the participatory studies throughout the Island was stratified according to agro-ecological

zones with specific locations selected through a purposive sampling process based on their significance for NREM in that area. The zones selected were the wet zone, low country dry zone, intermediate zone, other ESAs, lagoon areas and conflict affected areas. They involved males and females, young people, ethnic minorities and marginal and socially disadvantaged groups. In most workshops the proportion of women was between 40-50%. Poor people represented between 60-80% of participants in workshops in rural areas and 10% in urban areas.[73] The number of ethnic minorities attending varied from place to place depending on the percentage living in each area.

11. Secondary data was examined to provide a national level overview of key social and poverty issues as well as information on specific issues such as SWM and experience and lessons from other projects. Secondary data was also gathered at divisional level from other projects and official sources during the participatory surveys on socio-economic issues such as education, ethnicity, housing, employment, water sources and land ownership where available to supplement findings from the PRA processes.

12. The TA, as agreed, did not conduct household questionnaire surveys. It was considered that participatory surveying using PRA methods through workshops and site visits was preferable for several reasons: (i) a statistically meaningful household survey in each ecological zone would have required vastly more resources than were available; (ii) the participatory approach allowed the TA team to engender interest and knowledge of the project in the community; (iii) encourage a self-assessment process by stakeholders; (iv) allow discussion and prioritization of issues at local level; (v) ensure specific attention to vulnerable groups and cross-cutting issues such as gender and poverty; and (vi) promote ongoing interest in NREM itself.

B. Targeting Stakeholders in the Investment Plan

13. A challenge for the TA has been to find mechanisms for ensuring effective targeting of community-level stakeholders in NREM. A common error in participatory processes is to assume that communities are all homogenous, populated by groups of people who share the same interests and who are willing to work for the benefit of all members. Rural communities in Sri Lanka are frequently characterized by a number of social strata, networks and organizations, which strongly affect people's access to, use of and control over resources. For example, power is often concentrated among a few families who form a local landed elite.[74] This creates a dependency relationship between the local elite and those who work for them or are in some way dependent on them for their livelihood. Farmer organizations, frequently favored by donors as an entry point to rural communities, are often controlled by the local elite dominated by male landowners so that women and those with marginal or no land have little say in decisions that affect them.

14. While these issues may not be critical for all interventions at community level, they are vital for NREM where access to and control of resources are determinants in socio-economic status and often contribute to the vulnerability profile of individuals. An understanding of these kinds of relationships within specific communities will be crucial for the development of local level SK NREM plans. Related to this will be the acknowledgement that different groups and individuals within the same community have different stakes in the management of natural resources and will therefore be led to make decisions according to their own social, economic and political interests. While it is important to build on existing local decision-making processes, it will be essential to ensure that in doing so, certain groups, e.g. women and people of lower social status, are not excluded. Managing conflicting or overlapping interests at community level, while ensuring that the most vulnerable have at least an equal voice in decision-making,

[73] The participation rate of poor in urban and rural areas reflects the level of poverty in each.
[74] Van der Molen, 2001.

will be key challenges. Targeting in each of the applications proposed for the investment plan is discussed under Section V below.

III. OVERVIEW OF KEY NATIONAL POVERTY AND SOCIAL ISSUES

A. Social and Poverty Indicators

1. National Issues

15. Sri Lanka has the highest level of human development in South Asia[75] but at the same time, there has been no significant reduction in poverty levels. Indeed, in the last decade, poverty has increased throughout the country. The Head Count Index (HCI), which measures the percentage of individuals who are poor, indicates an increase from 22.2% in 1990-91 to 28.1% in 2003.[76] These figures utilize the Sri Lankan poverty line of Rs.950/person/month[77], not the international level of US$1/day. A large group is also considered vulnerable to falling into chronic poverty or periods of chronic poverty, e.g. as a result of poor harvest, unemployment or death or illness of a bread winner.[78] In addition to growing poverty levels, social disparities have increased. The GINI coefficient, which measures inequality in household consumption, increased from 0.46 in 1986-87 to 0.48 in 2002, i.e. the gap between the rich and the poor is increasing: the poor are getting poorer while the rich are becoming more affluent.

16. Poverty in Sri Lanka is a distinctly rural phenomenon. More than 90% of Sri Lanka's poor live in the rural and estate sectors.[79] At the household level, the 2002 Household Income and Expenditure Survey found 7.6% of urban households compared to 26.4% of all rural households are classified as poor.[80] The incidence is highest among casual laborers, small and marginal farmers and estate workers, i.e. those with limited rights – either property or usufruct – in natural capital. Poverty in rural areas emerges from several factors: (i) population pressure; (ii) resource scarcity; (iii) lack of income sufficient to break out of the poverty cycle; and (iv) the limited availability of alternative employment and income earning opportunities. There is a direct relationship between the extent of urbanization and the extent of poverty: the more urbanized the province, the lower the poverty level (although absolute numbers often remain high). Social exclusion and a sense of powerlessness to participate in decisions that affect them, contribute to poverty in Sri Lanka.

17. The civil conflict has had serious human and economic costs, both directly in the North and East, and indirectly throughout the country, with the decline in foreign investment and tourism as well as the human capital cost of death, injury and displacement. The United Nations has estimated that the number of persons internally displaced as a result of the conflict is around 800,000. There are a large number of war widows, and the maternal mortality ratio and infant mortality rate are double and treble the national average respectively (but are not yet included in the official datasets). While national figures of poverty do not include the North and East, the government's operating assumption is that poverty incidence in the Northeast is roughly the same as Uva, the poorest province in the South (based on the higher poverty line), that is, around 50-55% of the population.

18. Large numbers of skilled and semi-skilled Sri Lankans emigrate and seek work especially in nearby countries such as Saudi Arabia, Kuwait and UAE. Of all workers leaving for foreign employment in 2003[81], 65% were women.

[75] Sri Lanka rated 96th out of 177 countries in 2004 using the United Nations Human Development Indicators.
[76] Liyanage, U, 2003. *Profiling the Sri Lankan Consumer*, Dept of Census and Statistics, Ministry of the Interior, Sri Lanka.
[73] Sri Lanka has two poverty lines – lower line is Rs.791 and higher line is Rs.950/capita/month, from *Caring for the Environment 2003-2007*, Ministry of Environment and Natural Resources, Sri Lanka, 2003.
[78] ADB Country Strategy and Program, Sri Lanka 2004-2008.
[79] GOSL (2003). *Regaining Sri Lanka: Vision and Strategy for Accelerated Development*, Government of Sri Lanka, 2003.
[80] Household Income and Expenditure Survey 2002.
[81] Source: Central Bank of Sri Lanka, Annual Report, 2003.

19. The following table presents a comparison of basic social indicators among South Asian countries. The poverty statistics included in the table are based on the internationally defined poverty line of US$1/day to facilitate comparison and not on national poverty lines.

Table 43: Comparison of Basic Social Indicators Sri Lanka vs South Asia[82]

Indicator	Sri Lanka	Pakistan	India	Bangladesh	Nepal
2003 life expectancy years	(2000) 73.14	(2000) 63	(2000) 63	(2000) 61	(2000) 59
2003 Adult literacy (%)	91.6	50	57	59	58
Deaths under 5 (per 1,000)	18	(2002) 107	88	83	105
Maternal mortality rate (per 100,000 live births)	(1990-1998) 30	530[83]	437	887	515
Population below poverty line (international) (%)	(2000) 6.6	13.4	34.7	36.0	37.7
Access to safe water (%)	U:88 R:65	U:83 R:53	U:95 R:75	U:99 R:97	U:94 R:87
Access to safe sanitation (%)	U:67 R:60	U:94 R:37	U:61 R:15	U:71 R:41	U:73 R:22
Total fertility rate (number of children/women)	(1998) 2.1	5.2	3.2	3.5	5.3

U=Urban R=Rural

2. Provincial Poverty Levels

20. Incidence of consumption poverty (using the HCI) varies significantly across provincial boundaries, with Sabaragamuwa, Uva, North Western and North Central Provinces having a higher poverty level than the other provinces. Table 44 illustrates that when the higher poverty line, which is just 20% over the lower poverty line, is used, poverty levels increase dramatically, i.e. there are considerable numbers of people living just slightly above the lower poverty line who are vulnerable to falling deeper into poverty.

Table 44: Incidence of Poverty in Sri Lanka by Province[84]

Province	Lower Poverty Line %[85]	Higher Poverty Line %
Western	14	23
Central	28	43
Southern	26	41
North Western	34	52
North Central	31	47
Uva	37	55
Sabaragamuwa	32	47

21. Recent work highlights the danger in using aggregated data. While provincial level data indicates the poverty status of the Southern Province as being at or better than the national average, once Galle municipal council and Matara urban council are withdrawn, the remainder of the province is more than two standard deviations below the national average.

3. Summary

22. A number of attributes characterize the poor in Sri Lanka. They include: (i) location – poverty varies among and within provinces and is considerably more severe in rural areas;

[82] Figures obtained from Bank of Sri Lanka Reports, ADB Key Indicators 2003, World Bank World Development Report 2003, UN Human Development Report 2004. Poverty figures are based on the international definition and not national definitions.
[83] From UNICEF Pakistan: www.unicef/pak.org.
[84] From *Regaining Sri Lanka: Vision and Strategy for Accelerated Development*, GOSL, 2003.
[85] Uses Sri Lanka poverty measures not international and based on income poverty. Sri Lanka uses two poverty lines. The lower poverty line used by the Department of Statistics and Census is Rs.791 and the higher level is 20% higher at Rs.950, i.e. The Central Bank uses higher figures for both – from *Regaining Sri Lanka: Vision and Strategy for Accelerated Development*, GOSL, 2003.

(ii) access to natural assets (including no or marginal land) is more limited for the poor; (iii) reliance on low-paid employment for livelihood, such as working as farm laborers or estate workers; (iv) urban slum dwellers are among the poorest in the country; and (v) people in the North and East are more likely to be poor, following years of conflict.

4. Implications for Investment Plan Design

a. Context

23. The vast majority of the poor in Sri Lanka depend on natural resources for their survival. They may be both the cause and victims of natural resource degradation. Insecure access and control as well as the uncontrolled access to natural resources are the two primary causes of resource degradation.[86] Key issues for the investment plan center on the linkages between livelihood and NREM. Any NREM must fit within the context of local community livelihood; otherwise people will not get involved and will continue to seek income through natural resource use as they have done in the past. Without alternative livelihood possibilities, they usually have little choice but to do so, especially the poor. There is also a large group of people in Sri Lanka who are vulnerable to falling below the poverty line or into chronic poverty.[87] Those people whose livelihood is greatly influenced by seasonal factors such as rainfall, prices, pests and diseases are very vulnerable to the adverse effects of fluctuations. If current trends in resource use continue, with increased degradation and unsustainable resource use in general, there is a risk that more people will fall below the poverty line.

24. While the poor are not the only members of communities that impact negatively on the environment, natural resources are an integral part of local livelihood and poverty, and planning processes must address this context, otherwise people will not engage in them. The issues that contribute most to their poverty – population pressure, resource scarcity, inability to break out of the poverty cycle, vulnerability to shocks and the limited availability of alternative employment and income earning opportunities – are key concerns that will need to be addressed in local level planning processes. Findings of the TA's social team, from its range of studies, underline that those in the lowest income group are disproportionately linked either to degradation of NRE or to its consequences.

b. Making the link between NREM and communities in the Investment Plan

25. The investment plan recognizes that poor people are more risk averse, e.g. they are less likely to start cultivation or to hazard investment in an activity that is perceived as high risk or that compromises their present income-generating opportunities, and livelihood options must be provided to them if they are to be encouraged into activities that do not damage the environment. A lack of understanding of these issues and their non-inclusion in the proposed SK plans risks further marginalizing the poor, reinforcing existing power and decision-making structures that disadvantage these groups. The potential consequences are not only to marginalize the most vulnerable groups socially and economically, but also to compel these groups to further encroach unsustainably on NRE. Poor people frequently cut into protected forest areas and plant tea as a means of income generation and if they are not included in the development of NREM plans, with provision of alternative means of livelihood, there will be little possibility of preventing further encroachment. The surveys showed that in Aranayake, for example, where 80% of the population lives in rural areas, around 55% of households are poor[88] and there is considerable problem with forest encroachment and illegal felling especially in the upper watershed areas.

26. To address these concerns, and to make the link between NREM and local communities and civil society, the investment plan is proposing a comprehensive community-needs driven

[86] *Regaining Sri Lanka: Vision and Strategy for Accelerated Development*, GOSL, 2003.
[87] *Regaining Sri Lanka: Vision and Strategy for Accelerated Development*, GOSL, 2003.
[88] Based on the number of Samurdhi families plus those on public subsidy grants.

approach at SK level with mechanisms to ensure the poorest in a community are targeted and have the ability to contribute to decisions that affect them in NREM. These community-based natural resource planning mechanisms form a fundamental component of the investment plan and are discussed in later sections.

B. Gender issues

1. Introduction

27. There are no significant gender disparities in poverty in Sri Lanka in contrast to other developing countries. National figures indicate that the incidence of poverty in 2002 among female-headed households, which comprise 20% of all households in Sri Lanka[89], was 21.4% and among male-headed households 24.5%.[90] However, these national figures mask regional differences. While in rural areas the incidence of poverty among male and female-headed households is about the same, in urban areas the incidence of poverty is significantly lower in male-headed households (23%) than in female-headed households (30%).[91] National figures also do not include the conflict areas where the numbers of poor female households are far higher than national averages.

