



# **LAND USE PLAN**

## **VAUNIYA DISTRICT**

**Prepared on the recommendations given by the  
Lessons Learnt and Reconciliation Commission (LLRC)**



**Land Use Policy Planning Department**

**Ministry of Lands**

**2016**

## **Secretary's Message**

Lessons Learnt and Reconciliation Commission (LLRC) made several recommendations for the Northern and Eastern Provinces of Sri Lanka so as to address the issues faced by the people in those areas due to the civil war. The responsibility of implementing some of these recommendations were assigned to the different institutions coming under the purview of the Ministry of Lands i.e. Land Commissioner General Department, Land Settlement Department, Survey General Department and Land Use Policy Planning Department.

One of the recommendations made by the LLRC was to prepare Land Use Plans for the Districts in the Northern and Eastern Provinces. This responsibility assigned to the Land Use Policy Planning Department. The task was completed by May 2016. I would like to thank all the National Level Experts, District Secretary and Divisional Secretaries in Vauniya District and Land Use Planning Officers , Development Officers (Land Use) of Vauniya District and the District staff who assisted in preparing this plan. I also would like to thank Director General of the Land Use Policy Planning Department and the staff at the Head Office for their continuous guiding given to complete this important task.

I have a great pleasure in presenting the Land Use Plan for the Vauniya District.

Dr. I.H.K. Mahanama

Secretary,

Ministry of Lands.

## **Director General's Message**

I have a great pleasure in presenting the Land Use Plan for the Vauniya District prepared by the officers of the Land Use Policy Planning Department. This task was commenced with limited resources in the Department, but subsequently, the much required resources for field work were provided by the Ministry of Lands.

I would like to take this opportunity to thank the many individuals who helped us in preparing the plan. I wish to thank in particular the Secretary, Ministry of Lands; the Government Agent/District Secretary and the Divisional Secretaries of the Vauniya District; members of the National Expert Group (NEG); the District Expert Group (DEG); the Divisional Level Officers; the members of the farmer organizations.

Finally my thanks go to the staff at the Head Office of the Land Use Policy Planning Department and the Land Use Planning Officers ,Development Officers (Land Use) of Vauniya District and District staff for their commitment despite the many hardships faced by them, particularly in conducting the required field studies.

I trust this plan will be used as a decision making tool for promoting better land use in Vauniya District.

P.M. Shanthi Fernando

Director General

# ABBREVIATIONS

CCB - Coconut Cultivation Board

CEA - Central Environmental Authority

DAS - Department of Agrarian Services

DEG - District Expert Group

DMC - Disaster Management Centre

DSD - Divisional Secretary Division

DWLC - Department of Wild Life Conservation

FD - Forest Department

GND – Grama Niladari Division

GSMB - Geological Survey and Mines Bureau

ID - Irrigation Department

LUPPD - Land Use Policy Planning Department

NEG - National Expert Group

NPPD - National Physical Planning Department

PDOA - Provincial Department of Agriculture

PDOI - Provincial Department of Irrigation

PLCD - Provincial Land Commissioner's Department

SLCC - Sri Lanka Cashew Corporation

UDA - Urban Development Authority

WD - Wildlife Department

## **MEMBERS OF THE TEAM**

The Team was guided and coordinated by Mr. Kumarasamy Muraleetharan, Land Use Planning Officer, District Land Use Planning Office, Vauniya according to the directions given by the staff at the Head Office. Land Use Plan has been compiled by Mrs.Ruchira Wickramaratne – Assistant Director(District Land Use)-Hambantota and Matara Districts and Mrs.Chandra Seneviratne –Assistant Director(District Land Use)-Kegalle and Gampaha Districts.

### **Other members**

	<b>Name</b>	<b>Designation</b>
01.	Mr. Sivalingam Sivarajah	Land Use Planning Officer
02.	Mr.Vinayagamoothi Thayaparan	Land Use Planning Officer- Vengalacheddikulam and Vavuniya South
03.	Mr. P.M.Collins	Development Officer
04.	Ms. Mekala Srikanth	Development Officer
05.	Ms. Veni Thusikaran	Development Officer- Vavuniya North
06.	Ms . Ulaganathan Amuthini	Development Officer
07.	Mr. James Benadict Michael	Management Assistant
08.	Mr.Jalaja Gobalrasa	Management Assistant
09.	Mr. Sivagnanam Jeyakumar	Driver
10.	Mr. H.M.R.D.Hethnayake	Office Assistant

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## **PART I-BACKGROUND**

### **1. INTRODUCTION**

The Lessons Learnt and Reconciliation Commission (LLRC) of 2011 recommended that “a land use plan for each District in the North and East should be developed with the participation of district and national experts drawn from various relevant disciplines to guide the district administration in land conservation and alienation in order to ensure protection of environment and bio-diversity; sustainable economic development; leisure and recreational standards; religious, cultural and archeological sites with a view to improving the quality of life of the present and future generations”.

