

**REPORT OF THE STUDY OF SOCIO-
ECONOMIC ASPECTS OF COASTAL
REGIONS AND SQUATTERS WITH SPECIAL
REFERENCE TO THE WESTERN PROVINCE**

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Forward

This report evaluates the environmental changes in natural resources and economic activities in different sectors in Pre-Post Tsunami affecting the coastal regions in 8 Local authority areas of the Western Province. Assessment of the issues faced by squatters and their socio-economic conditions, main causes that influence them to encroach and continue with illegal occupations within the coastal zone and coastal pollution arising from these settlements have been studied and presented in this report.

The coastal environment in the Western Province is highly vulnerable and important for the sustainable development of the Sri Lankan economy. Realistic management options to minimize the environmental degradation of the coastal zone and to improve its quality, formulation of guidelines to mitigate illegal encroachment and proper mechanism to ensure long term sustainability of the coastal environment are covered in this study.

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REPORT OF THE STUDY OF SOCIO-ECONOMIC ASPECTS OF COASTAL REGIONS AND SQUATTERS WITH SPECIAL REFERENCE TO THE WESTERN PROVINCE

Executive Summary

The coastal and marine environments in Sri Lanka is degrading rapidly in the recent times due to various man-made activities and natural disasters such as Tsunami, Cyclones, storm surges etc. resulting in coastal erosion. The National Programme of Action (NPA) has been prepared by the Ministry of Environment and Natural Resources (ME & NR) with the assistance of United Nations Environment Programme/ Global Programme of Action (UNEP/ GPA) to secure a healthy marine environment and coastal eco-system.

The NPA has identified a study on assessment of squatters and their linkages to coastal pollution along the coastline from Negombo to Kalutara in the Western province with a view to develop strategies to improve the quality of coastal environment. A squatter is defined as an occupant holding temporary structure built on encroached public or private land.

Accordingly a study was conducted by the Resource Management Consultants (RMC) over a period of 15 days in October 2007 by means of a literature review coupled to a socio-economic/ environmental survey covering 8 Local authority areas located along the coastal belt of Western Province targeting a squatter community. Discussions have also been held with a selected number of other stakeholders. 15 squatter households have been selected from each Local authority area following a quasi random sampling method to collect vital information on the socio-economic and environmental aspects of the targeted population. The study focused on the topics of (1) Physical and socio-economic conditions of the Coastal Region of the Western Province (2) Review of studies conducted on environmental changes (3) Assessment of Socio-economic Conditions of Squatter settlers (4) Main causes / factors that influence encroachment and continue illegal occupation (5) Nature and Significance of Coastal Pollution (6) Realistic Management options to minimize environmental degradation and to improve the quality of the coastal environment (7) Replicable management guidelines to curtail illegal encroachments and Mechanisms to ensure long term sustainability of coastal environment.

The study findings indicated that coastal reservation lands have been encroached by majority people among the squatters, while their major occupations have been in the self employment category while significant number had no regular employment. Their monthly incomes varied from Rs. 5000/- to Rs. 10,000/-. The health issues are related to fever and asthmatic conditions. Type of assets owned by majority people relate to TVs and Motor-bicycles. Occupation of encroached lands were mainly due to easy access to government facilities such as schools, health and water services etc. Disadvantages highlighted related to flooding, lack of maintenance of toilet facilities, congestion due to limited space arising from second generation families, leaking roof etc.

Environmental degradation has occurred due to lack of proper disposal facilities for solid waste and sewage and poor co-ordination and recognition of squatter community for government services. Lack of awareness among the squatter community as for proper method of disposal of solid waste was also highlighted in the discussions. Strategies proposed for sustainable coastal environment included involvement of Community leaders in resource management following the replicable models already introduced under the Forest Resources Management Project and other foreign funded projects promoting participatory management. Divisional Level Environmental Co-ordinating Committees can be activated to develop action plans to manage the coastal resources management including the squatter community leaders to serve in Vigilant Committees to recognize them as informant groups.

Training of trainers programmes should be introduced for the benefit of Community Leaders to create environmental awareness among the members of the CBOs as part of the Local Action Plans.

REPORT OF THE STUDY OF SOCIO-ECONOMIC ASPECTS OF COASTAL REGIONS AND SQUATTERS WITH SPECIAL REFERENCE TO THE WESTERN PROVINCE

1. Introduction, Objectives, Problems and Methodology 1

1.1 Introduction

The coastal and marine environments in Sri Lanka is degrading rapidly in the recent times due to various man-made activities and natural disasters such as Tsunami, Cyclones, storm surges etc. resulting in coastal erosion. The pace of development in the coastal region of Sri Lanka has been accelerated with the initiation of various development activities to achieve high economic growth.

The establishment of various industries including hotels, construction of anchorages/ fishery harbours, unplanned settlements and encroachment etc. had aggravated the degradation and depletion of coastal resources affecting the environment. Absence of proper mechanisms for collection and disposal of solid waste and sewerage has also led to this situation. Therefore protection of the marine environment has been identified as one of the major challenges faced by Sri Lanka.

Accordingly the National Programme of Action (NPA) has been prepared by the Ministry of Environment and Natural Resources (ME & NR) with the assistance of United Nations Environment Programme / Global Programme of Action (UNEP/ GPA) to secure a healthy marine environment and coastal eco-system.

The NPA has identified a study on assessment of squatters and their linkages to coastal pollution along the coastline from Negombo to Kalutara in the Western province with a view to develop strategies to improve the quality of coastal environment.