28. Further, indications are that rural women tend to be more vulnerable to becoming poor or falling deeper into poverty during times of hardship for a range of reasons including access to resources and cultural considerations. A case study prepared by ITDG, a Sri Lankan NGO that works on poverty issues, found that when the district of Hambantota in the south of Sri Lanka was affected by prolonged drought in 2001, 80% of the population[92] was affected as paddy cultivation declined. This affected both men and women who earned incomes from paddy cultivation. However, women were worse off because cultural restrictions on women's mobility meant that they did not have the option that men did to migrate to urban areas for work.[93]

29. Women in Sri Lanka are more likely to be unemployed than men are and they make up a far greater proportion of unpaid family workers than do men, particularly in the agricultural sector. Off-farm, one quarter of all employed women are involved in manufacturing industries – women are typically engaged in semi-skilled labor-intensive industries such as the garment industry, receive less employer support for upskilling and are more vulnerable than men to job losses.

30. Gender-based differences in access and control of resources and in the division of labor are of concern for the investment plan because unless women are consulted about those issues they are responsible for or have a role or interest in, i.e. in which they have a stake, there is a danger that their concerns will be ignored or worse, that decisions will be made for them by others who have no particular interest in their issues. Without this knowledge, physical capital such as new technologies and increases in human capital such as skills training tend to be directed at men. As a result women's livelihood options can be reduced – their work loads can increase, their access to and control of resources can be compromised and their social and economic status can worsen. For this reason, the TA needed to have some understanding of the different roles of men and women in relation to NREM and to identify any issues for women such as their ability to participate in decisions that affect them, in order to design an investment plan that provided opportunities for women and mitigated any potential adverse effects. Information was gathered through participatory surveys and from secondary data. A summary of main issues is presented below.

[89] Sri Lanka Demographic and Health Survey 2000, from Liyanage, 2003.
[90] Household Income and Expenditure Survey (2002), UNICEF, 2004.
[91] *ADB Country Strategy and Program, Sri Lanka 2004-2008*. These figures are from an earlier time period than the previous set.
[92] UN OCHA figure from: Case Study prepared by ITDG-South Asia for Asian Disaster Preparedness Centre.
[93] Case study cited from Ariyabandu, M.M et al, 2001. *Gender Dimensions in Disaster Management*. ITDG: Colombo.

2. Women and Livelihood Asset Capital

31. Women's roles and access rights in Sri Lanka are determined by the gender relationships inside families as well as by tradition, and depend on prevailing perceptions of male and female responsibilities, their own preferences, their mobility, perceptions of required physical strength and so on. Access to resources retains a strong gender bias in Sri Lanka, e.g. ownership of paddy is strongly male dominated.[94] A study of agricultural communities in North Central Province between 1997 and 2000 showed that female landowners accounted for no more than around 35% of all land in a community and usually much less.[95] Traditional practices dictate that land is usually passed on to those children who look after the parents during their old age, which is usually one of their sons and his family. This bias in land ownership has consequences other than who has opportunity for income generation. Land ownership also determines membership of farmer organizations and associated benefits. Even so, when women do have access to farmer organizations, they frequently are not allowed a voice in proceedings and they have little input into or control over decisions that affect their livelihood.

32. Poor women are reasonably able to access financial capital in Sri Lanka. Women form a large portion of demand for microfinance services at present, mostly because the vast majority of home-based enterprises are run by women and a range of microfinance services are available in the country. There are proven examples of successful CBO involvement in poverty alleviation combined with NREM. The AF in Koggala, for example, facilitates the formation of CBOs in communities for SWM, provides them with support and assists with access to micro-credit for income-generating activities based on SWM.

33. There are some striking gender-based divisions in labor and decision-making in Sri Lanka. Research carried out in North Central Province illustrates the nature of gender-based divisions of labor in rural areas (Table 45).

Table 45: Example of Division of Labor in Rural Areas[96]

Activities (p=Paddy, c= *chena*)	**Paddy cultivation**		***Chena* cultivation**		**Day – labor (paddy, *chena*)**	
M=Men; W=Women	M	W	M	W	M	W
Slash and burn (c)			√		√	
Land preparation (c,p)	√	√	√	√	√	
Ploughing by tractor (p)	√				√	
Cleaning, construction of field bunds (p)	√	√			√	
Cleaning canals (p)	√	√			√	
Leveling manually (p,c)	√	√	√	√	√	
Leveling by tractor (p)	√				√	
Sowing (p,c)	√	√	√	√	√	√
Diverting water to fields (p)	√	√			√	
Applying fertilizer or spraying pesticides/ weed killers (p,c)	√		√	√	√	
Weeding (p,c)	√		√	√	√	√
Planting or transplanting (p,c)		√		√		√
Fencing (p,c)	√		√		√	
Building watch huts (p,c)	√		√		√	
Watching fields at night (p,c)	√		√		√	
Harvesting or plucking (p,c)		√		√	√	
Threshing (p)	√				√	
Transporting (p,c)	√		√		√	
Selling products in town (p,c)	√		√	√	√	
Selling products at home (c)		√		√	√	

Source: van der Molen, I. *Rains, droughts and dreams of prosperity*, 2001.

[94] van der Molen and TA Case Studies.
[95] van der Molen, 2001.
[96] Adapted from: van Molen, Table 6.2, page 156.

3. Gender and NREM

34. The following table summarizes the key issues related to gender and NREM. The information has been obtained from the participatory surveys and secondary data.

Table 46: Gender Division of Labor on Key NREM Issues and Access to Resources and Gender

	Female	Male	Comments/Implications
Division of labor			
Waste and sanitation	Household (HH) waste	Responsible for constructing latrines	HH composting, separation and reduction is best directed at women combined with savings and income-generation. Education on sanitation and associated health issues - appropriate toilet construction, waste disposal issues, children's health etc valuable for both men and women. (While women are not responsible for construction of toilets, giving them knowledge about the different types and value of sanitary latrines can lead them to pressure men to improve facilities).
Water	HH water Some small involvement with irrigation usually for cash cropping and from agro wells	Irrigation water from canal reservoirs and channels	It is very important to distinguish between sources and uses of water so that women's HH and farming requirements are not overlooked. Community level planning needs to include separate questions of men and women over source and use of water. Irrigation water from reservoirs and channels at community level tends to be controlled by farmer organizations.
Fuel wood or fuel/energy collection	HH use, collected mainly from forest areas	Cut for selling, (very high in conflict areas)	There will be a need to develop alternative livelihood options for men who cut timber for selling where it comes from protected reserves; alternative fuel sources for women for HH use.
Collecting sand, clay and other raw materials	Small scale cottage industry e.g. in brick making	As laborers and entrepreneurs	Alternative livelihood options required for both men and women.
Access rights and issues			
Rights to resources (land, water, fuel wood, fish, etc)	Females less likely to inherit land than males; women can inherit land but male offspring are given priority. No restriction on women to rent land if they have the means; woman have difficulty hiring male labor if there are no available male relatives. Women have rights to fish but are confined to lagoon fishing. Women fishers are not common. More usually women are small sellers at stalls or from house to house. Women never have access to sea-going fishing.	Men are predominantly the landowners Fishing is primarily a male activity; very organized (access is controlled)	Sri Lanka Sinhalese society is matrilineal and a woman has the right to transfer the land to her daughters. Nonetheless, male relatives are given priority. The situation is entirely different in Moslem communities where males always inherit natural, physical and financial asset capital from their fathers. The investment plan is unlikely to be able to alter traditional inheritance practices and therefore women's access to land and other natural resources may not change in the short term. However, when devising any NREM plans involving natural resources, it will be important to consult not only with the resource owners/controllers but to ensure that those women, who also use the resource, whether legally or not, are also involved. Community level land use maps will be invaluable for this purpose.

	Female	Male	Comments/Implications
Rights to the benefits (e.g. monetary)	Few if any rights to benefits - even among the poorest in estate areas men have control over women's earnings.	Men mostly decide and have control over HH finances and women's earnings	The exception to the norm appears to be microfinance activities - experience in Sri Lanka is that women are allowed to keep and manage the money they earn.
Legal rights or norms (de facto)	Women's rights are protected by law.		Traditional practices tend to over ride legal rights.

4. Implications for Investment Plan

35. While gender and poverty are not necessarily linked in Sri Lanka, at least in national level statistics, differing roles of men and women in NREM are crucial to the development of NREM plans in local functional resource units at SK level. Table 46 above highlights the importance of consulting with women on their use of natural resource and to provide alternative livelihood options where necessary. In addition, Table 46 suggests that as women are primarily responsible for household waste issues, acquisition of safe water for the household and its links to the health and safety, it makes sense to focus these issues at the household level on women. On the other hand, as men are primarily responsible for managing irrigation water, focus on improvements in water management and quality for farm work will be focused on men. A lack of understanding of these roles risks reducing women's development assets and compromising their livelihood outcomes. As discussed later in this report, NREM can be combined with poverty reduction when management mechanisms are coupled with savings and income-generating components.

36. A second issue is related to the provision of information. Providing women and men, particularly the most vulnerable, with the necessary information and skills to enable them to manage their use of natural resources more sustainably and to reduce their vulnerability to the risks involved in environmental degradation is an important component of the investment plan. Given the likely differing roles, needs and interests of men and women in relation to NREM, education programs may need to be designed separately for each.

37. It is also important to understand the limitations that can restrict women from accessing information or taking part in decision-making, e.g. women in most areas are not permitted to travel at night or far from their home, and some farmer organizations do not facilitate equal access for women as for men to the benefits that derive from membership. Consequently, appropriate safeguards for women will need attention. Gatherings for designing SKS NREM plans or for cooperative action will need to be held in locations close to where women live. In addition, these gatherings will need to ensure that women's voice is heard; therefore forums such as farmer organizations where women often have difficulty getting their views considered would not be the best environment. This issue will also be crucial for women's participation at other planning levels, such as PPM and PPS, to ensure that restrictions on their mobility do not prevent them from taking part in planning forums at those levels. This means that sufficient analysis of communities from a gender perspective will be an important consideration in devising local level SK NREM plans to ensure that women are not invisible or marginalized in NREM planning processes. Female-headed households, either with no or little land, are often among the most vulnerable groups in rural areas.[97] Identifying the most vulnerable groups and ensuring their inclusion in the planning process will be a requirement of community level facilitators, and training and guidelines will be developed to assist them.

5. Accessing Women in Communities

38. Accessing women is best managed by women, particularly in the case of Moslem women who have cultural issues over dealing with men who are not family members. Some existing women NGOs have trained animators who may be engaged to support the work of

[97] van de Molen, 2001.

facilitators, particularly in cases where the facilitators are men. Midwives and women health workers, employed by local government, already have extensive access to women in communities and would be a useful source of contact, information and guidance. In addition, use of women field officers by MENR could be encouraged. A useful means for accessing women in communities is through the many CBOs currently operating that are managed by women, e.g. using the existing small groups developed for savings schemes that are run especially for poor women. In addition, mosque committees and temple societies have women's committees and have the necessary structures in place to access women in appropriate ways.

6. Safeguards for Women

39. Safeguarding women's involvement in the implementation of the investment plan will be crucial to make certain their NREM interests are taken account of, their capacity for decision-making in NREM is enhanced and to ensure that they share in the benefits. Safeguards include ensuring appropriate access to women in the community to ensure they have a voice, and appropriate training of facilitators to ensure they make possible women's active involvement in NREM planning and decision-making.

Table 47: Safeguards for Women throughout the NREM Planning Process

Planning stage	Issues	Safeguards for women
Reconnaissance	Initial consultations may focus on discussions with male leaders and groups; women may not come forward to discuss their issues.	Facilitators will be trained to find the best ways to access women in each area. They will be provided with field tools such as gender checklists designed to ensure that women have been appropriately identified in the community.
Sampath Kalaapa (SK) plans	Men may talk for women; higher status women may speak for poor women.	Facilitators will be trained to ensure women are sought out and consulted using existing poverty related groups, CBOs and religious committees. Experience from the SLANRMP and other community-based projects will be drawn upon.
Pradeshiya Parisara Mandalaya (PPM)	Meetings may be away from women's immediate location and travel to meetings may not be acceptable for women. Women may not feel comfortable having a voice in a larger setting.	Facilitators will ask women themselves how to solve this issue. There may be a need for a male family member to accompany the women, for example. Women will be asked to select their own representatives; PPM meeting coordinators will be required to ensure all participants are able to contribute in a way that the participants are comfortable with.
Palaath Parisara Sabha (PPS)	Meetings may be away from women's immediate location and travel to meetings may not be acceptable for women. Women may not feel comfortable having a voice in a larger setting.	Facilitators will ask women themselves how to solve this issue. There may be a need for a male family member to accompany the women, for example. Women will be asked to select their own representatives; PPS meeting coordinators will be required to ensure all participants are able to contribute in a way that the participants are comfortable with.

7. Training of Facilitators in Gender Issues

40. The investment plan has included training and resources for facilitators to ensure they have the skills to work effectively with communities. The following are proposed to ensure that women are involved in NREM planning and decision-making: (i) gender awareness training of facilitators; (ii) practical tools and guidelines for facilitators to use in the field to identify vulnerable groups of women and men, such as the use of mapping, problem tree analysis and gender checklists; (iii) mentoring and support for facilitators to discuss issues related to gender during planning processes and forums to share and discuss experiences with other facilitators; and (iv) feedback and learning from the process evaluation during the pilot phase.