The preparation of the plans was entrusted to the Land Use Policy Planning Department (LUPPD). The LUPPD started the planning process by establishing two expert groups, one at the National Level and other at the District Level. Field work of the planning process was commenced in 2013. Initially the available land use maps were updated to study the current patterns of land use and subsequently major land use issues were identified based on the field investigations. Recommendations to address the land use issues were formulated and these were presented to the Expert Groups and stakeholders for their views and comments. The plan for the district has been prepared by incorporating the views and comments of the Expert Groups and the stakeholders.

The Plan is mainly divided into two parts. Part I provides the background for the plan. Part II gives the land use plan.

## 2. DISTRICT PROFILE

### 2.1 Introduction

Vauniya District is one of the 25 districts in Sri Lanka and it is located between 08°83' Northern coordinates and 80°50' Eastern coordinates. It is situated in the Northern Province of Sri Lanka. This District is surrounded by Mullaitivu District from the North, Anuradhapura District from the South, Trincomalee & Anuradhapura Districts from the East, and from the West, by Mullaitivu & Mannar Districts. (Figure 1). It covers 1938 Sq.km, approximately 3% of the total land area of the country.

### 2.2 Administrative Structure

The Vavuniya District falls within the Northern Province and administratively this District has divided into four Divisional Secretary Divisions namely Vavuniya, Vavuniya North Vavuniya South and Vengalacheddikulam. (Figure 1. and Table 1.)