1.2 The Problem

The coastal areas in Gampaha, Colombo and Kalutara Districts by Grama Niladhari Divisions with categories for best use in terms of Scenic beauty (S) and Recreational activities are indicated below:

Gampaha District

Name of location	Category	Name of GN Division
Maha –Oya Welituda	S/R	Sindrathriya
Negombo Beach	S/R	Munankaraya
Luwis Place	S/R	Eththukala/ Wellavidiya
Duwa-Negombo	R	Munnakaraya
Thalaeahna Beach	R	Thalahena
Kepungoda Beach	S/R	Kepungoda
Prothipura Beach	S/R	Palliyawatte North
Uswetakeya Beach	R	Uswetakeyawa

Colombo District

Name of Location	Category	GN Division
Modera Beach	R	Modera
Crow Island	R	Mattakuliya
Galle Face	S/R	Slave Island
Welalwatte – Mt. Lavinia Beach	S/R	Welalwatte South Dehiwala Mt. Lavinia

Kalutara District

Name of Location	Category	GN Division
Wadduwa / Thalpitiya Beach	S/R	Thalpitiya Wadduwa West
Abrew Road/ Nagashandiya	R	Mahawaskaduwa
Tangerine Beach	R	Kalutara North
Kalutara Welituduwa	S/R	Kalutara North
Maggonna Beach	S	Maggonna West
Beruwala Bokka / Polkotuwa	S	Polkotuwa
Kethchchimalai Muslim Place	S/R	Paranakade
Moragalla Beach	R	Moragalla

Coastal eco-systems and habitats provide a variety of economic, recreational and scenic benefits to the coastal community and to the general public and the coastal resources are facing threats from environmental pollution generated by the anthropogenic activities. Degradation and depletion of the coastal resources are the major outcomes of this situation facing a challenge to the long term sustainability. Rapid population growth coupled to industrial development and unplanned expansion of squatter population, user conflicts, land based pollution and wide spread poverty have contributed much for this situation.

The occurrence of Tsunami disaster in December 2004 has aggravated the destruction of coastal environment in many parts of the coastal regions of Sri Lanka. The relative magnitude of the coastal resource degradation and depletion varies from place to place. The Tsunami has caused an extensive damage to the eastern and Southern coasts while the damage to the North Western and Western Coasts are relatively low. However the impact of marine based pollution and illegal occupation by squatters (holding temporary structure built on encroached public or private land) in the Western Province are relatively large in magnitude compared to other regions.

As stated above the coastal areas in the western province are highly degraded due to unregulated development activities, illegal settlements, absence of proper waste disposal systems, user conflicts etc. This has resulted in sub-optimal levels in improvements of the socio-economic conditions of coastal resource users.

A detailed analysis with special reference to squatters, environmental changes, coastal pollution (sources of pollution) and mechanisms to ensure long term sustainability of the coastal environment has not yet been established. Hence a study of pollution issues is a pre-requisite to develop strategies to overcome the issues which are yet to be ascertained.

1.2 The Objectives

The objectives of this study are:

- To assess the environmental changes in natural resources sector of pre-and post Tsunami in the coastal zone associated with the 8 Local Authority areas in the Western Province
- Assess the socio-economic conditions of the squatter settlers (those occupying temporary structures built on encroached public or private lands)
- Analysis of the main causes and factors that influence the squatters to encroach and continue with illegal occupation within the coastal reservations
- Identification of mechanisms to ensure long term sustainability of coastal environment

1.3 Methodology

The methodology adopted for the study was through a literature review and conducting a questionnaire survey covering 113 squatter households followed by discussions with stakeholders operating in 8 local authority areas as follows:

Negombo Municipal Council
Watala – Mabile Urban Council
Jaela Urban Council
Colombo Municipal Council
Dehiwala –Mt. Lavinia Municipal Council
Moratuwa Municipal council
Panadura Urban Council
Kalutara Urban Council

A copy of the sample questionnaire is attached for information.

A Quasi Random Sampling Technique has been adopted in conducting the questionnaire survey which was carried out by visiting selected number of squatter settlements located in the above Local Authority areas. It has focused on the environmental issues arising from the high concentration of squatter population along the beaches. The socio-economic conditions have also been assessed in the study.

The subject areas that are given in the TOR have been studied in detail and recommendations have been made for improvements of the environmental management aspects in the coastal regions and land uses among squatter population.

During the pilot testing of the questionnaire survey, it was revealed that there is no coastal strip belonging to the Ja-ela Urban Council and it borders Negombo MC and Wattala UC. Therefore, 9 squatter households located in the above borders of Ja-ela UC area have been surveyed.

The results of the questionnaires have been analyzed and presented in table form and interpreted for meaningful outputs. Extensive discussions have also been held by the enumerators and the consultants with a selected group of stakeholders viz. squatter community, staff of government agencies and local authorities to capture the issues raised in terms of socio-economics and environmental parameters. The study has been carried out within a short period of 15 days in October 2007.

2. Physical and socio-economic conditions of the Coastal Region of the Western Province

2.1 Present Status of Physical and Socio-economic aspects of the Western Province

The Western province is the smallest province of Sri Lanka consisting of 3684 Sq. Km. (5.6% of the total land area of Sri Lanka). Administratively it covers three districts viz. Colombo, Gampaha and Kalutara. The total population is estimated at 5.4 million (28% of the island). The Colombo district has the largest population (2.26 million) while Kalutara District has the lowest representing 1.07 million. The total number of Samurdhi recipients is 316,262 which represent 26% of the total Samurdhi beneficiaries. Gampaha district has the highest number of Samurdhi recipients numbering 158,921 while Kalutara District has the lowest with 51,811.