C. Ethnicity

1. General

41. Ethnic differences have formed an important part of Sri Lankan social and political history for centuries. The two main characteristics that mark a person's ethnic heritage in Sri Lanka today are language and religion, which intersect to create three major ethnic groups - the Sinhalese, the Tamils and the Moslems. There is no official promotion of the social segregation of their members, but historical circumstances have favored one or more of the groups at different times, leading to inequity. The World Bank's Poverty Assessment found that the incidence of poverty is not related to ethnicity except for the Indian Tamils, most of whom are classified as poor.

42. The Sinhalese are the largest ethnic group in the country, officially comprising 14 million people or 79% of the population in 2001. The Buddhist religion reinforces the solidarity of the Sinhalese as an ethnic community. The latest available correlation in 1988 shows that approximately 93% of the Sinhala speakers were Buddhists, and 99.5% of the Buddhists in Sri Lanka spoke Sinhala.[98] The Sinhalese are the majority everywhere except in the Jaffna and Batticaloa districts, and in some southern districts such as Hambantota, Galle and Matara, they comprise almost the entire population. In Hambantota, Sinhalese make up 97.1% of the population and in Galle and Matara, 94.5%.

43. The people collectively known as Tamils made up approximately 11% of the population in 2001, and use the Tamil language as their native tongue. The Tamil speakers in Sri Lanka are divided into two groups that have quite different origins and relationships to the country. The Sri Lankan Tamils trace their immigration to the distant past and are effectively a native minority. The Indian Tamils are either immigrants or the descendants of immigrants who came to work on plantations in the central highlands, or as municipal cleaning workers who lived in areas called labor lines, during the colonial period of British rule. The Indian Tamils are mostly concentrated in the highland districts, especially Nuwara-Eliya, constituting almost half the population and where they provide much of the unskilled labor. In 2001, they made up 5% of the population of the country. Because they have lived on plantation settlements or in the labor lines in urban areas, separate from other groups, including the Sri Lankan Tamils, the Indian Tamils have not become an integral part of society. Sri Lankan Tamils make up more than 6% of the population although in the conflict areas this is higher, e.g. in Eastern Province, 40% of the population were Tamil in 1999, ranging from 24% in Ampara District to 75% in Batticaloa.[99] Some 80% of the Sri Lankan Tamils and 90% of the Indian Tamils are Hindus.

44. Moslems make up approximately 9% of the population. Most Moslems (80%) speak Tamil and the majority speak Sinhalese as well. The Moslem community is divided into two main sections--the Sri Lankan Moors and the Malays, each with its own history and traditions. The Moslems are not in the majority anywhere, although they make up large minorities in the Mannar District on the northwest coast and in the east coast districts: their strongest presence is in Ampara District, where they comprised 40% of the population in 1999.[100] Moslem farmers tend to be focused on commercial farming (compared with Sinhalese who are predominantly concerned with food security). A common feature is for Moslem farmers to pool their resources and work in effect as a collective. Some Moslems own small tea estates. Urban Moslems are largely traders, entrepreneurs and hoteliers and live on rental and leased lands.

45. In Eastern Province, ethnic segregation has taken place as a result of the conflict – involuntary displacement, migration to safer areas, migration out of the country, and government-sponsored settlement projects. This segregation has an impact on access to resources, government jobs and social assistance – in different districts, the ethnically biased

[98] American Library of Congress www. Library of Congress.gov.
[99] ADB TA 3479-SRI Eastern Coastal Community Development Report, Poverty and Social Analysis.
[100] ADB PPTA 3479-SRI, Poverty and Social Analysis. Figures obtained from a compilation of District Resource Profiles, 2000.

hierarchy varies. In Trincomalee, the Sinhalese community is dominant, in Batticaloa it is the Tamil community and in Ampara, the Moslem community benefits disproportionately.[101]

46. In the rest of the country, communities live side by side but frequently somewhat separate. In many cases, the different ethnic communities live in different villages or sections of villages, and in towns or cities they inhabit particular neighborhoods. Colombo District approaches the closest to an ethnic melting pot, with a Sinhalese majority and substantial Tamil and Moslem minorities: in Colombo District 77% are Sinhalese, 12% are Tamil and 10% are Moslem.[102]

47. The Department of Census and Statistics has only raw data on population statistics in each district by ethnicity for the last Census in 2001. These have been totaled for national level figures and are presented in Table 48. They do not include the North and East where figures had not been collected at the time of the TA.

Table 48: Key Statistics on Ethnic Populations for Year 2001[103]

Ethnic Group	Total[104]	% of total[105]
Sinhalese	13,907,663	79.3
Lankan Tamil	1,102,439	6.3
Indian Tamil	860,508	4.9
Moor	1,561,812	8.9
Burgher	37,343	0.2
Malay	47,998	0.3
Chetty	8,839	0.1
Baratha	1,781	0
Other	18,986	0.1
Total	17,547,369	100

48. In the areas studied for the investment plan, the following statistics were obtained.

Table 49: Ethnicity by Ecological Zone (in area studies)

(i)

Area	WET ZONE					
	Up country wet zone		Mid country wet zone		Low country wet zone	
Ethnicity	**Urban %**	**Rural %**	**Urban %**	**Rural %**	**Urban %**	**Rural %**
Singhalese	58	69	79	93	59	91
Tamil	35	29	4	7	0	2
Moslem/moor	7	1	17	0	41	7

(ii)

Area	Dry zone		Intermediate zone		Environmentally sensitive areas	
Ethnicity	**Urban %**	**Rural %**	**Urban %**	**Rural %**	**Urban %**	**Rural %**
Singhalese	58	69	79	93	59	91
Tamil	35	29	4	7	0	2
Moslem/moor	7	1	17	0	41	7

(iii)

Area	Lagoon areas	Conflict affected areas	
Ethnicity		**IDP camps**	**Boundary villages**
Singhalese	91.4	31	83
Tamil	0.2	57	15
Moslem/moor	8.5	11	2
Burger	0.01	2	0

[101] ADB PPTA 3479-SRI, Poverty and Social Analysis.
[102] Figures derived from Dept Census and Statistics figures for Colombo, 2003.
[103] Figures for the North and East are incomplete.
[104] Disaggregated data not yet available for 2003.
[105] These percentages have been derived from raw census data and are not official.

49. The figures for the up-country wet zone indicate a high percentage of Tamils by comparison to the national average. This mostly corresponds to the high population of Indian Tamils working in the tea plantations, especially around Nuwara-Eliya. The high population of Tamils living in the dry zone reflects the concentration of Sri Lankan Tamils living in the North and East.

2. Ethnicity and the Investment Plan

50. Some of the issues that were suggested by participants during the surveys as being ethnically-linked are actually applicable for all communities. For instance, dumping of solid waste into rivers and other water bodies is common to all communities – hoteliers whether Moslems, Tamils or Sinhalese all pollute water through solid waste dumping and it is not possible to isolate any ethnically-related responsibility. The issue is usually more of where blame is ascribed. There are situations where Tamil/Moslem farmers in the downstream of irrigation systems blame Sinhalese farmers at the top end for over-use of irrigation water, and in other situations, Sinhalese farmers downstream blame the Indian Tamils in the estate areas for polluting the water because of their poor sanitation facilities, even though most human waste eventually ends up in waterways. The surveys carried out during the TA suggest that ethnic issues lie more in the potential for disputes over who is responsible for environmental damage between Moslem and Sinhalese communities and consequent disagreement over who is responsible for mitigation measures.

51. There is, however, one area where ethnicity may be an issue. Among the poorest groups of people in municipal areas are the Indian Tamils who work in solid waste collection and street cleaning as laborers. According to a JICA study in 2002-03,[106] the level of poverty among Tamil workers is extreme especially among those who work as casual laborers rather than as permanent workers. The report shows that municipal cleaning is highly dependent on Indian Tamils, who in turn depend on the occupation as an important, sometimes sole job opportunity in cities. Most of the supervisors of these workers and drivers of collection vehicles are Sinhalese, and Tamil workers have fewer opportunities for promotion. In Kandy, 71% of municipal cleaning workers are Tamil compared with 24% Sinhala; in Matale, 94% are Tamil. The Indian Tamils live in the poorest areas of municipalities, in labor quarters known as labor lines which were originally built in the colonial period. Their living conditions are characterized by very poor facilities such as toilets, housing and water supply. As with Indian Tamils in plantation areas, the Tamil workers in the labor lines have been marginalized from the mainstream of Sri Lanka society and there are few other work opportunities available to them. One of the reasons suggested for this marginalization is their very poor ability to speak, read and write Sinhala. In the section on SWM, recommendations are therefore made to include both the issues of facility in Sinhalese and poor living conditions in the SWM proposals for the investment plan in order to safeguard and enhance the livelihood options of Indian Tamil municipal cleaning workers.

52. The experience of the Sri Lanka-Australia Natural Resource Management Project (SLANRMP) suggests there is a need for different strategies for working with different ethnic groups over resource management. The Project found that working through mosque committees is an effective mechanism for working with Moslem communities because of the authority carried by religious leaders in that community. Communities involved in the TA's participatory surveys also suggested that working through religious leaders and committees would be a powerful mechanism for gaining local cooperation and for any inter-ethnic issues that arise.

[106] JICA, 2003. *The Study on Improvement of Solid Waste Management in Secondary Cities in Sri Lanka.*

3. Summary

53. The PSA has found no clear differences in access to or control of resources related directly to ethnicity apart from the specific case of the Indian Tamil municipal workers. Issues for the investment plan associated with ethnicity will be more concerned with negotiating through issues in ways that are culturally appropriate and effective, such as through mosque societies, temple societies and Christian churches. There may be some need to negotiate a sense of shared responsibility for NREM. Once again, advice from the communities the TA worked with is to manage this process through religious leaders. In the case of SWM, specific safeguards may be required to ensure the livelihood of Indian Tamil municipal cleaning workers are protected and enhanced.

54. The success of the investment plan will to a large degree depend on the ability of local facilitators to record and work within these realities in relation to NREM at community level when developing SK plans. The investment plan has therefore included proposals for training facilitators in the importance of, and connection between, ethnicity and NREM, as well as social mapping techniques. In addition, facilitators will be trained in conflict resolution skills to assist them to manage issues that arise over competing demand for resources (not just inter-ethnic disputes) and in disputes over responsibility for environmental damage. The inclusion of a process evaluation at the pilot stage will be designed to specifically incorporate an assessment of any barriers to implementation caused by ethnic differences.

55. A conflict resolution panel is being proposed by the investment plan at the Divisional Environmental Council level (PPM) to work on legal issues and the specification of who has rights to resources and so on. This body would also be required to intervene where appropriate if any issues arise between different ethnic groups. The experience of the SLANRMP team, however, has been that disputes are generally able to be managed at community level.

4. Caste

56. Caste is a form of social stratification in Sri Lanka. There is a difference between caste and social status. Caste is inherent from birth and cannot be changed but social status can be changed through a person's endeavors. However, those of lower caste with few opportunities for advancement will typically be of low status and to that extent the two terms will be interchangeable at community level particularly among the poor. Access to resources is not related to caste but caste is an invisible force in decision-making at community level – even if a low caste person owns land, decisions about that land may be influenced by higher caste people.

57. Traditionally, villages tended to be inhabited by members of only one caste.[107] This is not always the case today and in any case, the recommended use of functional resource planning units, rather than social or administrative units, means that in most cases planning will cut across social groups and involve different castes that have similar interests and claims over the same natural resource.

58. Managing the interaction between different castes with interests in the same natural resources will be an important component of the development of local level SK plans and may require delicate handling as it is a subject that people are often reluctant to discuss, e.g. members of a higher caste will often make excuses about attending a community meeting when it is known that a majority of lower status/caste members will be present or that the meeting concerns issues that are perceived to relate only to those of lower status. Opportunities for cooperative activities and other partnerships are therefore influenced by caste differences and facilitation skills and creative processes will be needed by facilitators to ensure all castes, preferably together, have a voice over a common resource or NREM issue. The process of

[107] Brow, 1981, from Van der Molen, 2001.

negotiating through competing demands in local planning will need to include methods to ensure that those of higher status do not get disproportionate benefits.

59. Strategies to ensure voice will include discussions in the community during reconnaissance visits by facilitators, agreeing if possible, means to overcome barriers to participation, and only if absolutely necessary, separate meetings of different castes. Part of the training of facilitators will include conflict resolution training as well as issues related to caste and how to work within them.

E. Use of Community-Based Organizations[108]

1. Potential for Involvement of CBOs in Sri Lanka

60. The investment plan proposes that actions and activities that can be addressed at the lowest level of planning should not be carried to a higher level as they have already been addressed in a planning sense and only need to be implemented. Issues identified at the SK level will be prioritized and where these priorities require a wider livelihood approach the planning process would need to initiate a community-based natural resource management (CBNRM) through which a localized livelihood program could be developed.

61. Sri Lanka has a history of CBOs and NGOs, and the GOSL has increasingly acknowledged the benefits of the joint effort, particularly in relation to NREM. CBNRM is already taking place in Sri Lanka to some extent, as at present there are more than 300 NGOs/CBOs in Sri Lanka, most of them working in protection of forest, wild animals or biodiversity.[109] CBOs in the resource rich wetland areas of Puttalam District are working in collaboration with community stakeholders and the DWLC[110] to manage the resource base, and the FD has been working with community stakeholders to develop resource management plans. Other CBOs in the lower Maya Oya Basin are working to regulate sand mining in collaboration with local authorities and in the south, around Galle, the AF has successfully trialed a SWM project in poor urban areas that also targeted poverty. The AF now works in other areas of Sri Lanka.