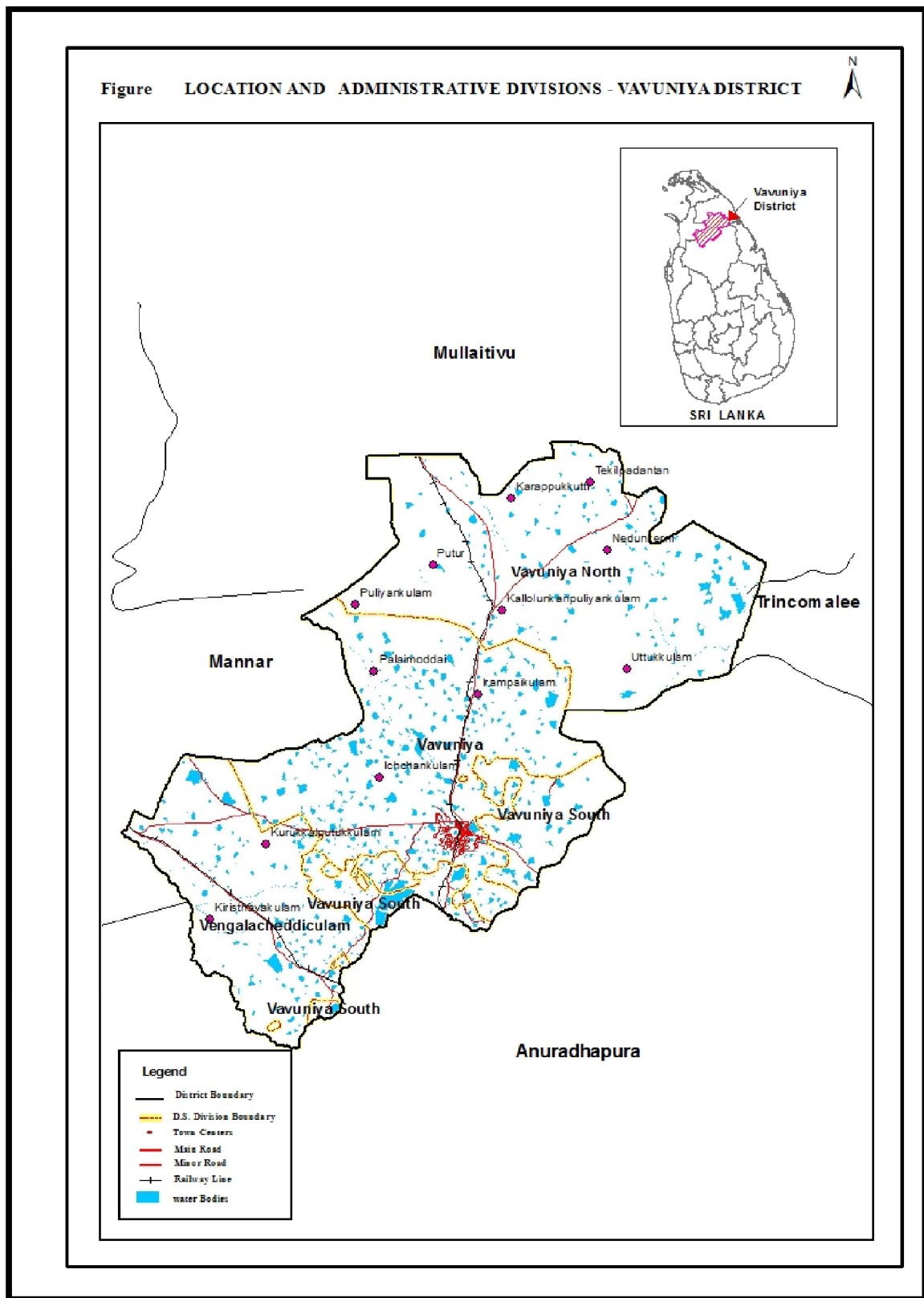
Table 1. Administrative Divisions

	Name of the Divisional Secretary Division	Number of Grama Niladhari Divisions
1	Vavuniya	42
2	Vavuniya North	20
3	Vavuniya South	20
4	Vengalacheddikulam	20

Source: District Secretariat-Vauniya

The District Administration is controlled by a Government Agent / District secretary and Divisional Secretary Division administration goes under a Divisional Secretary. According to the administration regulations the District is also divided into 102 Grama Niladhari Divisions and there are 550 villages in the District. This District is divided into five administration bodies including one Urban Council and four Pradeshiya Sabhas namely Vavuniya Urban Council, Vavuniya Tamil Pradeshiya Sabha, Vavuniya North Pradeshiya Sabha, Vavuniya South Sinhala Pradeshiya Sabha, and Vengalacheddikulam Pradeshiya Sabha.

Figure 1. LOCATION AND ADMINISTRATIVE BOUNDARIES-VAUNIYA DISTRICT



## **2.3 Physical Environment**

### **2.3.1 Topography**

Geographically the Vavuniya District falls within the Northern lowlands. Commonly the topography pattern of the District consists of gently sloping (0-8%) and undulating terrain types. The elevation varies from 100 – 300 feet from the Mean Sea Level and this district can be called as a plateau. Slope goes towards, Mannar plains to West and Mullaittivu narrow plains to East.

The South East part of the district forms by the ridge of the mountain which separates the Northern Province. This part has the highest elevation, 300 feet from the Mean Sea Level. It is the highest elevation in the North of Sri Lanka.

The rest part of the district is a gently sloping plain .The slope is between 0 – 8%. Topography of the plains is undulating.

From the South East plateaus the rivers flow towards West and North. These river systems forms narrow valleys- typical land forms, as a network over the District.

### **2.3.2 Soils**

The major soil types and their distribution in the District are shown in the Figure 2. The soil types of the District are Reddish Brown Earths, Low humic gley and alluvial soils. There are concave valleys and bottom lands with Red yellow latasols found in the Northern part of the District and that area is more fertile and has better ground water potential. In the other part of the district, there are hard crystalline rocks with limited ground water.

At present Reddish Brown Earths are used for cultivation for a number of cereals, pulses and subsidiary food crops during Maha season under rain -fed conditions and Yala Season under irrigation. In addition forests are located in these soils, and also shifting cultivation is practiced.