The total number of households occupying the low income settlements in the Western Province is 211,245. The distribution of the settlement houses in the Colombo, Gampaha and Kalutara districts are indicated below:

District	Number of Low Income Houses
Colombo	64,572
Gampaha	94,862
Kalutara	51,811
Total	211,245

According to a survey conducted in 1998 targeting under-served settlements in the Colombo Municipal Council area, the number of settlements in the form of Slums and Shanties was 1071 and 183 respectively representing 71% of the total under-served

settlements. The population living in these settlements exceeded 63,000 (Sustainable Township Programme of the Ministry of Urban Development, Housing and Construction).

The above numbers include all population in low income settlements and no information is available in respect of those living in the coastal strip. Selection of the samples in different LAs and the methodology of conducting the socio-economic – environmental survey were subject to consultation with the officials of the Coast Conservation Department and collection of data and information for the study was also subjected to their guidance.

The total length of the coast line in the Western Province is approximately 80 Km. with densely populated area of the western province. The DS divisions covered in the coastal strip are Colombo, Dehiwala, Moratuwa, Panadura, Kalutara and Beruwala (A map is attached). 8 Local Authorities have been covered under the jurisdiction of these DS Divisions.

3. Review of Studies conducted on Environmental Changes by various Ministries and Institutions

Only very few studies have been undertaken relating to environmental changes in the coastal zone of the Western Province of Sri Lanka, although important studies have been carried out relating to coastal regions of Southern and Eastern provinces. The key studies relating to the subject areas considered under this study are described below:

- (i) GDP Estimation of the Western Province by the Finance Commission and the Provincial Planning Division of the Western Provincial Council in 2005.

This report provides a detailed description of the performance of economic sectors over the period 1998 to 2004 which can be considered as a pre-Tsunami situational analysis. The subject areas covered in this report are Agriculture (crop agriculture, livestock fisheries and forestry), industry, service sector (electricity, gas, trade, banking, public administration), other services and tourism.

The total value of agriculture sector in 1998 was Rs.14,207.2 million that was increased to Rs. 15,044.8 million in 2004. Tea, rubber, coconut and forest products and others have contributed for this increase, while that from fisheries has declined from Rs. 3246.1 million in 1998 to Rs.2358 million in 2004.

River sand, metal, clay, kaolin, textiles and leather products, garments, food and tobacco, chemical and petroleum products, rubber and plastic products are the major components of the industrial sector. There are five industrial zones in the Western Province viz, Katunayake, Biyagama, Mirigama, Wathupitiwala, Horana and Sitawake. The total quantity of river sand extracted in the western province in 1998 was 80,000 cubic metres at a value of Rs. 42 million which has increased to 258,000 cubic metres in 2004 valued

at Rs. 135.4 million. It shows that there is a serious environmental damage that has occurred during that period.

The metal production has also increased from 81,600 cubic metres in 1998 to 236,100 cubic metres in 2004 indicating an increase of 65%.

With regard to extraction of clay, 4% increase has been recorded.

In the construction sector, the value addition of the public sector in 1998 was estimated at Rs. 1.9 billion which has declined to Rs. 1.3 billion in 2004. The tourism sector plays an important role in the Western Province particularly in the coastal sector. It has been reported that Colombo District has 78 star class hotels and 57 non-star hotels. In Gampaha district, the total number of hotels in 2004 was 18 and that in Kalutara was 8. The coastal strip along Negombo to Beruwala has 344 motels located in all three districts.

According to the statistics available with the Ministry of Tourism, the number of hotels damaged in the Western Province due to Tsunami disaster in 2004 was 18 out of which 12 were located in Kalutara District while the balance 6 were in Colombo District. The total value of the damages was estimated at approximately Rs. 1.3 billion.

- (ii) Final Report on the Tsunami Mapping Programme (TMP) conducted in the Eastern, Southern and Western Coastal Regions in Sri Lanka by the Geological Survey and Mines Bureau of Sri Lanka in 2005

The study has assessed morphological, geological effects and impacts and sea water penetration and inundation levels along the entire coastal belt due to Tsunami waves. It has also assessed the degree of destruction under four categories as severe, moderate, slightly moderate and no damage. The highest damage was reported along the coastal strips of Trincomalee, Ampara, Hambantota, Matara and Galle districts. The maximum inundation limit of 2 Km. inland was reported in areas of Batticaloa and Trincomalee.

Results of the above study in Western Province are described below:

The coast lines of Handela, Modera and Dehiwala have been affected. A moderate destruction has taken place in Modera (harbour structures and adjacent areas were affected), Dehiwala (Waves have entered and damaged the coastal stretch) and Panadura (River mouth has been affected).

- (iii) Proceedings of the Workshop to develop Strategies for Advancement of Agriculture sector in Tsunami Affected Areas in Sri Lanka by the Ministry of Agricultural Development with the assistance of FAO in 2006

The review shows that there has been no damage or impact created to any agricultural lands in the above Local authority areas in the Western Province.

- (iv) Rapid Environmental Assessment on Post Tsunami Brown Environment – Final report produced by the Ministry of Environment in association with University of Moratuwa in June 2005

The overall impact assessment of general economic and post Tsunami activities in Gampaha and Colombo districts has produced a nil report. However, the following damages ranging from very low (1) to High (5) totaling 17 incidents in Kalutara District have been recorded.

With regard to tourism sector, 43 locations have been affected. Of these, damages are ranked as 18 -very low, low -18 and moderate – 7.

The industries located in the Western Province have not been affected.