62. During the surveys, communities in all locations visited throughout Sri Lanka rated the water consumer societies as among the most effective. The CEA-supported Village Environmental Committees are gaining acceptance in the dry zone and coastal areas (although not yet elsewhere).

63. Some important lessons have been learned to ensure a sound CBNRM approach[111] and these will be taken into account in the investment plan:

- Both communities and local government authorities require a change in mindset from a supply-driven to a demand-driven approach to NREM.
- There is a need for a shared vision and associated goals and strategies for NREM by all stakeholders from community to national levels.
- NREM needs to be carried out in a wider livelihood framework if it is to work and to have lasting effect.
- Community initiatives must be placed and analyzed in the context of all NREM efforts at all levels and key common constraints identified.
- Management of natural resources must be undertaken through participatory, transparent, predictable and accountable decision-making at all levels.

[108] Includes information from Study of CBNRM Initiatives, Appendix 3, Volume III.
[109] JICA 2003. *Study on the SWM for Secondary Cities in Sri Lanka.*
[110] Study of CBNRM Initiatives, Appendix 3, Volume III.
[111] Derived from Participatory Solid Waste Management at Provincial Level prepared by the AF, August 2004.

- Responsible public-private and community partnerships and linkages need to be promoted at all levels of NREM.
- The concept of "the polluter pays" with associated encouragement to reduce waste and recycle as much as possible is an underlying principle.
- Natural resources such as sand, that have previously been regarded as a free good, need to be considered as an economic good and treated accordingly.

2. Women and CBOs

64. Women are a predominant force in CBOs throughout Sri Lanka. A number of women NGOs are active delivering services, community development and self-employment activities as well as research, advocacy and activism. Key posts in CBOs are generally held by women and women are more active than men in the organizations. School environment societies, Samurdhi, thrift and credit societies, and water consumer societies are examples of female-dominated CBOs in the rural areas. There are several NGO/CBO networks that have been successful in providing opportunities, particularly for poor women, e.g. through the Seva Vanitha program and the AF. These and other programs have shown that women have a strong interest in micro-credit and that this appears to be closely related to the level of poverty.

65. Access to micro-credit is of special importance to the 20% of female-headed households who mostly work in the informal sector and have limited resources.[112] The AF, for example, facilitates the formation of mainly women CBOs in communities for SWM and provides support. An important aspect is that it uses solid waste to generate value from which savings are established, which in turn enables the microfinance cycle to start. The effects of women's activity in these CBOs include the following benefits:[113]

- The generation of income through the sale of recyclable components of solid waste and the sale of vegetables grown using compost made from organic components of solid waste; and
- Improved incomes through realizing opportunities made possible by the provisions of credit through microfinancing activity.

66. Other benefits identified by women participating in CBOs include:

- Acquisition of organizational and other skills through involvement in running CBOs and participating in savings and loan activity.
- Acquisition of a savings discipline allowing them to assist their families to manage their finances more efficiently.
- Improved time-management skills stemming from the need to maintain their households and feed their families as well as meet the time demands of CBO activity.
- Opportunities for women and their children to realize and utilize individual talents and aptitudes.
- Increased and more positive interaction with neighbors both within the individual communities and among communities, leading to stronger friendships and greater mutual help.
- Greater confidence in dealing with authorities and the public over issues of concern.

[112] ADB: 1999. Women in Sri Lanka.
[113] Fraser Thomas, 2002. *Community Integrated Solid Waste Management Plan.* Project Report.

3. CBNRM and the Investment Plan

67. Those more successful CBNRM programs operating in Sri Lanka have been shown to provide valuable changes for livelihood, especially for women, and have provided a testing ground for the CBNRM approach. A range of approaches to CBNRM is proposed by the investment plan. They include utilizing a similar model to the AF for SWM, especially involving women, formation of CBO with joint problem-solving mechanisms at community level for integrated natural resource management and wetlands areas, and the formation of CBOs out of current small-scale river sand miners as part of the proposed sand mining policy.

68. Women are presently dominant in CBO activity but it will be important to ensure men are also given the opportunity and encouraged to take part in CBO activity at SK level. There may be issues over accessibility for group formation. Fraser Thomas Ltd in their study of SWM in Galle, observed that there were numbers of poor households scattered among middle or higher income areas, occupying small gaps of land that exist between larger properties. These households are relatively isolated from others in similar circumstances creating a particular difficulty for group formation. In other areas, cultural norms restrict women from traveling far from home or at night and these concerns need to be taken into consideration in CBNRM activities in order to avoid exclusion of some groups of the community.

69. It will be important that the process of CBO and CBNRM development does not simply reflect those who presently are dominant in community level decision-making but includes those that are marginalized or even outside the system.

F. Summary of Key Social/Poverty Issues

70. Table 50 summarizes the main features of social/poverty characteristics in Sri Lanka and their impact on access to resources and the implications for demand for environmental services.

Table 50: Summary of Key Social/Poverty Issues

Issue	Features	Affect on access to and use of resources	Affect on demand for environmental services
Poverty	Poverty increasing; higher in rural areas, in urban slums and conflict areas; those with few physical assets are poorer. Those who rely on farm activities, especially estate workers are more likely to be poor.	The poor often have no choice but to continue to degrade natural resource; they are also often the victims of natural resource degradation by better-off members of society.	Services will need to concentrate on provision of livelihood choices if any changes are to be made; Linking service delivery with income-generation components is a key issue. Focus on sanitation and primary health care/ health education and other livelihood links with NREM.
Gender	No major gender differences at an overall national level but at community level there are gender differences and cultural restrictions. Women make up the majority of members of CBOs and in microfinance activities.	Access to resources tends to be gender-based – there are cultural restrictions on access to land, decision-making, types of employment and mobility.	Services will need to ensure access by women is facilitated – in terms of location and by ensuring that men or more powerful women do not make decisions for others.
Ethnicity	Indian Tamils on plantations among the poorest and access to them is complex; all ethnic groups degrade the environment and there may be disagreement among different groups over responsibilities for pollution etc.	No direct connection found between ethnicity and access to resources in the surveys but there may be some connections in specific locations.	Services may need to be delivered through the assistance of appropriate cultural/religious bodies such as mosque and temple societies. Indian Tamils working as municipal cleaning and solid waste collection laborers may need special attention.
Caste	Opportunities for cooperative activities and other partnerships are influenced considerably by cast differences.	No direct connection found between caste and access to resources.	Services delivered at community level and/or through CBOs will need to ensure that caste issues are taken account of so that the higher status do not get disproportionate benefits; education.
CBO/NGO activity	CBO/NGO activity widespread in Sri Lanka, including CBNRM approaches; women are especially involved in CBO/NGO activity in the country.	A number of CBNRM processes have been devised for various aspects of NREM, some successfully, e.g. women especially have been assisted to develop income-generation in connection with SWM at HH level.	Service delivery may be best managed through CBO/NGOs where there is existing capacity and experience, or capacity building may be required. It will be important that the process of CBO and CBNRM development does not simply reflect those who presently are dominant in community level decision-making but includes those that are marginalized or even outside the system.

G. Overview of Social Risks and Possible Mitigation Measures

Table 51: Social Risks and Mitigation

Social Risk	Possible Mitigation
Poor people have no choice but to continue to degrade NRE.	Provision of alternative livelihood possibilities through skills training, start-up credit.
Benefits may not extend to the poor and excluded.	Build capacity at GN level to ensure poor and excluded are targeted effectively and processes are transparent. Ensure appropriate monitoring to make sure poor and excluded are targeted. Include assessment of targeting of poor and excluded in the process evaluation at the pilot stage.
Women, especially poor women, will be marginalized.	Provision of appropriate forums for women to have their say; ensuring women's activities in each SK are accounted for. Use of existing women's CBOs where appropriate. Assessment of barriers to women's participation is included in the process evaluation at the pilot stage and that findings are used to develop the engagement with women in implementation.
Ethnic issues may be more of an issue than was suggested by the PSA surveys.	During the pilot phase, ethnicity issues including NREM and access and control issues as well as any areas of disagreement will be monitored closely and assessed through the process evaluation. Particular attention will be given to any issues related to Indian Tamils who are frequently the poorest and who live in communities quite separate from the rest of the country. Transition strategies may be required for them.
Political interference.	Mobilization; education in NREM issues of local level politicians; awareness raising of communities who in turn will influence politicians.
Competing demands on common resources will cause social tension.	Education programs on NREM and the need to find shared community solutions; "polluter pays" mentality encouraged throughout the community.

IV. KEY LIVELIHOOD ISSUES BY ECOLOGICAL ZONE

A. General

71. The sustainable livelihood framework is centered on the development assets available to communities and focuses on building them within the context of risks that make communities and the individuals within them vulnerable. The definition of assets is inclusive of human resources, social capital, natural resources, physical infrastructure and financial capital. By increasing people's assets, we are likely to increase their achievement of positive livelihood outcomes. While social, human, financial and physical capital can be changed significantly, natural capital is basically finite (unless there is significant reallocation) and therefore will not be increased.

72. The following summarizes the main livelihood issues of each of the main ecological zones. The information is based on findings from the participatory social surveys. Table 52 describes the areas surveyed in each zone and lists the key vulnerabilities based on the sustainable livelihood framework. Table 53 summarizes the main livelihood assets and the implications for the investment plan.

Table 52: Areas Studied in each Ecological Zone and their key Vulnerabilities

Zone	Areas Surveyed	Vulnerability Trends
Wet zone	• Low country wet zone, Galle, Matara, Kalutara, Ratnapura • Mid country wet zone, Kandy, Matale • Up country wet zone, Nuwara-Eliya, Kegalle	Seasonal unemployment; under-employment. Unemployment especially high in estate and coastal areas. Flooding, declining water quality, major increases in unmanaged solid waste.
Low country dry zone	Anuradhapura, Hambantota, Polonnaruwa, Kurunegala, Puttalam,	Shortage of potable water, stalinization; some human/elephant conflicts, unmanaged solid waste, land degradation, population pressure on irrigable land.
Intermediate zone	Urban Badulla and Matale and the rural areas of Kandy, Nuwara Eliya, Badulla and Matale.	Population migration to towns, high poverty levels, community's perceived weak capacity of local authority, human/elephant conflicts, deforestation leading to soil erosion and lack of water.
Environmentally sensitive areas	Upper watershed: Ambewela, Coastal river basin: Gangewadiya, Protected Forest: Ritigala	Heavily dependent on natural resources for livelihood, soil erosion in the upper watershed, lagoon silting and reduction in fish stocks threatening income sources, population pressures, low level of land ownership, forest fires, human/elephant conflict, low levels of education in people in lagoon areas and upper watershed areas.
Lagoon areas	Rakawa West, Kalamatiya, Barudapola, Marawila, Kurigngnanpitiya	High level of seasonal unemployment, low land ownership, community's perceived weak capacity of urban council.
Conflict affected areas	Boundary villages: Parana Eluwankulama, Samudragama, Varodyamagar, Rampaikulam, Pdubulankulama, Alagalla, IDP camps: Manathive, Rathmalyaya, Puththottam	Communal conflict, high levels of displaced families, severe forest and other natural resource degradation following years of conflict, high level of poor female-headed households, high unemployment and under-employment; very low institutional capacity, severe lack of amenities and poor infrastructure.

B. Conflict Areas

73. The conflict areas will need special attention. The protracted period of civil unrest has led to a high degree of poverty and natural resource protection has been severely compromised. Many forest areas in the districts of Vilpattu, Monaragala and Polonnaruwa have been subject to extensive deforestation and large-scale tree felling for timber. The influx of displaced people into townships and border areas has created problems for drainage, SWM and water pollution. There is no systematic solid waste collection and no appropriately managed final disposal. There is a large number of war widows, and the maternal mortality ratio and infant mortality rate are double and treble the national average respectively. Unemployment is high particularly among internally displaced persons (IDP). Figures of socio-economic characteristics are not yet included in the official datasets but the government's operating assumption is that poverty incidence in the Northeast is roughly the same as Uva, the poorest province in the South (based on the higher poverty line), that is, around 50-55% of the population. Education levels are low with 25% of the population in IDP camps reported as illiterate and up to 10% on the boundary villages. Much education is provided through non-formal institutions such as NGOs.

74. Despite the level of problems there is a high potential for mitigation with outside resources. The level of organization of the Liberation Tigers of Tamil Eelam (LTTE) is considered by the social team that visited the region, to be high. There is also a strong commitment on the part of the authorities to solving both the problems of poverty and natural resource degradation. NGOs are already a valuable source of support for people in the area and their experience with training and education would be helpful for awareness raising of NREM and related issues in a CBNRM approach.