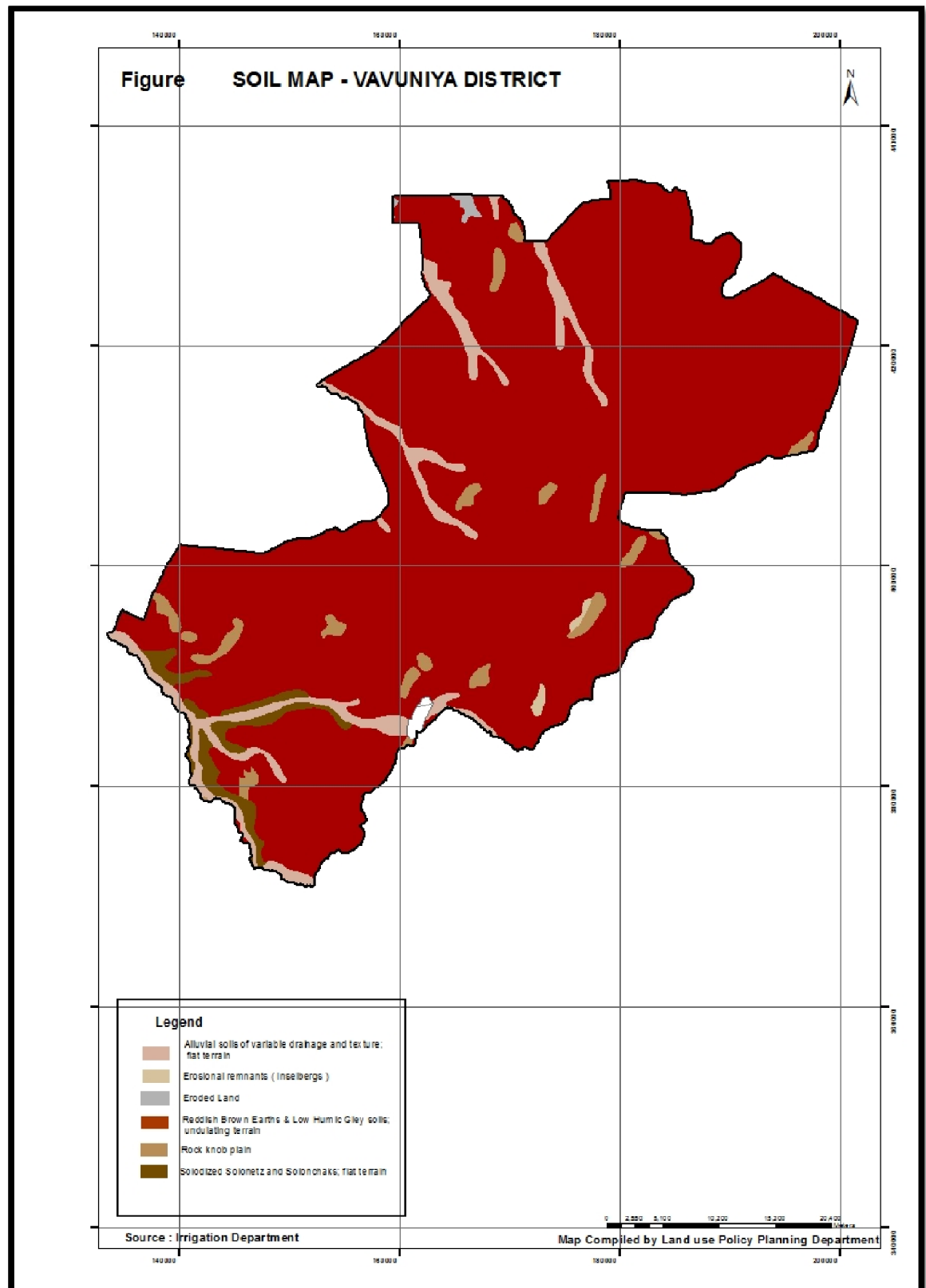
Alluvial soils are under cultivation with rice, subsidiary food crops, vegetables and also used for grazing or for forest.

Table 2. Soil types

	<b>Soil type</b>	<b>As a percentage from the total land area %</b>
1	Reddish Brown Earths & Low Humic Gley soils	92.0
2	Alluvial soils of variable drainage and texture(Flat terrain)	4.0
3	Rock Knob Plain	1.0
4	Erosional Remnants(Inselbergs)	1.0
5	Solodized solonetz and solonchaks (Flat terrain )	1.0
<b>Total</b>		<b>100.0</b>

Source:Land and Water Use Division-Irrigation Department

Figure 2. SOIL MAP – VAUNIYA DISTRICT





### 2.3.3 Climate

#### Rainfall

The Vavuniya District is categorized under the areas of dry zone of Sri Lanka and it is divided into 3 Agro- Ecological Regions namely DL<sub>1b</sub>(Dry zone- Low country <sub>1b</sub>), DL<sub>1e</sub>(Dry zone- Low country <sub>1e</sub>) and DL<sub>1f</sub>(Dry zone- Low country <sub>1f</sub>).The Agro-Ecological Regions are shown in Figure 3.

The climatological conditions are suitable for crop cultivation. The average annual rainfall of this district is 1399.8 mm and as indicated in Table 2.3.2 about 65% of the annual rainfall is received during Maha season (October – January). This district can be considered as the main food growing district as most of the paddy and other cereal crops, fruits and vegetables are cultivated.

The average monthly distribution of rainfall in the district is indicated in Table 3.