The Fisheries and Ports sector in Gampaha and Kalutara districts were affected. 5 locations in Gampaha ranging from very low (2) and low (3) have been reported.

In Kalutara district, damages in four locations have been reported.

Mineral and other resources sectors in Kalutara have been affected in low range.

- (v) Rapid assessment of damage to natural eco-systems in the coastal and associated terrestrial environments conducted by the Ministry of E&NR assisted by UNEP

There had been no visible damage to the beach sites of Negombo, Wellawatte and Mount Lavinia. In Panadura beach the water has affected 2 to 3 Km. resulting in severe damage to the settlements of the coastal zones.

- (vi) Coastal Zone Management Plan of 2004 prepared by the Coast Conservation Department.

The Coastal Zone Management Plan consist of 8 chapters that includes a chapter relating to control of water pollution. It states that the government expenditure on protection of urban community from health hazards increased to Rs. 14 million in 2002 from Rs. 2.0 million that was incurred in 1992.

The following observations have been reported pertaining to environmental pollution in urban areas.

- Sewage pollution
- Visible pollution due to industries, tourism, illegal settlements, urban and domestic waste
- Eutrophication due to high contents of Phosphorous and Nitrogen
- Presence of organic and heavy metal pollution
- Oil related pollution arising from industries, oil spills and service stations

- heat related pollution due to power plants and industries

The highest number of waste disposal units have been operational along Wellawatte to Panadura coastal stretch upto 13 Cubic metres per day compared to second highest of Kalutara that fetches 8 Cubic Metres in Kalutara coastal strip.

(vii) Rapid Environmental Assessment on Tsunami Permanent Housing Sites in Sri Lanka conducted by the University of Moratuwa for the Ministry of Environment in 2005

A survey of potential sites for holding permanent houses for those families affected by the Tsunami has been carried out by the Civil Engineering faculty of the University of Moratuwa in 2005 under a rapid environmental assessment covering the DS divisions of Colombo, Kalutara and Gampaha districts. The number of sites investigated included 11, 52 and 6 respectively. Majority of them have been found to be acceptable in socio-economic terms while some had minor impacts on environmental considerations such as waste dump sites, ecologically sensitive areas in adjacent lands etc.

(vii) Identification of Suitable Sites for House Construction that would Minimize Environmental Issues

IUCN has produced Guidelines for Best Practices for Tsunami Affected Activities that focuses on identification of sites for house construction that can lead to minimizing environmental issues. Some relate to buffer zones to protect wetlands, ecologically sensitive areas avoiding waste dumping sites etc. Preserving Special Area Management (SAM) sites such as Lunawa Lagoon and Negombo estuary/ Muthurajawela Marsh that are located within Western Province.

(ix) Rebuilding After the Tsunami: How to get at right – Environmental Foundation Ltd. - January 2005

The above document highlights series of policy concerns and made recommendations for Land Use Planning and House Construction as follows:

Before communities are relocated to new houses, due and careful attention must be paid to defining mutual rights and obligations. Consideration of the rights of occupants over property tenancy and security of tenure and limitations on the sub-letting and transfer of property by the allocated owner or tenants

Socio-economic considerations form central in proper land use planning that ensure proximity of settlements to peoples means of livelihoods, reflecting long established settlement patterns, maintaining community diversity and interactions. Special attention should be paid in the re-housing process to the needs of disadvantaged and marginalized communities especially poor, landless and women headed households. Proper land use planning means, integrating environmental concerns into housing construction. It is also integral to ensuring pleasant and adequate human living conditions and construction must

be carried out according to appropriate environmental safeguards and impact assessment procedures.

(x) After the Tsunami : Rapid Environmental Assessment by United Nations Environment Programme - 2005 (January to April)

In response to requests from Tsunami - impacted governments, the UNEP emergency assistance was provided to all affected countries including Sri Lanka. A rapid environmental assessment was carried out in all affected countries during the period January to April 2005.

Around 12% of all building units in Sri Lanka were located in administrative divisions along the Sri Lankan coast that were affected by Tsunami. Most houses are owner occupier with only 13% of houses occupied by tenants. There were many modest dwellings with unfinished floors, wattle and daub, plank or palm leaf walls and simple roofing without in-house toilets, water or electricity. An estimated 62,000 wells have been contaminated. Of the country's 29,700 fishing boats, about two-thirds have been destroyed or significantly damaged along with outboard motors, ice storage units and fishing gear and nets.

Housing represents by far the most valuable asset lost by the affected families. Policies should promote safe building and higher but affordable design standards.

It has been stated that better coastal zone management land use planning will reduce vulnerability and environmental stress. Community based Integrated Coastal Zone Management and Planning must be fundamental principles in the reconstruction and rehabilitation. These concepts will include public engagement in local decision making, employ rapid assessment and zoning and planning processes that will promote safe housing, enhanced ability of natural systems to act as bio-shield to protect people and livelihoods, cost effective and innovative engineering solutions to control erosion and use of best practices in placement of critical public and private infrastructure.

(xi) Sri Lanka's National Programme of Actions for the Protection of the Marine Environment from Land Based Activities – Ministry of Environment and Natural Resources of Sri Lanka and the United Nations Environment Programme/ Global Programme of Action (UNEP/ GPA) – 2003

All land based activities generate impacts that will endanger a cumulative effect on the health of the coastal and marine environment and this document is a framework to mainstream selected strategies into policies, programmes and plans among relevant stakeholder institutions towards management of such impacts.