Table 53: Summary of Livelihood Assets by Zone

Zone	Social Capital	Human Capital	Natural Capital	Financial Capital	Physical Capital	Key Asset Issues
Wet zone	Predominantly Sinhalese especially in rural areas. Moslem population high (41% in low country areas) but elsewhere low. Tamil population high in up-country wet zones where they work on plantations. Not a lot of NGO/CBO activity: mostly farmer organizations and rural development societies. Sarvodaya (promotes water resource conservation) is considered effective in up-country rural areas. **Vulnerable groups** Urban slum dwellers, migrant laborers, families living low income housing schemes. Those with land permits, illegal occupants of reservation of roads; factory workers. In the up-country areas, the most vulnerable are: estate workers, rubber estate workers, vegetable farm laborers, land less families, encroachers of reservations and watersheds.	All social indicators are lower in the up-country areas reflecting the high proportion of Indian Tamils in the plantation areas. Education tends to be mostly up to O levels (around 15, 16 years). Unemployment is around 15% although high in coastal districts - 18-20% of the total labor force. In the mid- country, unemployment is high among young women, particularly Moslems and Tamils. In the estate areas unemployment is around 25-30%.	Land ownership is common in urban areas – around half have their own land; 1/3 of the rural people live on their own land; most rural people hold a permit to use land or rent. Most rural plots are small except in the up-country areas where there are plantations and absentee landlords are common; elsewhere in rural areas between 30% and 80% have land up to 1 acre.	Poor people and women in the zone indicated that they had access to SANSA and Samurdhi for micro-credit. Overall, around 60% of the poor have access to formal credits.	Most people have permanent houses. Housing situation is poorest in the up-country areas among Indian Tamils where around 48% have housing in semi - permanent or temporary materials or no housing. Water supplies in the rural areas come from wells, rivers, and some tap. Urban areas predominantly tap supply.	Major asset limitations especially in upland plantation areas. Urban slum dwellers also have very limited asset capital. investment plan will need to ensure livelihood activities and access to credit for the poorest who impact on the natural resource or are affected by natural resource degradation. Focus on CBO development.

Zone	Social Capital	Human Capital	Natural Capital	Financial Capital	Physical Capital	Key Asset Issues
Dry zone	Predominantly Sinhalese (97%); Moslems 2%. NGO/CBOs: Rural Development Societies and Samurdhi are active; as are Welfare Societies such as funeral societies. Societies for the protection of human rights and natural resources work in awareness raising and land and environmental protection. **Vulnerable groups** Small farmers, encroachers, laborers and inland fishermen.	High levels of poverty throughout the zone. Illiteracy is 7% in rural areas; education usually only to primary level; more children go to school in rural areas than urban. Around 18% of urban workforce is engaged in paddy cultivation (they travel to the land); major income sources are paddy and chena; some fishing.	Most people access land through permits; most people have access to more than 1 acre.	There is a shortage of, or in some places no, access to credit for many villages in the interior areas. In settlement schemes, there are microfinance societies based on small groups of women and CBOs such as Rural Development Societies and Samurdi provide microfinance services. Regional banks are available in townships and market centers. Overall, less than 50% of the poor have access to formal credit sources.	Most people have houses in permanent materials; Water supply: 70%+ depend on tanks or reservoirs in urban areas; rural water supply is mostly wells; agro wells are common in the low-country dry zone.	Human asset limitations – poverty and low education. Active CBO network, a positive social asset. Can build on existing CBO strengths.

Zone	Social Capital	Human Capital	Natural Capital	Financial Capital	Physical Capital	Key Asset Issues
Intermediate zone	High population density in urban locations – internal migration in last decade: Urban areas, half are Sinhalese, high proportion of Moslems (34%) and Tamils (16%); rural areas are predominantly Sinhalese – around 72%, with 22% Moslems and very few Tamils. NGOs/CBOs: No prominent NGO activity in urban areas; a number of CBOs in rural areas: Parisara kamituwa and environment conservation organization are active especially in activities for children and in forest protection. Samurdhi is active. Village Environment Committees are active but not very effective; farmer organizations considered effective. **Vulnerable groups** Non-farm casual laborers in urban areas and landless poor in both rural and urban areas; agricultural workers in rural areas.	Illiteracy is 6% in the rural areas and education is usually only primary level; in urban areas, levels are higher. Around 30% are considered poor with no permanent income sources.	20% only of urban HHs own land, most rent. In rural areas, most hold permits to state land; level of landless poor is high relative to other areas (urban: 11%, rural: 16%).	Urban poor and Moslems have more access to formal credit. Most of the disadvantaged rural locations have no or a shortage of formal financial services. Informal savings and credit systems among women are popular and mitigate vulnerability during hard seasons. Overall: less than 50% have access to formal credit.	Most people have housing in permanent materials; semi-permanent and temporary materials are more common in rural areas. Rural water supplies are from wells, streams, rivers. Piped water increasing.	Low natural capital – land ownership; high vulnerability Need to strengthen CBO activity.

Zone	Social Capital	Human Capital	Natural Capital	Financial Capital	Physical Capital	Key Asset Issues
Environmentally sensitive areas	Mixed ethnic groups in upper watershed areas; coastal river basin and protected forest areas 100% Sinhalese. NGOs/CBOs: Very few CBO/NGOs working in natural resource. Farmer organizations considered effective. Deewara samitiya works in area of aquatic resources and considered effective. **Vulnerable groups** Most vulnerable group are the inhabitants of coastal villages.	Very poor levels of education in coastal and upper watershed areas – most (75%) only up to primary level. Around 30% of fisheries community has no formal education. In rural mid-country protected areas, education levels are higher. Women are main income earners in coastal fishing communities.	24% land owner/operator in upper watershed areas; 44% in protected forest areas. Entire coastal village population is landless – most are permit holders or encroach.	Formal credit sources are in operation in most places. In upper watershed areas many projects and NGOs provide micro credit for poor. In coastal areas women credit savings societies are strong. Overall less than 50% of poor have access to formal credit sources	Majority of houses in upper watershed and mid-country protected areas live in houses in permanent or semi permanent materials; coastal communities live in housing of temporary materials. Water supplies: upper watershed and forest areas – storage tanks; coastal villages – streams and rivers.	High vulnerability; low human capital in terms of education and training; low natural assets especially in coastal areas. Plans will need to focus on building CBO capacity; asset capital growth for all groups especially crucial.
Lagoon areas	90% Sinhalese, less than 1% Tamils; Proportion of males is higher than women – mobility for women is culturally more flexible in this area. NGOs/CBOs: CBOs active especially in SWM; Fisheries Societies considered effective. Jayabima Foundation works in forest and coral conservation. Faruk Foundation works in coral conservation. Farmer organizations very effective. Deewara samithiya provides financial facilities for fishing and activities related to conservation of aquatic resources. **Vulnerable groups** Seasonal and casual laborers.	Mostly primary education level; 32% to O-level. High poverty levels, school drop-outs. Income sources: seasonal fishing and temporary labor; 25% in high land and paddy. Many women seek employment elsewhere, in factories and the Middle East.	Land ownership around 33%; around 50% have access through permits; little encroachment (because of government crack-down); most (70%) land size is <0.5 acres.	Those HHs that encroach and are land less are the most vulnerable and lack formal financial support services through banks. Local micro credit societies play an important role. Overall: Less than 50% of poor have access to better financial sources	Most have permanent materials for housing; 25% are in temporary housing. Water supply: piped water.	Mobility of people and especially women positive aspect of social capital as is active CBO network.

Zone	Social Capital	Human Capital	Natural Capital	Financial Capital	Physical Capital	Key Asset Issues
Conflict-affected areas	Majority of IDPs in camps are Tamil; around 30% are Sinhalese and they in certain areas only. More males in camps and urban areas – women are only 43% in camps. In boundary villages many female-headed HHs as men were killed in conflict and many men have migrated. Boundary villages are predominantly Singhalese. NGOs/CBOs: Large number of NGOs, especially international, operating; farmer organizations and Fisheries Societies are the only CBOs. Jayaudana provides drinking water in refugee camps. Farmer organizations operate in boundary villages. Deewara samithiya works in aquatic resources. **Vulnerable groups** High level of vulnerability throughout the zone. Female-headed HHs especially vulnerable as well as unemployed people.	Education levels low; in camps, 25% are illiterate and 10% in boundary villages; education often provided through NGOs. High levels of unemployment: estimated 60% in camps, 40% in boundary villages; income sources farm and non-farm labor.	No land ownership; access to land for paddy cultivation on lease basis for about 9%; considerable degradation of natural capital.	Most are vulnerable and totally dependent on NGOs and government relief agencies. Formal banks are not operating in many areas. Majority have no access to formal credits. Overall: more than 70% of poor have no access to loan and credits.	Temporary housing levels very high in boundary villages. Water source mostly from wells.	Generally low asset levels in all communities. Very high vulnerability. Urgent attention to building asset capital will be crucial for any NREM.

V. THE INVESTMENT PLAN

A. Proposed Planning Mechanism at Community Level

1. The Livelihood Approach

75. The proposed investment plan adopts as one of its bases the DFID sustainable livelihood improvement framework which is centered on an understanding that it is the assets available to local communities that provide the building blocks for their livelihood. Assets include not only the more obvious such as natural resources – land, water, fisheries, etc. and financial resources, but also available infrastructure, social networks and organizations, and skills and knowledge. The extent of the assets available is what for the most part determines the range of choices people have over their livelihood. A livelihood approach comes naturally to people at community level – they are generally very clear about the context in which they live and the choices they have available to them and why, and they are also very aware of those issues which threaten their social and economic wellbeing.

76. NREM must fit within the context of local community livelihood, otherwise people will continue to use natural resources to support their lives as they have done in the past, particularly poor people who have few if any other choices but to do so. The proposed approach of the investment plan has been designed to ensure greater choice of livelihood options through the use of collective responses and solutions, greater transparency in decision-making, greater certainty, and provision of voice to all in the community including those who are marginalized in some way. At the same time, many new choices will require increased access to non-natural capital development resources as demand for natural resource exceeds supply. That is, development of social, human, physical and financial capital will be critical elements of SK action plans and facilitators will be given training to understand these key issues. The investment plan, therefore, is targeting sustainable NREM, of which the reduction in poverty is one aspect.

77. The issues that contribute most to poverty – population pressure, resource scarcity, inability to break out of the poverty cycle, vulnerability to shocks, and the limited availability of alternative employment and income earning opportunities – are key concerns that will need to be addressed in local level planning processes and will be site specific. The Interim Report identified some key factors that have the potential to provide benefits as well as potential risks for the poor. They were presented for forestry but have relevance for all NREM. They are:

- Security of access – the poor need to have access to and control of the resources they depend on for their livelihood.
- Skills and education – the poor need to have managerial skills, such as negotiation, contracting, technical skills, etc. in order to participate in and compete for business.
- Market information – where to get reliable advice and guidance.
- Communication infrastructure and connectivity – bringing sellers and buyers together.
- Contract design – long-term commitments are likely to exclude the poor as they need to have flexible livelihood arrangements to cope with the unexpected.
- Financial resources – the poor are unlikely to have sufficient funds available to allow them to participate in markets.

2. Competing Livelihood Strategies

78. The sustainable livelihood approach values social sustainability, inclusion and equity and prioritizes the interests of the poor. At community level, a range of social divisions and stratifications have been identified in Sri Lanka that may impact on all of these desirable characteristics: local power structures, elites, gender, caste and ethnicity issues may make it difficult for everyone to achieve improvements in their livelihood at the same time. The problem

of competing demands for natural resource together with the lack of homogeneity at community level, and among the poor themselves, will be a major issue for successful implementation of the investment plan. While there is no universal solution, key strategies will be:

- Ensuring poor people have access to increased choice and opportunity, together with enhanced ability to take advantage of opportunity. This is achieved by developing their asset capital - social, human, natural, financial and physical capital. That is, ensuring they have opportunity to take an active part in decision-making on natural resource issues at community level, facilitating alternative or enhanced income-earning possibilities or ensuring they can compete for non-natural resource roles in employment and livelihood activities, improved access to resources where appropriate and so on.

- Using participatory methods to find out about the issues of asset capital at local level for different groups, and to uncover barriers to access such as gender, ethnicity or status. Participatory methods also help to engage members of a community as well as key players such as NGOs, CBOs and other service providers, in joint problem-solving.

3. The Proposed Mechanism

79. Implementation of the livelihood approach begins at the individual level in communities where the proposed decentralized planning framework focuses on putting in place the necessary conditions for devising improvements in NREM and livelihood and then implementing them. The TA proposes a series of plans that, while linked, are not replications starting at the SKS level (i.e. functional resource units rather than administrative units). Planning will be bottom up: SK level plans will focus on issues that can be dealt with at a local level and only those issues that (i) require coordination across SKS boundaries will be addressed at the PPM level, and (ii) fall within a still larger strategic framework will be handled at provincial level. SK plans will be developed based on local needs, that is, they will be demand-based, and processes will be developed and refined that allow all those stakeholders in NREM at community level to have a voice in the planning.

80. The investment plan proposes that the SKS planning process will be facilitated by a team of three facilitators (a minimum of one female). Interaction between the facilitators and the communities will begin in the early stages of implementation, even before national and regional level NREM processes are completed. The facilitators will work with local communities to identify those groups of people who depend on, are affected by, or use natural resource, and to determine their issues and needs. The planning team will undertake a two-day reconnaissance program in the SKS to review the data, build information from local stakeholders and discuss with stakeholders the planning process, its purpose and how they can participate. The process of reconnaissance is based on adopting a stakeholder perspectives approach along with the principles of rapid appraisal techniques to describe the SKS, its resources, resource use and its effects. This phase is critical in the overall process in that it defines participation within the entire planning process. As such the following social inclusion parameters need to be applied:

- landless households including women-headed households;
- women;
- young and elderly;
- people from across all religious and social caste backgrounds;
- people from the range of wealth categories as identified through PRA process in the reconnaissance program; and
- people currently linked to illegal possession, squatting or illegal extraction of resources.

81. The above groups would be identified as well as their views and understanding on issues relating to: (i) resource use and access; (ii) problems and vulnerability due to shocks, trends and climate; (iii) control of resources; (iv) the need for gender differentiated and inclusive programs; (v) current institutions; and (vi) areas of conflict.