Table 3. Mean annual and monthly rainfall 2004-2013(in mm)

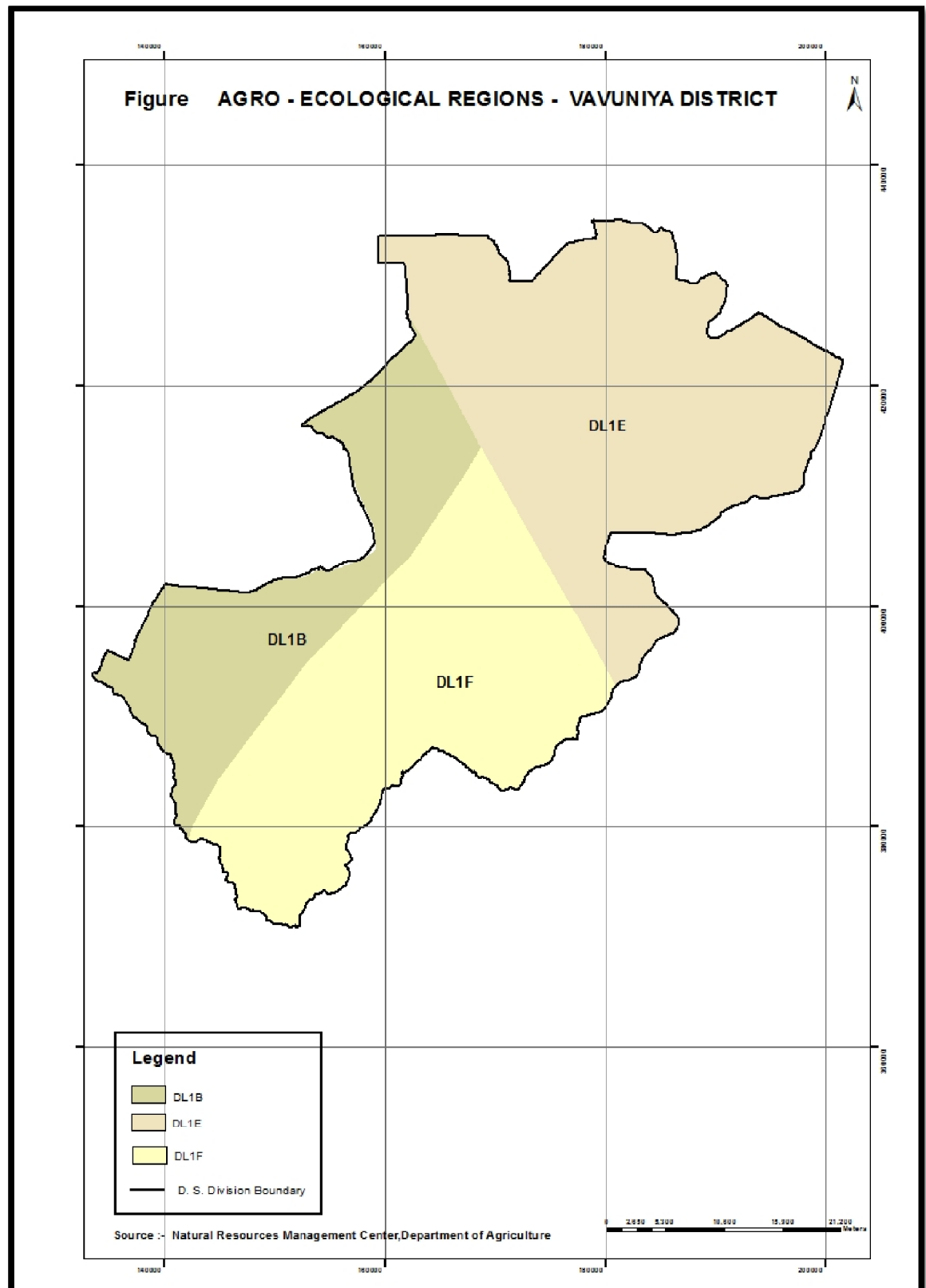
Year	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
2004	28.0	24.1	55.1	199.6	96.7	1.2	20.0	69.5	130.0	212.2	254.9	319.9	1,114.2
2005	166.5	1.0	23.0	184.6	11.5	1.5	49.9	82.3	2.4	166.7	381.2	96.6	1,167.2
2006	145.8	21.9	109.7	155.4	27.8	-	1.3	6.8	105.4	214.0	234.9	114.9	1,137.9
2007	196.2	81.0	0.5	62.1	3.9	164.0	15.3	40.6	79.4	494.7	86.3	280.3	1,504.3
2008	42.6	205.1	315.1	117.9	-	15.2	48.6	89.7	0	161.5	298.3	244.9	1,538.9
2009	73.7	5.0	48.6	116.5	14.6	0	28.9	182.2	59.7	235.0	280.3	329.2	1,373.7
2010	109.0	0.8	83.6	143.1	35.0	1.3	22.4	40.3	200.9	77.9	407.7	334.6	1,456.6
2011	357.8	297.1	25.8	157.2	2.4	16.1	24.3	171.1	4.6	223.8	406.4	182.6	1,869.2
2012	29.9	44.4	12.7	84.9	21.5	0	26.0	-	43.6	472.0	189.7	634.6	1,519.3
2013	100.9	264.4	179.6	77.5	108.8	1.7	24.5	95.3	18.3	194.9	160.3	78.3	1,304.5

Source: Metrological Department

#### Temperature

Relatively high temperature is (30 – 35<sup>0</sup>c) in the Northern part of the district during March – June. Average temperature of the Vavuniya District is 28.5<sup>0</sup>c and it is low during the period of October to January.