Type of pollution, sources and main adverse impacts on marine environment have been indicated as due to faecal, visual, oil and thermal pollution. One contributor to pollution has been identified as Squatter population who are also responsible for organic and heavy metal pollution. Adverse impacts have been identified as diseases among

fauna, affects growth of marine flora and fauna, foul odour impairs visual aspects, affects growth of marine vegetation and breeding grounds, deteriorates water quality, causes changes in coastal eco-systems etc.

4. Assessment of Socio-economic Conditions of Squatter settlers

4.1 Population, ethnicity and the religion

The total number of family members covered in the sample was 448. This includes 113 chief occupants and other family members of each household. Table 4.1 and 4.2 reflect the summary of important demographic information.

Table 4.1 Population data of the Socio-economic survey

Location	Male	Percentage	Female	Percentage
1. Negombo	12	80	3	20
2. Wattala – Mabile	15	100	-	-
3. Ja-Ela	6	67	3	33
4. Colombo	15	100	-	19
5. Dehiwala-Mt. Lavinia	13	81	3	-
6. Moratuwa	15	100	-	-
7. Panadura	14	88	2	12
8. Kalutara	12	100	-	-
Total	102	90	11	10

Table 4.2 Average Family Size of the Socioeconomic Survey

Location	Number	Average Family Size
1. Negombo	67	4.4
2. Wattala - Mabile	69	4.6
3. Ja-Ela	42	4.7
4. Colombo	52	3.5
5. Dehiwala- Mt. Lavinia	70	4.4
6. Moratuwa	61	4.0
7. Panadura	45	2.8
8. Kalutara	42	3.5
Total	448	3.96

Ninety percent of the chief occupants of households surveyed consisted of males.

The average size of the family in the sample was 3.96 that is lower than the average rural family (4.9) in Sri Lanka. Among the different local authority areas, the largest family size was 4.67 in Ja-ela while the smallest was 2.81 in Panadura.

The Ethnicity and religion of the local authorities are depicted in table 4.3.

Table 4.3 Ethnicity and the Religion

Location	Sinhalese	Tamils	Catholic	Buddhist	Hindus
	Number	Number	Number	Number	Number
1. Negombo	15	-	15	-	-
2. Wattala – Mabile	15	-	15	-	-
3. Ja-Ela	9	-	9	-	-
4. Colombo	7	8	6	1	8
5. Dehiwala-Mt. Lavinia	15	1	5	11	-
6. Moratuwa	15	-	4	11	-
7. Panadura	16	-	-	16	-
8. Kalutara	12	-	-	12	-
Total	104	9	54	51	8

Ninety two percent of the total sample were represented by Sinhalese and remainder was of Tamil origin. With regards to religion, Catholics represented 54% while Buddhists were 45%. The percentage of Hindus was 7%. It shows that majority of the coastal community consisting of fishermen are Catholics.

4.4 Level of Education

The socio-economic survey used five categories to examine the level of education among the sample population. A summary of the result is shown in Table 4.3

Table 4.4 Level of Education (Heads of the Household in different Locations)

Location	No Education	1-5	6-10	G.C.E.O/L	G.C.E.A/L & above
1. Negombo	3	2	10	-	-
2. Wattala – Mabile	-	7	2	5	1
3. Ja-Ela	1	-	6	2	-
4. Colombo	1	7	5	2	-
5. Dehiwala-Mt. Lavinia	4	5	5	2	-
6. Moratuwa	2	5	5	3	-
7. Panadura	-	-	9	4	3
8. Kalutara	-	5	6	1	-
Total	11	31	48	19	4

The majority of heads of households are in the category of Grades 6 to 10 while the lowest category is GCE (AL) and above. No education category is also significant.

Reasons for no education and early school leaving are poverty, lack of guidance and ignorance by the parents. These factors are common to all the 8 Local authorities.

4.5 Age Distribution and the Work Force

The socio-economic survey used four categories to examine the age distribution and the workforce. A summary of the result is shown in Table 4.5

Table 4.5 Age Distribution and the Work Force

Location	0-10	%	11-18	%	19-55	%	<55	%
1. Negombo	14	21	16	24	37	55	-	-
2. Wattala – Mabile	10	14	8	12	48	70	3	4
3. Ja-Ela	1	2	4	10	34	81	3	7
4. Colombo	11	21	3	6	38	73	-	-
5. Dehiwala-Mt. Lavinia	14	20	2	3	54	77	-	-
6. Moratuwa	18	30	5	8	37	61	1	2
7. Panadura	6	13	8	11	27	60	7	16
8. Kalutara	6	14	5	19	26	62	2	5
Total	80	18	51	11	301	67	16	4

According to this table 67% of persons of the survey sample are in the active category while 18% and 4% are falling into infant and elderly groups. Ja-ela has the highest active workforce of 81% while Negombo has the lowest of 55%.

4.6 Major Occupations

Public, private and self employment categories have been considered in different sectors while it has been further divided into Permanent, Temporary and Casual employment. Self employment category accounted for the highest employment potential of 54% of the sample. Fishing, business and working in the private sector were the major occupations indicated in the findings of the survey.

Fishing was the dominant activity in all Local authority areas. Carpentry was also an important economic activity in Moratuwa and Panadura.

Table 4.6 Type of Major Occupation

Location	Sector			Permanent	Temporary	Casual	No Employment
	Public	Private	Self				
1. Negombo	-	5	6	-	5	4	4
2. Wattala - Mabile	-	4	11	-	10	-	-
3. Ja-Ela	-	1	4	-	4	5	4
4. Colombo	2	4	9	2	2	11	-
5. Dehiwala-Mt. Lavinia	4	2	10	5	1	11	-
6. Moratuwa	3	9	3	3	3	2	-
7. Panadura	1	3	7	1	8	2	5
8. Kalutara	-	6	4	-	6	9	2
Total	10	34	54	11	39	44	15

4.7 Type of Assets Owned by the Squatter Community

Sewing machines, TVs and Bicycles are common assets owned by all income groups and therefore the survey used to assess the ownership of these assets belonging to the squatter population. The results of the survey are shown in Table 4.7.