82. Representatives of these groups will be approached during the reconnaissance program to ensure that socially acceptable means are provided for ensuring their voice and requirements are built into the planning processes. This may, in certain instances, require smaller meetings during the planning process to enable them to express their views. While the facilitators will be the focal point, the reconnaissance program will also be supported through local volunteers sourced from educated youth and experienced community members mobilized by the DEO or by members of the PPM as part of their networking program.

83. The reconnaissance program will be followed by an SKS one-day planning workshop and facilitated by the planning team. The workshop would follow the concept of developing a planning matrix using a livelihood framework structure that builds a picture of the development assets for different social groups within the SKS, assessing the degrees of vulnerability each faces and the causes of these vulnerabilities. Equally important are the mechanisms for accessing capital and the rules or norms that enable groups to access resources and their associated benefits. The construction of the assessment will use PRA techniques that are already widely applied in Sri Lanka.

84. Facilitators will be required to find ways of ensuring appropriate community participation in the planning process. One option will be for the facilitators to work with existing CBOs if appropriate. Another will be to encourage the community to form into small groups as in the SLANRMP. These small groups may then be constituted as CBOs where none exist. In the SLANRMP, community members select those with whom they can work in a small group. For example, the local elites may form their own groups while the poor will be encouraged to form into separate groups if their voice is unlikely to be heard in the presence of other groups. Facilitators will ensure that representatives are included on any joint planning committees from both the socially powerful and less powerful groups. CBOs will be federated as Local Environment Planning Council that will be mandated to mediate in local NRE disputes and function as the citizen/user mechanism for voice and oversight of NRE services.

85. Capacity building will be important especially for poor people. This will be facilitated from the beginning through training and mentoring through existing CBOs and/or through the Local Environment Planning Council.

86. The training of SK facilitators and their subsequent work with communities will be a key component in the success of the investment plan. If the SK planning does not take account of all those in the community who rely on or impact in any way on NRE, especially those who have no option but to degrade natural resource, then the objectives of the proposed investment are unlikely to be achieved. If marginal groups and the most vulnerable in communities are not included, then there is a risk that decisions made on NREM in the SK will be made by existing elites who will, as a consequence, receive the most benefits from the investment plan, driving those who are the least able to defend the environment into degrading it further.

87. An essential component of the investment plan therefore, will be to select appropriate facilitators, provide them with full and comprehensive training as well as ongoing support, training and mentoring for field planning activities. An understanding by the facilitators of the key issues of the sustainable livelihood framework and the intersecting influences of ethnicity, gender and caste on NREM, combined with the ability on the part of the facilitators to integrate these issues into the planning process, will define the success of the plan. At the same time, facilitators will be required to ensure that it is the perspective of the stakeholders that is obtained and to not impose their own views. Tools such as field mapping, matrix analysis for ranking and prioritizing and gender checklists will be provided to facilitators. The DEO will

provide support services for the facilitators and local planning committees and act as an information source relating local needs to the priorities of national government. During the pilot phase, field manuals will be developed by MENR based on the experience and findings of the facilitators.

88. Where appropriate, CBOs or NGOs will be contracted for specific CBNRM work, e.g. an NGO/CBO will be contracted for community mobilization for recycling activities based around the household following a model similar to that piloted and tested by the AF.

BOX 1: COMMUNITY LEVEL NREM RECONNAISSANCE PROCEDURES

The work at reconnaissance and SK plan stages will include the following processes:

(i) Social maps, including for example:
- who does what, where
- special consideration of the most vulnerable people - with little (e.g. under 1 acre) or marginal land
- landless
- women-headed households
- farm/plantation workers

(ii) Usage and resource maps

(iii) Problem/issue maps
- Facilitators will hold problem-posing sessions with communities on issues of concern. Instead of simply talking about the problem, people can be asked to present a case study (this will enable facilitators to determine the impact on them, indicate key stakeholders, etc). The livelihood pentagon can be used to begin discussion on livelihood approach to NREM and to identify key issues in a community – i.e. “what are the NREM issues related to your economic interests, your social interests etc”.

(iv) Access and control issues such as:
- who has access to and control of resources
- what is the power structure in the SK – how are decisions made

(v) Stakeholder identification/perception meetings
- Where the pentagon model is used to determine what women/marginal/vulnerable groups have access to and control of. They can be joint sessions, unless it is an issue getting certain groups to participate/speak out in the presence of other groups as a community understanding and discussion of these different issues, exclusions etc, and relationship to livelihood and NREM will be an important start to awareness raising.

(vi) Power structure – this is not necessarily the administrative power but the reality on the ground.
- Would be determined by asking not about power but about how decisions are made and who makes them for others. Farmer organizations have been frequently used (and required) by donors but inside the organization, decision-making can be quite excluding. Richer male farmers, for instance, often get to steer the discussions and influence outcomes of decisions and women and landless or land-poor are not able to participate. The system of elites is an issue as well, where a few families may control decisions, and the lower status groups are dependent on them for their livelihood. These structures are important to understand if we are to avoid reinforcing existing inequalities and force the marginalized to damage natural resources further.

(vii) Conflict issues/areas

- key issues relating to demand, supply and degradation of resources
- identify issues/resources where there is conflict over access, usage and/or who is responsible for the damage.

(viii) Community organizations operating in the SK.

89. At PPM and PPS levels, the following stakeholders and safeguards are recommended:

NREM Level	Stakeholders	Safeguards
PPM	Relevant local government staff; DS staff; sector and provincial staff; elected members of the local authority, provincial council as well as members of Parliament; DEO, CEA as an environmental focal point and facilitator; CBO representatives including resource user groups (e.g. water users, sand miners); women and youth groups; and representatives of Chambers and Business Leaders.	Awareness and education programs will create and retain awareness of the program and the requirements at all levels. Pilot phase will be used to develop safeguards to ensure full and active participation of all stakeholders, especially those from community level (SKS). Action-learning will constitute a key input into the change management process. There will be several elements of action-learning that would be built into the change management process: (i) annual/bi-annual stakeholder reviews at each level of planning; (ii) reporting systems at each level within an integrated performance benchmarking and environmental reporting system; and (iii) technical secretariats at each level that will perform an evaluation function. Guidelines and manuals for planning and management of NRE services will include requirements to ensure stakeholder involvement together with training; information and reporting systems will include mechanism to measure community and other stakeholder participation. For example, procedures will be devised to ensure women can take part in decision-making despite any restrictions on their mobility.
PPS	Relevant provincial secretaries, heads of departments, planning and budgeting staff; provincial level officials of sector agencies; regional CEA staff for technical assessments; DS; chairpersons of local authorities; representatives of private sector chambers; representatives of NGOs; and representatives from the Divisional Forum and Local Environment Councils.	

B. Investment Plan Components

90. The investment plan has identified two components: (i) solid waste management and (ii) natural resource and environment management based on sustainable livelihood. For each of these applications, a decentralized NRE planning approach is proposed. The investment plan proposes that the initial entry point to communities is best achieved through SWM. During the pilot phase, it is proposed that the CBNRM approach is modeled on that developed by the AF for SWM among poor communities. The implementation of this component will be contracted to a NGO for the pilot phase.

91. The major issues affecting all zones in the rural areas include land and soil degradation, scarcity of drinking water and declining water quality, poor SWN, and flooding of rivers and waterways. More than 80% of all identified problems are found in the wet and intermediate zones. In the urban areas, increased population and decline of natural resource bases as a result of industrialization and urbanization has exacerbated problems. Key problems found across urban areas of all zones studied include declining water quality, poor SWM, pollution of water from dumping of waste and rubbish, spread of mosquitoes and health hazards. From the surveys carried out during the TA, the main causes reported by communities and key people are weak institutional management, lack of awareness and interest in natural resource issues among the community, and lack of a sense of ownership of the problems.

92. As discussed earlier, the October/November 2004 consultations with communities revealed a high degree of willingness to tackle NREM problems at local level even without significant outside assistance. A range of potential solutions were raised by communities that could be implemented by local groups and organizations.

C. Solid Waste Management

1. Findings from the Survey

93. A case study on SWM was carried out in 15 GNs in the Southern Coastal Zone, involving 357 participants. In addition, SWM was included in questions on the broader issues of

NREM in the Maha Oya Catchment as well as in the distinct ecological zones studied in the participatory surveys. SWM has been identified as a problem in all communities studied. Waste is commonly dumped alongside roads, in waterways and drains and on empty areas of land. There are associated health costs, damage to water supplies and the visual effects are not conducive to tourism. Plastic waste, especially plastic bags, is also a recurring concern in the findings of the surveys. The surveys identified that lack of knowledge, a lack of a sense of ownership of public properties, lack of systematic solid waste disposal systems, increasing settlements and poor facilities and funds of local authorities were seen as the major causes of the SWM problem. The perception of communities was that SWM is the responsibility of local authorities and there appeared little enthusiasm for self-help measures to mitigate the problems.

94. However, a series of consultation workshops held in October/November 2004 at divisional and sub-divisional levels revealed a high degree of community willingness to tackle NREM problems at a local level without outside support. Solutions for SWM raised at the workshops in Aranayake, included household recycling and composting programs and home gardening using the compost. Local action on these proposals was identified as being able to be carried out by farmer organizations, religious centers, voluntary organizations and local CBOs. Other proposals were suggested that required some outside technical support such as public awareness programs, training and so on. The solutions presented somewhat overturned the observation obtained earlier that there appeared little motivation by communities to make changes in SWM for themselves without relying on local authorities. What appeared to be necessary was a mechanism for bringing stakeholders together to discuss issues of common concern and to agree on possible solutions. Given the concerns raised earlier about possible social tension between different groups over NREM issues, this is a positive indication that communities are willing to work together to find common solutions.

2. SWM and Links with Poverty

95. The link between poverty and creation of solid waste is not necessarily a direct one. While the surveys found that more than 50% of inappropriate solid waste dumping issues in both rural and urban locations were linked to the lowest income groups, this was at least in part because of a lack of alternatives to disposal, rather than necessarily an inherent consequence of their poverty. Poor communities in urban and peri-urban areas frequently construct settlements next to or over-polluted waterways where there are few if any alternatives to solid waste and sanitation disposal other than to contribute further to the waterway. Those better-off were also found to be responsible for inappropriate dumping of solid waste: solid waste from restaurants and hotels, butcheries and vehicle service stations were perceived by communities to be responsible for poor solid waste practices that impacted on the environment and an earlier JICA study[114] concluded that waste generation for higher income level groups in Sri Lanka was similar to those found in developed countries.

96. Nonetheless, there is an important link between SWM and its potential for poverty reduction. The Arthachariya Foundation (AF) is an NGO whose primary objective is the alleviation of poverty through social mobilization and empowerment. It has found that SWM provides an entry point to poor communities, allowing poverty reduction to be combined with SWM. A key lesson from AF has been the importance of linking NREM to livelihood – it has shown that managing solid waste on its own as a project failed at community level and only succeeded when linked to livelihood strategies through micro-credit. AF has been developing and refining a sustainable and low cost poverty reduction model related to SWM that can be replicated by other organizations. In 1994, the World Bank invited AF to take part in a community-based SWM project and the project began in Galle in 1996 in two low-income communities. AF includes a comprehensive recycling/composting program together with a credit and savings scheme and now works throughout the country in different ecological zones. It also runs education programs in schools. The experience of AF is that microfinance activity, initiated

[114] Study on Improvement of Solid Waste Management in Secondary Cities in Sri Lanka, JICA, 2003.

through remunerative solid waste activity and vegetable production based on composted solid waste, leads to greater incomes and a range of social benefits that collectively serve to reduce vulnerability to destitution. It has found that SWM including the production of compost and microfinance activities are therefore mutually interdependent. Success is also heavily dependent on the cultivation within the target communities of adequate enthusiasm, perseverance, group cohesion and a savings discipline. AF has also found that some communities more readily form functional CBOs than others and that CBOs tend to be dominated by women.[115]

3. Changing to a Community based Approach to SWM

97. SWM has been the responsibility of local governments in a top-down manner where citizens have played only a very limited role in waste management. Changing from a top-down to a bottom-up approach involves a major change in the patterns of service provision in Sri Lanka and requires a change in the mindset not only among communities but also of government agencies. AF has developed a seven-step model for integrated SWM that aims to minimize the amount of solid waste being disposed of in public spaces (such as along roads) as well as to reduce poverty through microfinance and livelihood activities while making community institutions sustainable. The model is based on a process of social mobilization, integrated SWM, institution building, developing access to and control over resources by poor groups, and empowerment. The model is summarized below:

Table 54: Integrated SWM Model Developed by AF

Step	Activity	Stage
1	Identification of poor households using poverty criteria and targeting them.	Social mobilization.
2	Awareness, mobilization through analysis. - How lack of SWM affects families. - SWM is a solution for poverty as well as the environment	
3	Small group formation. Training in SW segregation. Small group activities such as solid waste segregation. Composting training, barrel distribution, home gardening training, plants and pots distribution. Stakeholder analysis and linking up the project with municipal councils and other GOSL agencies. Savings, internal credit and micro projects, etc.	Integrated solid waste management.
4	Central collection of solid waste, transportation. Storing in a central warehouse. Linking up the project with private sector dealers who buy solid waste for recycling. Compost sales. CBO formation – training in institutional development.	Institution building.
5	Identification of viable micro-enterprises. Feasibility studies made by clients and facilitators. Training on micro-enterprise management. Continuation of solid waste sales.	Access to and control over resources and capacity building of CBOs.
6	External credit extension. Micro-enterprise development. CBO networking.	
7	Increased incomes taking poor women and men out of poverty. Increased savings reinvested and saved with the program and banks. Satisfaction of practical needs and improved quality of life. Clean environment maintained by the community.	Empowerment. Direct access to mainstream credit and other resources. CBO sustainability and replication.