Figure 3. AGRO-ECOLOGICAL REGIONS-VAUNIYA DISTRICT



### 2.3.4 Water

The water resources of the district are mostly determined by climatological conditions and the terrain. The surface water resources are influenced by the annual rainfall and more than 51% from the available surface water escape to the sea as run off annually.

The irrigation of this district, is mainly based on irrigation Tanks, there is one major tank, 22 medium tanks and 674 minor irrigation tanks functioning in the district. Nearly 16,875ha of paddy lands are irrigated by the major, medium and minor irrigation tanks, 4125ha of paddy lands cultivated under the rain- fed system.

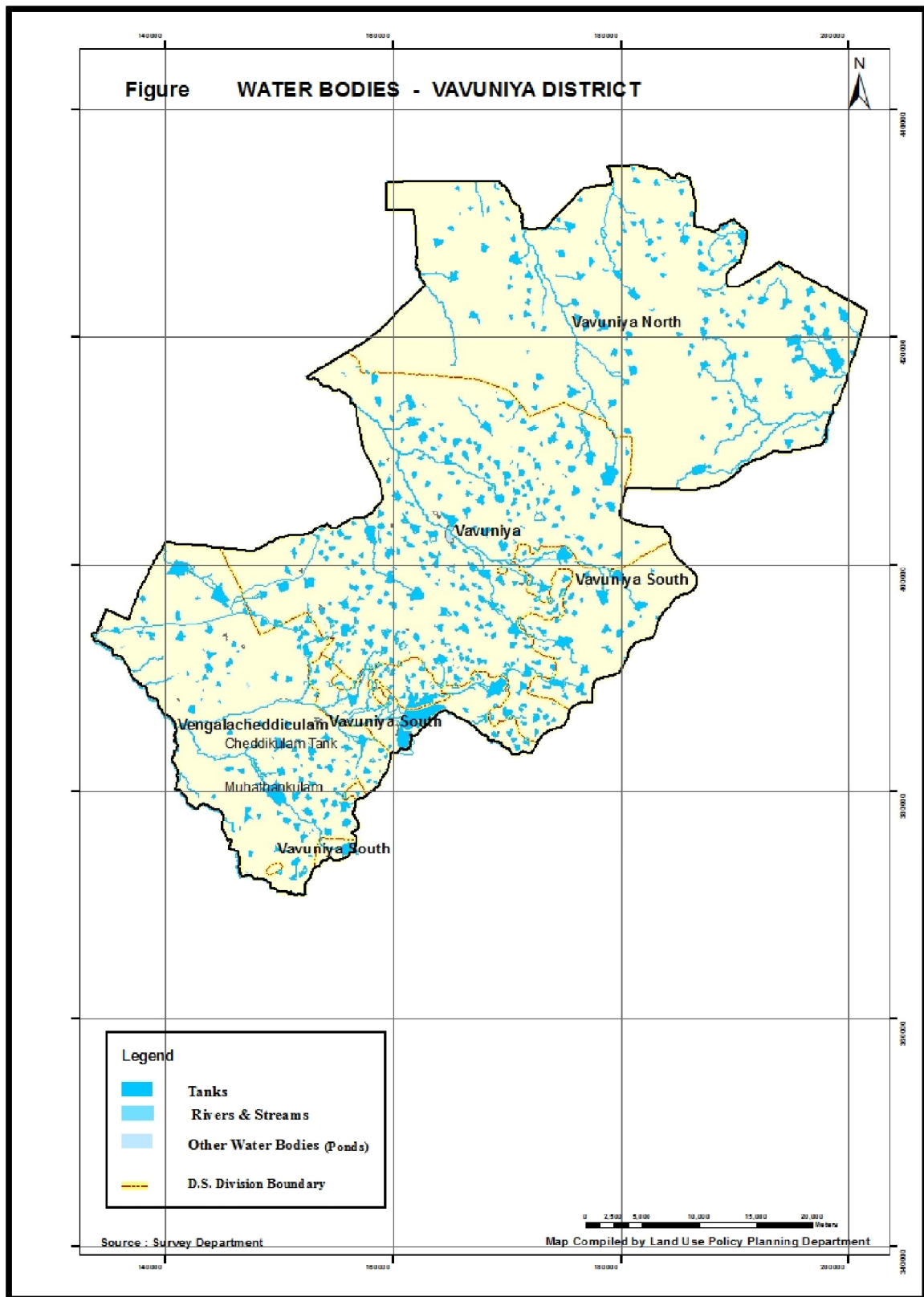
There are no perennial rivers in the district; all are seasonal rivers during the rainy season, the river system out let to run off waters from the district. The Water bodies in the District are shown in Figure 4.