Table 4.7 Type of assets owned

Location	Sewing Machine	T.V	Fishing Crafts	Others	No Assets
1. Negombo	-	7	1	Bicycles	2
2. Wattala – Mabile	1	11	5	-	-
3. Ja-Ela	-	8	5	Bicycles and Motor bicycles	2
4. Colombo	2	7	2	Bicycles	-
5. Dehiwala-Mt. Lavinia	-	2	-	-	14
6. Moratuwa	-	9	2	Motor Bicycles	3
7. Panadura	6	12	-	Motor Bicycles	-
8. Kalutara	-	6	3	Motor bicycles	2
Total	9	62	18		23

The survey shows that 62 of households in the sample have Television sets while 18 have bicycles. Majority of the householders did not have fishing craft, although fishing is a major occupation. Among the Local authorities, Dehiwala- Mount Lavinia shows that in terms of assets owned they are the poorest while Panadura shows the highest.

4.8 Land Ownership

The survey used three categories as lease, occupation with no deed and purchased land with clear title to examine the land ownership of the squatter community.

Table 4.8 Land Ownership

Location	Lease	Occupation with no deed	Purchased land with clear title
1. Negombo	8	7	-
2. Wattala - Mabile	-	11	4
3. Ja-Ela	-	8	1
4. Colombo	-	15	-
5. Dehiwala- Mt. Lavinia	-	16	-
6. Moratuwa	-	10	5
7. Panadura	-	1	15
8. Kalutara	-	4	8
Total	8	72	33

According to the table 4.8, a majority of the squatter community are occupying the lands with no deeds that include illegal encroachments. A significant number of purchased lands with clear title are also reported in the sample survey.

4.9 Major health Issues

The sample survey also examined major health issues of the squatter community in the 8 LAs. And the results are indicated below:

Table 4.9 Health Issues

Location	Major sickness	Frequency (Year)
1. Negombo	-	-
2. Wattala – Mabile	Fever	Through the year
3. Ja-Ela	-	
4. Colombo	Fever	Through the year
5. Dehiwala- Mt. Lavinia	-	
6. Moratuwa	Asthma	
7. Panadura	Asthma	
8. Kalutara	Asthma	
Total		

The table shows that squatter community in Negombo, Ja- ela and Dehiwala LAs did not have serious health problems while Wattala and Colombo are suffering from fever frequently and others from Asthma. This could be probably due to haphazard disposal of solid waste and sewerage which is a common problem in many urban areas.

4.10 Types and Conditions of Houses

Permanent, temporary and shed joined with others were the major categories used to examine the type and conditions of houses. The results of the above are indicated in the Table 4.10 shown below:

Table 4.10 Type and Conditions of Houses

Location	Permanent	Temporary	Shed joined with others
1. Negombo	8	7	-
2. Wattala - Mabile	14	1	-
3. Ja-Ela	7	1	-
4. Colombo	5	11	-
5. Dehiwala- Mt. Lavinia	1	14	1
6. Moratuwa	1	14	-
7. Panadura	10	6	-
8. Kalutara	7	5	-
Total	53	59	1

The table shows that 52% of the sample households live in temporary houses while 47 % live in permanent houses. The conditions of the houses are relatively poor showing lack of space, leaking of roof and facing sea winds etc.

4.11 Monthly Average Income

The results of the monthly average income of squatter community in 8 LAs are shown in Table 4.11.

Table 4.11 Average Monthly Income (Rs.)

Location	Average Monthly Income (Rs.)		
	Rs. 2000-5000	Rs. 5000-10,000	Rs. <10,001
1. Negombo	4	8	3
2. Wattala - Mabile	2	8	5
3. Ja-Ela	-	8	-
4. Colombo	3	7	5
5. Dehiwala- Mt. Lavinia	5	5	8
6. Moratuwa	3	10	2
7. Panadura	2	5	9
8. Kalutara	-	3	8
Total	19	54	40

According to this table it appears that the majority of the household incomes range from Rs. 5000 to Rs. 10,000. A significant number of squatter community of 17% also receive an income of less than Rs. 5000. However, 35% of them receive over Rs. 10,000 per month.

4.12 Average Monthly Expenditure

The survey used four categories as shown below to examine the structure of average monthly expenditure of the squatter community that included cost of food, medicines, entertainment and other expenses. The results are shown in Table 4.12.

Table 4.12 Average Monthly Expenditure (Rs.)

Location	2000 - 5000	5001- 10,000	> 10001	Not reported
1. Negombo	3	7	5	-
2. Wattala – Mabile	2	4	6	3
3. Ja-Ela	-	8	1	-
4. Colombo	2	11	2	-
5. Dehiwala-Mt. Lavinia	3	6	5	-
6. Moratuwa	4	7	2	2
7. Panadura	3	2	2	9
8. Kalutara	1	3	6	-
Total	18	49	32	14

According to Table 4.12 the majority of Squatter community spends between Rs. 5001 to Rs. 10000 representing 43% of the incomes. 28% of them spend over Rs. 10,000 while the remainder of 16% spends between Rs. 3000/- to Rs. 5000/- showing poverty and disparity of access to facilities exists.

4.13 Indebtedness

The sample survey also examined the indebtedness of the squatter community using three categories as obtaining loans, range of loans and not taking loans and the results are shown in the table 4.13 below.