[115] Source: Fraser Thomas, 2002.

4. Gender and SWM

98. There is one area of SWM that has a clear gender link. The participatory survey found that women are generally responsible for disposal of solid waste at the household level. This supports an earlier finding by Fraser Thomas Ltd who conducted surveys in the Galle area during 2001 for a proposed community integrated SWM plan. They found that in 90% of households it is women and girls who primarily undertake solid waste related tasks, particularly carrying waste to collection points. AF used this gender-based role to focus its efforts in SWM on women, such as source separation initiatives, and providing savings and credit schemes to groups of poor women to, amongst other activities, create micro-enterprises based on recycling. As the women became successful at creating income, some tensions arose with men in the communities involved. The men have asked to be able to take part as well in the income-generating activities related to SWM and AF has agreed. This has had the effect of raising the image and importance of CBO involvement to men and has created employment for both women and men.

5. Infrastructure Issues and Social Opposition

99. Sri Lanka has a history of opposition against SWM facilities. In common with many other countries, the opposition is focused on final disposal sites, both present and proposed. The opposition has led to several projects being cancelled including a proposed site in Hikkaduwa in 2002 to be financed by the Australian Government and a proposed landfill site in Matale in 2003, which forced the local authority to look for smaller sites for temporary use. In all cases, the opposition has been by local residents. The JICA study of 2003[116] concluded that present project preparation in Sri Lanka does not take sufficient time to build consensus and to get community acceptance. The JICA study suggests the following possible reasons for community opposition:

- lack of understanding on the importance of final disposal by both the community and local authorities;
- lack of understanding of the nature of sanitary solid landfills;
- past lack of adequate environmental protection measures leading to mistrust by the community;
- history of politicization on decision-making with a lack of accountability and transparency in site selection, technology, etc.;
- little or no education of the community about the project and lack of compensation to those in the community who suffer negative impacts; and
- strong resistance in the community to having a disposal site in their immediate vicinity.

100. The JICA findings reflect similar experience in other countries, both developed and developing. The crucial issue is the importance of building knowledge in the community about landfill disposal, particularly about sanitary solid waste disposal sites, developing a shared responsibility for waste disposal and creating an acceptance of the necessity for finding solutions. JICA suggests that local authorities in developed countries spend 5-10 years building social acceptability during project formulation and the lack of this process in Sri Lanka has been the major reason for project failure.

101. Selecting sites for final disposal landfills is very often politically difficult. There are several criteria that influence the acceptability of a proposed landfill site, as follows:

- Proximity to residential areas. Resettlement and/or community disruption can cause severe social disruption and delays in implementation. Community action can readily

[116] Study on Improvement of Solid Waste Management in Secondary Cities in Sri Lanka, JICA, 2003.

interfere with the proper operation of a landfill and it will be critical to build in stakeholder consultation into landfill planning processes.

- Proximity of the proposed site to sensitive water resources is a key concern for communities and a major environmental problem.
- The extent of community opposition is a key determinant in site selection. Local communities will need to be fully consulted about proposed landfill developments. Sites that are acceptable in environmental terms and that have the commitment of the authorities to maintaining operational standards have a better chance of acceptability to the community.

102. Inclusion of social mobilization and education on the nature of sanitary final disposal sites, on the importance of shared social responsibility and on finding agreed solutions will be a crucial component for the investment plan. For this reason the investment plan has introduced a strategic planning process at the provincial level.

6. SWM Infrastructure and its Social Impacts

103. Some major issues are likely to surround the selection and construction of final disposal sites, transfer stations and transportation. The potential impacts are summarized below.

104. **Reduction and recycling.** Women are responsible for management of household wastes; therefore this sub-component will be focused on women although men will not be excluded. An NGO will be contracted to manage this sub-component during the pilot phase. One issue that raises concerns for those involved in present recycling programs is the increased production of recycled products may cause the lowering of their prices, e.g. compost. Present demand for compost is greater than supply and once composting gets underway on a large scale, further increasing the demand could be through education and promotional activities and/or by involving the private sector.

105. **Collection.** Most municipal cleaning and waste collection in Sri Lanka is carried out by Indian Tamils who frequently have few other work opportunities. A JICA survey of 200 municipal cleaning workers in seven secondary cities in Sri Lanka showed that 58% of the sample population is Tamil compared with 42% Sinhalese. Tamil workers ranged from 94% in Matale to 26% in Gampaha. They are also among the poorest people in urban communities and are not integrated into mainstream society. According to the JICA study,[117] the level of poverty among Tamil workers is extreme especially among those who work as casual laborers rather than as permanent workers. They live in the poorest areas of municipalities and their living conditions are characterized by very poor facilities such as toilets, housing and water supply. One of the reasons suggested for this non-integration is their very poor ability to speak, read and write Sinhala.

106. Where privatization of solid waste collection services is indicated, it will be necessary to ensure strategies are developed for laid-off workers, including transfer to other departments, secondment to the private sector, severance and transfer of employees to the private operator, or redundancy.[118] While the majority of municipal workers involved in solid waste collection are Indian Tamil, attention may be necessary to ensure that Sinhalese municipal workers are not unfairly favored in any benefits or provisions for laid-off workers.

107. Experience with existing privatization of municipal waste workers has shown that there have been no loss of jobs and in fact there are now more jobs than before and increased opportunities have been provided for women who previously had no work possibilities. Nonetheless, encouragement will be given for NGOs to work with Tamil communities in

[117] JICA, 2003. *The Study on Improvement of Solid Waste Management in Secondary Cities in Sri Lanka.*
[118] Gotelli, I. Opportunities and Challenges for Private Sector Participation in SWM, Volume II, Interim Report, 2004.

increasing the Sinhala language ability of Indian Tamil workers and their families so that alternative livelihood options may be considered.

108. **Transportation.** The investment plan proposes around 20 SWM final disposal sites be constructed around the country which will inevitably lead to increased congestion, air pollution and potential danger for pedestrians, especially children. In addition, waste may drift from trucks creating pollution along the transport routes. Local authorities will be required to ensure safeguards are in place as part of the planning processes. Trucks will be required to have sufficient cover to avoid waste scattering.

109. The increased requirement for transportation will lead to increased employment for drivers, loaders and other associated workers and, where possible, a pro-poor employment policy will be encouraged to ensure those in most need receive employment benefits from this component of SWM.

Table 55: Summary of Social Impact of Recycling to Transportation Stages

Stage	Possible Impact	Persons Affected	Mitigation
Reduction and recycling	Women will be able to earn income through solid waste recycling and composting activities at the household level. Women's status from increased earning potential will increase. Men may be concerned that they are not included. The poor may not be included.	Poor women and men	Men will be encouraged to be involved but not at the expense of women. The AF model that will be applied to this sub-component involves the initial phase where poor households are identified using poverty criteria.
Collection	Indian Tamil municipal workers may be disadvantaged by any privatization of collection services; Sinhalese workers may receive disproportionate share of the benefits.	Indian Tamil municipal workers - casual workers may be more adversely affected	Transition strategies may need to be devised for Indian Tamil workers to safeguard their livelihood (although experience so far with privatization suggests that more jobs are created than are lost). NGOs will be encouraged to provide Sinhala language training to Indian Tamils.
Transportation	Increased traffic congestion and air pollution. Danger to pedestrians, especially children from increased truck traffic; waste scattering from trucks. Job creation for drivers and loaders and other associated workers – poor people may be excluded from these positions because of lack of access to driving training etc.	Communities on the way to final disposal sites; pedestrians, children. Truck drivers, loaders and sweepers.	Local authorities will be required to manage traffic flows and provide safeguards for pedestrians; trucks will be required to be covered properly. A pro-poor employment policy will be encouraged involving skills training for non-drivers.

7. Final Disposal Sites

110. A number of impacts will arise from the construction of final disposal sites around the country (see Table 56). Particular concern has been raised in projects around the world as well as in Sri Lanka about the impact of improved sanitary final disposal sites on waste pickers. The 2002-03 JICA study on *Improvement of Solid Waste Management* suggests that waste pickers are not especially numerous in Sri Lanka, possibly because there are few actual disposal sites. Nonetheless, evidence suggests that the number is increasing. With around 20 final disposal sites proposed in the investment plan, the number of waste pickers is likely to increase significantly. DFID/World Bank et al prepared a *Strategic Planning Guide for Municipal Solid Waste Management*[119] which confirms the following:

- Most waste pickers are wholly dependent on dump sites for their employment and have few other sources of employment.
- Waste pickers represent one of the most socially disadvantaged groups of any society and a large proportion is women and children.
- Health problems are acute and protective clothing is rarely available or worn. Waste pickers usually have little access to health services.
- Risks of injury are high from vehicles and from climbing over waste as it is tipped.

111. The guide concludes that exclusion of waste pickers has not been successful elsewhere. It is more appropriate to allow pickers to continue into a designated area with efforts to improve health and safety conditions. Box 2 summarizes the guide's suggested approach to managing waste pickers.

BOX 2: MANAGING WASTE PICKERS

- Provide separate areas for waste picking either on the landfill site or at the site reception area – depending on practicalities.
- If waste pickers operate at the tipping face, try to prevent them from queuing up alongside or behind unloading vehicles and provide them with access to tipping areas for a set period of time, then apply daily cover.
- Issue passes for allowing entry to the site.
- Provide safety clothing, possibly on a deposit refund basis.
- Work with NGOs to improve health conditions and social rehabilitation.
- Introduce some basic healthcare provisions for waste pickers.
- Work with local communities and NGOs to improve schooling and healthcare facilities, and try to enforce a minimum age for pickers on the site.

[119] DFID/World Bank/Swiss Development Assistance et al. *Strategic Planning Guide for Municipal Solid Waste Management.*

Table 56: Social Impact of Final Disposal Sites and Mitigation

Possible Impact	Persons Affected	Mitigation	Enhancement
Social rejection of any disposal sites due to perceived lowly role of SWM in society and because of the NIMBY syndrome (Not In My Back Yard).	Communities in vicinity of proposed disposal sites.	Education and publicity campaigns will focus on educating people about the need for final disposal sites and for shared responsibility for waste disposal. Engagement with local communities on appropriate processes and sites will be essential.	The successful construction of one site to be used as an example to other communities will go a long way to gain people's confidence. Organized community visits to a successful site will be valuable. Provision of employment opportunities at the sites to local communities will help acceptance.
Noise during operation.	Communities in vicinity of proposed disposal sites.	Agreements made with community on hours for noise creating components.	Planting of trees for noise absorption; installation of noise barriers or buffer areas.
Windblown waste; increase in vermin/scavenging animals/insects.	Communities in vicinity of proposed disposal sites.	Proper management of sanitary dump sites will mean there is little if any windblown waste and vermin/animals.	Ongoing discussions with communities to discuss any such issues; mitigation agreed if required.
Smell, smoke, leachate, water table contamination etc. leading to health risks.	Communities in vicinity of proposed disposal sites; communities downstream from proposed disposal site.	Proper management of sanitary dump sites will mean there is little if any of these issues; perimeter bunds can mitigate leachate and water contamination issues.	Engineering issues and safeguards will need to be shared with communities to gain their confidence that these issues are not likely. The successful construction of one site to be used as an example to other communities will go a long way to gain people's confidence.
Loss of property values in the vicinity of the disposal site.	Landowners in the vicinity of proposed final disposal sites.	Proper management of sanitary dump sites will mean the local community environment is not degraded but is enhanced with appropriate planting, improved roads and so on.	Public perception may nonetheless cause land values to drop despite appropriate construction. Some compensation processes may need to be agreed with the community.
Impact on existing waste pickers – loss of work; possible increase in waste pickers around new sites.	Waste pickers	Designate an area for waste picking separate from the tipping face, use of safety clothing is encouraged.	Modify operational practices around the waste picking as far as appropriate. A list of measures that may be taken to improve control over waste picking at a landfill site at the same time as upgrading and improving operations is contained in Box 2[120]
Displacement/resettlement of people who live/work on land selected for disposal sites.	Poor people, landowners, business owners, and employees/laborers who earn from landowners and businesses.	Government of Sri Lanka has developed a resettlement policy with the assistance of the ADB that is in line with *ADB's Resettlement Policy.*	Considerable pre-selection and community consultation will reduce objections and encourage community ownership of the problem and its solutions.

[120] From DFID/World Bank/Swiss Development Assistance et al. *Strategic Planning Guide for Municipal Solid Waste Management.*

D Summary

112. Consultations revealed that communities are more than willing to engage in local level solutions to SWM issues once they are engaged in the decision-making process and have a forum for voicing their concerns. Poor people, while not the only contributors to solid waste problems, are clearly more affected by the consequences, often having to live in polluted and environmentally degraded areas with no alternatives other than to contribute to the problems. AF has developed a model (Table 54) for poverty alleviation that takes a livelihood approach and uses SWM as its entry point into poor communities. This model provides a potentially useful approach to SWM at community level while also targeting the poorest and improving their livelihood.

113. The community-based approach involves a major shift in thinking of communities and government agencies and will require the development of partnerships and relationships between all stakeholders in the community, not just the poor, the private sector and government. The investment plan has devised an integrated approach to SWM that ensures locally-based solutions to immediate problems while at the same time tackling the wider strategic concerns at the provincial and national levels.