The irrigation tanks serve the ground water level in the District. During the dry season, 95.0% of domestic water uses depend on the ground water in the District. The up land irrigated agriculture use the ground water resources in the District.

Extent under water bodies is as follows.

D.S.Division	Extent(ha)
Vavuniya	4788.4
Vavuniya North	2648.6
Vavuniya South	2232.8
Vengalacheddiculam	2542.7

Figure 4. WATER BODIES – VAUNIYA DISTRICT



## 2.4 Demographic structure

### 2.4.1 Population

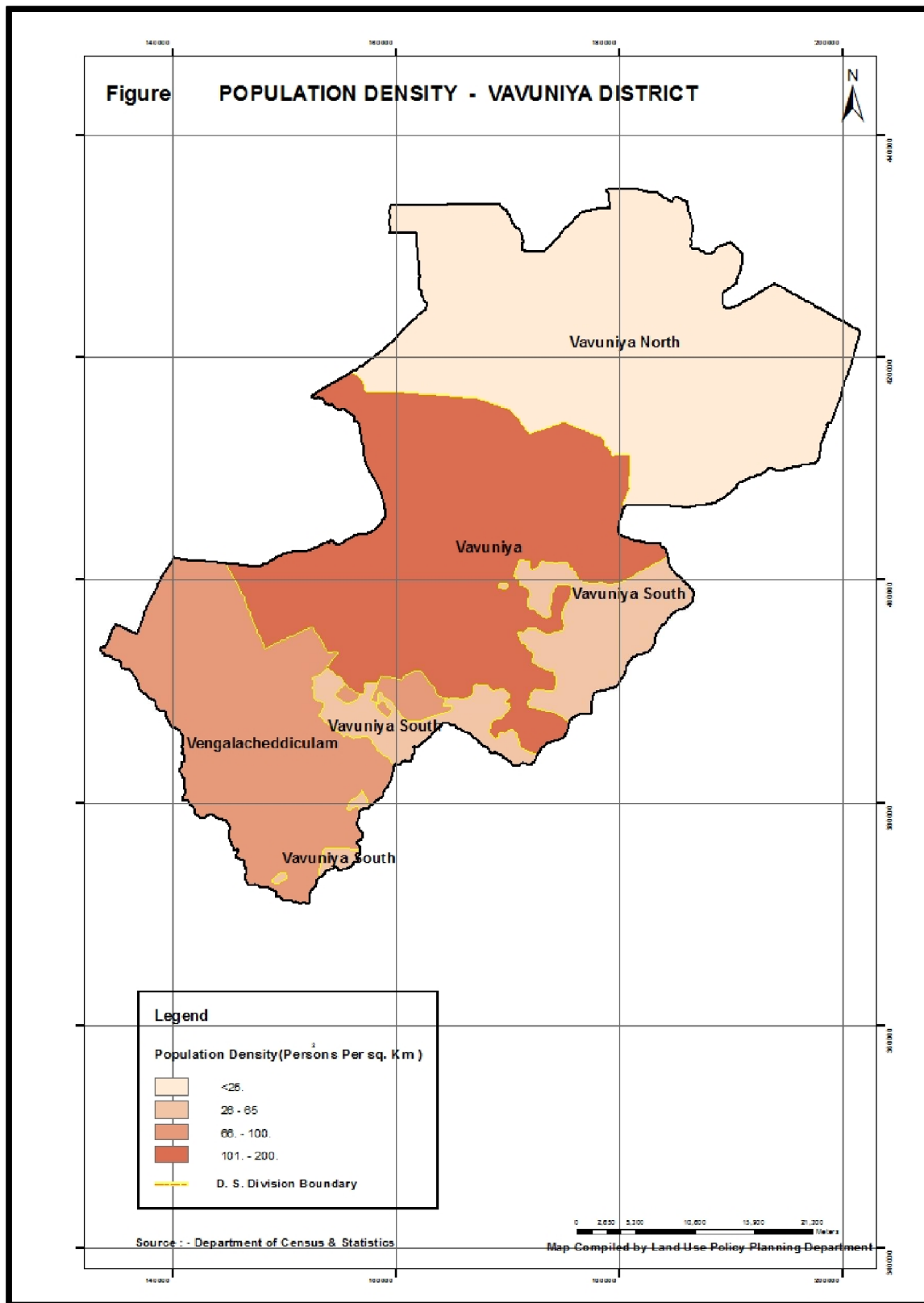
The population of Vavuniya District was 195629 according to 2013 census data. The population of the District is mostly Sri Lankan Tamils. After 2009 total population has been increased due to the internal migration from the other parts of the Northern Province. Density of the population is 99 persons /sq.km in Vavuniya District. High density is recorded in Vavuniya Urban council area and it is 223 person/sq.km. Population Density is shown in Figure 5. Vavuniya spans a land area of 1938 sq.km and the District as a whole is sparsely populated. In urban areas lives 26.7% of Vavuniya's population. Other 73.2 % live in rural areas. Male population is 48.9 % and female population is 51.1 %. The population distribution of the District is unequal in terms of geography. The Vavuniya Urban Council area in Vavuniya Divisional Secretary Division has the highest population in the District.