Table 4.13 Indebtedness

Location	Taken Loans	Range of Loan	Not taken loan
1. Negombo	7	25,000 – 50,000	8
2. Wattala - Mabile	-		15
3. Ja-Ela	-		9
4. Colombo	2	80,000 – 100,000	13
5. Dehiwala- Mt. Lavinia	2	10,000 – 50,000	14
6. Moratuwa	1	20,000	15
7. Panadura	1	400,000	14
8. Kalutara	-	-	12
Total	13		100

According to the above table, only 13 persons of the sample obtained loans / credit facilities from various financial institutions, majority of them live in Negombo MC. The loans ranged from Rs. 25,000/- to Rs. 50,000/- . However, 87% of the persons in the sample did not obtain credit facilities. Bad loans, absence of co-lateral, irregularity of income streams would have resulted in this situation.

5. Main causes / factors that influence encroachment and continue illegal occupation

This study has examined the main causes /factors that influence the settlers to encroach and continue with illegal occupation within the coastal reservation through discussions, and responses to the questionnaire with the squatter community, and also with other stake holders.

The rapid population growth in the urban areas, high land prices, absence of public lands, availability of employment opportunities relative to other areas, close proximity to public utilities and services, non-affordability to buy lands/houses in the urban areas are the major reasons stated by them for the above situation. However, majority of them reported un-employment in terms of regular incomes as a serious issue to be resolved.

The socioeconomic survey also interviewed the respondents on the advantages and disadvantages of living in the squatter settlements. The advantages stated by them are the availability of infrastructure; easy for job/ work place and close proximity to the public utilities and services. The disadvantages are the limited space, absence of proper facilities, health and sanitation problems, flooding during rainy season etc. The results of the survey are shown in table 5.

Table 5 Major Advantages and Disadvantages

Location	Advantages (Number)	Disadvantages (Number)
1. Negombo	9	2
2. Wattala – Mabole	9	15
3. Ja-Ela	-	4
4. Colombo	11	12
5. Dehiwala- Mt. Lavinia	2	12
6. Moratuwa	7	6
7. Panadura	2	2
8. Kalutara	-	10
Total	40	63
	Availability of infrastructure ; easy for job/ work place;	Limited space; flies and mosquito menace; flooding ; leaking roof; sea winds

Table 5 shows the results of the survey relating to the advantages and disadvantages. It appears that the advantages are relatively fewer than that of disadvantages. The squatter community realized that they are suffering from a variety of problem/ issues but have no option to overcome this situation. Eighteen percent of the squatter population is youngsters and infants aging between 0-18 years and depending on their families. Very often a new group of second generation families are added to the already congested households. It has become a great burden in turn aggravating the encroachment and continue illegal occupation.

The main causes for continued encroachment and illegal occupation relate to dependence on the use of coastal resources and easy access to major townships for employment and facilities such as public transportation, schools, health care, markets, etc. Discussions with the Squatter population revealed that many of them had been living under illegal possession of lands for decades and had turned out to develop second and third generations thus expanding the community base. These dwellings have been constructed with temporary sheds initially and gradually turned to permanent housing units. One of the main causes of illegal occupation is the lack of enforcement of legal provisions by the state.

There has been no attempt by the state to find alternative lands to shift their occupation from coastal reservations while encroachers have made complaints of lack of facilities and services provided to their units due to poor recognition of their existence by the state agencies.

According to the findings of the survey, beaches are used as coastal resources by some while dependence on the sea is very much limited and that many of the squatters are moving to outside work from these dwellings. The survey results are shown below.

Table 6- Coastal Resources Use

Location	Type of Coastal Resources Use		
	Beach	Sea	Not using coastal resources
1. Negombo	5	1	9
2. Wattala - Mabile	-	-	15
3. Ja-Ela	2	-	7
4. Colombo	10	-	5
5. Dehiwala- Mt. Lavinia	-	-	16
6. Moratuwa	8	-	7
7. Panadura	1	-	15
8. Kalutara	7	-	5
Total	33	-	79

Many of the squatters upto 55% have indicated their willingness to continue to stay in such locations while the balance 45% has opted to move away from the existing locations and during discussions indicated that would prefer to move to better accommodation. The results of the survey relating to future plans for residences are indicated below:

Table 7 - Future Plans for Permanent Residence

Location	Continue to stay in same land	Willingness to Leave
1. Negombo	9	6
2. Wattala – Mabile	11	4
3. Ja-Ela	8	-
4. Colombo	14	1
5. Dehiwala- Mt. Lavinia	5	10
6. Moratuwa	3	12
7. Panadura	3	13
8. Kalutara	8	4
Total	61	50

6. Nature and Significance of Coastal Pollution

The socio –economic survey extended its questionnaire to cover pollution related issues and identified major reasons for pollution as given by the following table:

Table 8 - Major Reasons for Pollution

Location	Weak Collection	Lack of proper transport	Lack of enforcement	Poor Coordination	Others	No response
1. Negombo	7	2	3	3	-	
2. Wattala – Mabile	6	2	4	3	-	
3. Ja-Ela	7	2	-	4	-	
4. Colombo	-	-	6	6	-	
5. Dehiwala- Mt. Lavinia	3	4	6	4	-	
6. Moratuwa	12	8	7	2	-	
7. Panadura	-	-	-	-	-	15
8. Kalutara	-	1	6	8	-	
Total	35	19	32	30		15

Major reasons as indicated by the squatter community related to weak collection system of solid waste, lack of enforcement of regulations and poor co-ordination among the government agencies such as Coast Conservation Department, Local authorities and the Community Groups.