VI. PROVISION OF ECO-SYSTEM SERVICES

A. Wetlands

1. Context

114. The surveys found that NRE problems are most severe in the wetlands area than in all the other areas studied. The investment plan proposes an initial focus on the Koggala Wetlands area. Koggala lagoon is situated along Sri Lanka's southern coast, some 15 km east of the Galle town within the Galle District of the Southern Province. Due to the spread of the lagoon, it comes under the jurisdiction of three DS areas - Imaduwa, Akmeemana and Habaraduwa. The lagoon is bordered by a narrow area of mangrove and marsh or paddy lands beyond which spreads a small and undulating catchment area that is characterized by homesteads, coconut, tea and rubber plantations and remains of secondary jungle. The southern border of the lagoon is formed by a 0.5-1 km wide coastal belt in which the country's 3rd Free Trade Zone, a small airforce base and tourist resort are located.

115. The Koggala Wetlands can be divided into three resource units. Unit 1 is the lowland and coastal belt where most of the fishing and tourism takes place. Urbanization and population density is high. Unit 2 is the agricultural zone where paddy and other field crops are grown. Majority of the population live in this second layer of the wetlands. The upper layer of the area comprises the environmentally sensitive slope lands, where tea smallholding and other crop cultivation take place. SK can be formed in these three zones.

116. The main economic activities in the Koggala area are fishing, tourism and agriculture. Main agricultural crops are coconut, paddy, cinnamon, tea and rubber. The Koggala Free Trade Zone has contributed to the improved socio-economic conditions of the community. Today most family members of the fishing communities are engaged in either tourism activities or employed in factories of the Free Trade Zone. In addition, a large number of houses in the area provide accommodation for factory workers from outside the area. Coconut husk and coir industry is an important local activity. Most of the women in the fishing communities engage in this trade. The population in the area is closely connected with the natural resources and processes:

- Sea coral mining is carried out at some locations and a few residents of Habaraduwa depend on it for their livelihood.
- Inland coral mining is limited to a few locations and most community members work in coral pits as laborers.

- Dynamiting and unsustainable fishing practices and excessive ornamental fish collection are other destructive economic activities of the area.

117. Both areas in the Koggala Wetlands have populations that are predominantly Singhalese. Most families are poor, with income less than $1 per day.

2. Key Issues

118. In the divisional level consultation, several key problems related to wetlands were identified. They include soil erosion, scarcity of water for cultivation and domestic purposes, large-scale quarries, accumulation of red soil and declining soil fertility, infusion of salt water through the unprotected estuary and decline of fish varieties. Construction of buildings in the river delta, unplanned tourism and related businesses, introduction of mechanical boat services for local tourism in the lake, disposal of industrial waste to the lake, damages to the mangroves, illegal settlements and poor toilet and sanitary facilities, especially among people living in coastal areas, were found to be serious issues that need to be targeted in future environmental management programs.

119. Participants in the surveys suggested that the main reasons for failure of environmental and wetlands management are poor communication and lack of coordination among key agencies working in the divisions and between provincial and central government departments.

3. CBNRM Approach

120. While the AF model has considerable potential for SWM, where both the issue of solid waste and poverty reduction may be tackled at the same time, other natural resource issues may need to be more widely managed by the community rather than just the poor. For example, CBNRM of soil erosion issues will require the cooperation of those within a community who are responsible for soil erosion including a range of community stakeholders with differing wealth, power, religious and ethnic backgrounds. It is proposed to work with existing CBOs or to develop them in a similar manner to the approaches being developed by SLANRMP. Preliminary results in that project indicate positive participation of communities in resource management issues. Functional small groups have been formed entirely through the community's own initiatives in order to deal with natural resource issues. In the SLANRMP, joint decisions are made by a committee that comprises representatives from all the small groups that are stakeholders in a particular issue. Representatives from poor groups are included into sub-committees as a means of ensuring that their voice is heard as much as the representatives of better-off groups. It is proposed that the small groups be developed as CBOs in the same way as they are by the AF with the committee as a community forum on specific natural resource issues.

121. NGOs are active in the Koggala area. AF, Help-o, Mihikatha Foundation, Sevalanka, and Participatory Development Foundation play an important existing role in the Koggala area by providing guidance, awareness and education on conserving nature and the wetlands. The Samurdhi organization at the village level has gained considerable acceptance in Koggala and is able to promote self-help and income-generating activities among women. The microfinance activities led by Samurdhi have achieved popularity among poor women.

122. The potential for working through NGOs in community mobilization for wetlands management is especially high in the Koggala area and their engagement in planning processes and in implementation are therefore indicated.

Table 57: Social Impacts for Wetlands NREM and Safeguards

Groups Affected	Potential Effect	Safeguards/Mitigation of Negative Effects
Those without latrines such as coastal and fishing communities; those in temporary or semi-permanent dwellings.	Improved sanitation facilities, health improvements, less household expenditure on health services.	
All communities - especially fishing communities.	Improved drinking water quality as a result of reduction of industrial waste from Koggala Industrial Zone and other pollutants; improved fish stocks.	Seasonal workers and unemployed fishermen may need some additional livelihood support such as access to financial capital to start up alternative businesses or improve present livelihood activities.
Poor women.	Women are presently the principal income earners in coastal communities and building on their expertise in livelihood activities will be a positive effect. There may be some resentment among men at any further emphasis on women.	It will be very important to ensure men are fully engaged in livelihood activities either with women or in separate activities.
Poorest groups.	May be overlooked in community management processes and lose out on benefits and livelihood options.	Appropriate targeting of poorest groups at reconnaissance stage. Religious organizations will be helpful in targeting appropriately and existing small groups formed by women. Under savings and micro-credit schemes could be a starting point for accessing poor women.

4. Integrated NREM

123. The Aranayake DS area was used as a case study during the TA for investigating integrated NREM processes. The Aranayake division belongs to Kegalle District and is predominantly rural. The road network mostly follows the river and the settlements on either side have provided a useful example of competing demands on natural resource. The population of the area is predominantly Sinhalese (91%) but the townships along the river (and the road) are mostly occupied by Moslem communities, while the interior lands beyond are occupied by Sinhalese farmers. Indian Tamils live in the upper catchment areas where the tea estates are situated. The social surveys found that the Sinhalese farmers tend to blame the Moslem communities for polluting the river with solid waste and other effluent and the Indian Tamils are blamed by those downstream for polluting the water sources because of their poor sanitation facilities. In fact, only 19% of people in the Aranayake area have access to safe (in terms of the environment) toilet facilities.

124. **Proposed approach.** Despite the often ascribed blame to other communities for environmental degradation, the workshops held in October/November 2004 indicated clearly that communities were willing and able to find common solutions to natural resource concerns. The survey team considers that successful negotiation in communities depends to a large degree on the presence of dynamic officials and leaders in the area as well as interest groups and NGOs/CBOs and religious authorities that are willing to take responsibility for implementing agreed initiatives.

125. The investment plan proposes that integrated NREM mechanisms be piloted in Wayamba Province. This area has the highest number of people without latrine facilities in Sri Lanka and the Provincial Environment Authority considers this to be a major source of water pollution in the province. Education about sanitation issues both to community groups and in schools and provision of improved latrines will be a key component to improving water quality. Water quality is also degraded by discharge of industrial chemicals and effluent as well as the use of large amounts of inorganic fertilizer. Not only is water quality affected with consequent

health issues but accumulation of heavy metals has also been measured in lake and river fish.[121]

126. **Social impacts and mitigation.** Table 58 summarizes the social issues identified with integrated approaches to NREM, those affected and the mitigation measures proposed.

Table 58: Social Impacts for Integrated NREM and Safeguards

Groups Affected	Potential Effect	Safeguards/Mitigation of Negative Effects
Those without latrines such as Indian Tamils in estate areas; poor in slums and shanties and other semi-permanent dwellings.	Improved sanitation facilities, health improvements, less household expenditure on health services.	To ensure effective access to the communities, it will be important to work with existing organizations such as welfare NGOs that work with estate worker communities. Education programs will reinforce importance of good sanitation.
Moslem communities along the river/road network.	Introduction of new requirements for waste and effluent disposal may be costly and cause business failure. There may be resentment over a belief of being penalized disproportionately for NRE degradation.	Education and promotion of "polluter pays" principle and effects of dumping etc on the environment as a whole especially through Mosque committees – first step will be to educate those in authority at mosques over the issues and the importance of mitigation. Education programs in schools will reinforce principles of NREM in next generation.
Sinhalese farmers and laborers inland from river/road networks.	Restrictions on how they use agro chemicals; required to spend time/money on preventing soil erosion and land degradation through changed practices/mitigation. May not be able to use existing water sources (some are tapped illegally).	Education on impact of improper practices; use of farmer organizations to arrange collective efforts.
Sand and clay miners.	Potential loss of livelihood.	Alternative livelihood options need to be provided – through skills training; assistance to establish alternative employment (e.g. with savings and micro finance).
Poorest groups other than estate workers.	May be overlooked in community management processes and lose out on benefits and lose livelihood options.	Appropriate targeting of poorest groups at reconnaissance stage. Existing small groups formed by women under savings and micro-credit schemes could be a starting point for accessing poor women.

[121] PEA, 2002. "Water Quality of Selected Water Bodies in the North-Western Province".

VII. OTHER ISSUES

A. Training of Facilitators

127. A crucial issue in the successful implementation of the investment plan will be the ability of community facilitators to engage the community in the SKS planning processes - all those who use, impact on, or are affected by, natural resource in some way.

128. Training of facilitators will therefore be an important component of the investment plan. Training issues have been referred to in this report in relation to gender and ethnicity. While detailed training modules will be designed in the pilot phase of the investment, the following summarizes the main social issues that will need to be included in the training for facilitators.

Table 59: Proposed Social Issues Training Agenda for Facilitators

Subject	Issues	Training time
Livelihood approach	Asset capital and relevance to NREM; relationship to poverty.	0.5 day
Gender	Definitions, relevance, targeting, accessing women, how to apply in the community, gender checklists.	1 day
Ethnicity	Definition; relevance; how to apply in the community.	0.5 day
Caste	Definition, relevance, sensitivity to caste issues, how to apply in the community.	0.5 day
Power structures in communities	How it relates to NREM and how and why it needs attention.	0.5 day
CBOs and NGOs	Potential for their involvement; how to select and engage with them.	0.5 day
Practical methods	How to carry out reconnaissance and planning in the community.	2 days

1. Potential Resettlement Issues

129. There is potential for resettlement in the implementation phase of the investment plan. Solid waste landfills may require some households to be moved. These sites will be decided at the provincial level during the implementation of the investment plan. At the TA stage, these sites have not been selected and no resettlement study is possible. The GOSL has developed a resettlement policy with the assistance of ADB that is in line with ADB's *Resettlement Policy*. The government's policy will prevail for all implementation components of the investment plan. At the TA stage, therefore, no resettlement plan is indicated.

2. Monitoring and Evaluation

130. A process evaluation has been included in the investment plan during the pilot phase. The evaluation will allow an understanding of how the SK process operates, what are the barriers to successful implementation, how the various components (resources, activities, etc.) link together and what contributes most to the overall objectives and goals of the investment plan. Changes may be incorporated into the plan as a result of the findings. Stakeholders will be included in the evaluation and this will contribute to their understanding of how components of the plan link together as follows:

resources → (activities + effects) → objectives → overall vision

131. In general, process evaluations pose questions in two areas: coverage and process. Coverage covers questions such as: "Has the investment plan served the intended beneficiaries? Who dropped out and why?" This would include special focus on vulnerable and marginal groups, the degree to which they participated and any barriers to their participation. Process evaluation covers questions such as "How were Sampath Kalaapa plans developed? Was the process well coordinated? Who were the key community players in implementation?"

Coverage and process questions can be asked at all the different levels of implementation: activity, institution or at system levels.

132. The process evaluation will allow an understanding of whether implementation is accomplishing what it was intended to accomplish. It will provide in-depth understanding of the functioning of implementation processes and what needs to be done to improve them and the overall investment plan. It will also provide information to allow the improved systems of implementation to be replicated in other areas.

133. A major advantage of the community approach using facilitators is that it will assist in impact monitoring of the effects of the investment plan at community level. Stakeholder perception maps and other forms of community identification and description of issues used during the reconnaissance and planning stages at SK level can form a valuable baseline from which change can be assessed during the life of the project. The maps can be retained and compared with similar exercises at different stages of implementation.

134. The process evaluation will be carried out with MENR so that skills transfer in monitoring and evaluation (M&E) can occur. At the same time, MENR will be encouraged to understand the importance of M&E as a useful tool to review policy and resource allocation processes.

135. The process evaluation will look beyond merely the activities and the transfer of resources, to changes that are occurring or being facilitated in people's livelihood. This implies a high level of participation in M&E by all stakeholders and particularly those at the community level. While the process evaluation can only assess changes during the pilot period, it can provide valuable insights into the likelihood of positive change to livelihood systems. The following elements will be stressed[122]:

- Indicators will be identified by and negotiated with beneficiaries and partners;
- Beneficiaries/partners will be responsible for data collection and analysis;
- People's attitudes to change will be highlighted;
- Beneficiaries/partners will play a key role in judging performance;
- The effects will be measured of implementation on livelihood systems; and
- The process evaluation will include an understanding not just of local level processes but also the linkages through the different levels of the investment plan to macro level.

[122] DFID Sustainable Livelihood Guidance Sheet 3.5.

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