In many areas squatter community lacked awareness on the method of disposal such as collection of waste at household level and bringing to a central common location for disposal by the Local authorities. There were no mechanisms introduced for sorting of waste according to the type of waste generated.

According to the survey results, major type of waste relate to solid waste and kitchen waste while major source of disposal was noted as beaches. The collection of waste by the local authorities was marginal as indicated by the following table:

Table 9 - Type and Disposal of Waste

Location	Type		Method of Disposal		
	Kitchen	Solid	Beach	Sea	Municipal collection
1. Negombo	5	10	15	-	-
2. Wattala – Mabole	4	10	10	3	2
3. Ja-Ela	7	1	4	-	-
4. Colombo	-	15	1	11	4
5. Dehiwala-Mt. Lavinia	1	15	15	-	-
6. Moratuwa	-	15	7	7	1
7. Panadura	-	3	3	-	-
8. Kalutara	5	7	6	3	3
Total	22	76	61	24	10

In most of the locations there were common toilets while in some areas community used beaches for sanitation needs.

There should be a policy to recognize the existence of a squatter community located in coastal reservations and within the coastal zone for which services should be extended by the Local authorities.

7. Realistic Management options to minimize environmental degradation and to improve the quality of the coastal environment

The coastal resources management including land management are falling under the jurisdiction of many agencies such as CCD, Fisheries Department, Local authorities and the Divisional Secretariats. In addition NGOs play an important role in education and awareness campaigns on environmental aspects while private sector is engaged in development projects and promoting business and economic activities along the coastal belt. CCD is responsible for regulating the use of coastal resources while providing clearance to private / public sector development projects to be located within the coastal zone through the EIA/ IEE process.

The industrial locations although not sited within the coastal zone, effluent discharges to the water bodies that end up at sea can cause impacts from incidence of pollution issues. There are several industries that are located in the coastal zone that dispose waste to the beaches.

The solid waste and sewage disposal to the beaches have been a major issue among the squatters. Majority has informed that they need awareness on the methods of disposal and in maintaining clean environment.

The following management options are suggested:

- In the absence of information on the total number of Squatter settlements and population located along the coastal zone of the Western Province, it is important to develop an inventory of number of families appearing in the squatter settlements (The latest information on the squatter settlements in Colombo district has been developed by REEL in 1999 that need to be updated).
- Issues raised by the squatter community need to be addressed in order to minimize impacts of environmental degradation that are mainly related to disposal of solid waste and sewage and industrial waste generated in adjoining locations.
- Services provided by the Local authorities need to be extended to squatter settlements which is a pre-requisite to minimize environmental pollution in the coastal zone
- Community driven approaches for garbage collection to common locations would also be important to enable easy access by the Local authorities particularly where access to settlements are difficult.
- Awareness campaigns need to be organized with the active support of the NGOs and initiated by the CEA and the Ministry of E & NR
- Community Based Organizations would have to be activated to develop partnerships with the private sector hoteliers located along the beaches for periodic clean up campaigns
- Alternative lands will have to be provided to squatters with state involvement through the housing development models developed by the Real Estate Exchange Ltd. (REEL)
- Once the squatter community is shifted to alternative lands and residences, law enforcement should be strictly adhered by the CCD and the Local authorities
- An effective and powerful co-ordination mechanism should be introduced involving the CCD, DSS and the LAs supported by the Western Provincial

Council to manage the environmental issues and improve the quality of environment in the coastal zone of Western Province

8. Replicable management guidelines to curtail illegal encroachments

The coastal zone should be demarcated with clear boundaries of reservations and environmentally sensitive areas within the zones replicating the strategies adopted under the Forest Resource Management Project. Boundaries of sensitive areas along the lagoon areas can be demarcated under the Coastal Resources Management Project.

These sensitive areas that fall in the coastal reservations should be declared as non-residential areas according to a land use management plan as prepared for coastal areas in Hambantota district.

No new encroachments should be entertained by the government by strengthening the enforcement capacity of the LAs and the CCD.

9. Mechanism to ensure long term sustainability

Mechanism to ensure long term sustainability can be introduced through the following strategies:

- Replication of a community management model of natural forest areas introduced under the World bank funded Sustainable Use of Medicinal Plants project by building the capacity of CBOs and resource users can be applied to coastal resource management. In the absence of a clear policy on squatter re-location, it is important to use their capabilities to protect the coastal environment through capacity building programme. CCD is agreeable to adopt proposed participatory management concepts under Coastal Resources Management Project and internalize it as a national policy.
- Establishment of Vigilant Committees consisting of environmental NGOs and coastal village level CBOs who can serve as informant groups against new encroachments which will be recognized by the CCD and the LAs
- Strict supervision of effluent discharges by industries should be followed by the regulatory agencies including CCD, CEA and action should be taken against them. Information gathered and channeled by the community groups should also be examined while recognizing their efforts as Vigilant Committees
- Capacity building programmes of CBOs irrespective of whether they belong to squatter community or not should be initiated with a view to use their capabilities to manage the coastal environment.
 - Training of trainers programmes should be offered to community leaders among the CBOs located within squatter community and elsewhere located along the coastal zone on environmental subjects followed by support programmes to

promote awareness creation programmes to be organized targeted at all communities using the trained community leaders.

- Training in attitudinal change management would be imperative to ensure sustainable environmental management activities being adopted by the squatter community.
- An action plan on the above lines can be developed by the Environmental Coordinating Committee at DS level with funding earmarked for community interventions for identified priority projects

10. References:

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