Table 4. Population & population density by Divisional Secretary Divisions  
Census year – 2011

	Divisional Secretary Division	Total population	Male population	Female population	Area (Sq.km)	Population Density per Sq.km
1	Vavuniya	<b>117,153</b>	<b>57302</b>	<b>59851</b>	<b>590.30</b>	<b>199</b>
	Rural	82492	40145	42347	568.80	145
	Urban	34661	17157	17504	21.50	1,613
2	Vavuniya North					
	Rural	<b>11518</b>	<b>6016</b>	<b>5502</b>	<b>746.00</b>	<b>16</b>
3	Vavuniya South					
	Rural	<b>13070</b>	<b>6464</b>	<b>6606</b>	<b>235.90</b>	<b>56</b>
4	Vengalacheddikulam					
	Rural	<b>29770</b>	<b>15064</b>	<b>14706</b>	<b>394.80</b>	<b>76</b>
5	Vavuniya District					
		<b>171,511</b>	<b>84,846</b>	<b>86,665</b>	<b>1967.00</b>	<b>88</b>
	Rural	136,856	67,689	69,161	1945.50	71
	Urban	34,661	17,157	17,504	21.50	1.613

Source: Census and Statistics Department

Figure 5. POPULATION DENSITY – VAUNIYA DISTRICT



## **2.4.2 Labour force**

According to the International Labour Organization definition of the economically active population, total labour force comprises of people with ages 15 and above. The total labour force of this District is around 111200.

## **2.4.3 Occupational structure**

The labour force of Vauniya District is engaged in different sectors, such as agriculture, business, services, inland fisheries, small industries, construction sector and other sectors. More than 75% of labour force is engaged in Agriculture Sector, which is the major occupation of the District. The agriculture includes the paddy cultivation, commercial crop cultivation and other field crop cultivation.

The educated professionals are mostly engaged in government service sector such as education, health, administration, engineering, technical sector, transport, electricity and construction services. There are 2516 teachers engaged in the education service.

In private sector the business and transport services play a major role. A small part of Labour force is engaged in small industry and inland fisheries in the district.

## **2.5 Infrastructure**

### **2.5.1 Roads and Railways**

There is a proper road network in all categories A, B, C and D and rural roads in Vauniya District. The total length of national high ways including "A" and "B" is around 182.49 km which run through the District. Length of class 'A' roads is 128.91km and class 'B' roads is 53.58km.

The availability of class 'C' roads in the District is around 394.45km in length and availability of class 'D' roads is around 33.55km in length and 1757.99km of rural roads, maintained by local authorities in the District. The Road Network is shown in Figure 6.

According to the transport data of the District, it is well connected with rest of all the parts of the country. The government and private buses are engaged in transport within the District and out of the District there are 28958 registered motor vehicles. Private bus

services are having 226 bus services per day including 114 out of the District and 112 local services. SLTB is having 92 services per day.

The railway service is an important mode of transport service in the District. During the pre ethnic conflict period the railway service limited to Vavuniya and after the ethnic conflict the railway service extended up to Jaffna and around 56km of the railway track falls within the Vavuniya District.

The railway department is having 10 train services from Vavuniya to Fort and from Fort to Vavuniya .Train from Vavuniya to Matara carries around 1000 passengers daily.

There are some other transport services to carry products from Vauniya to other parts of the country.

### 2.5.2 Communication facilities

The communication facilities in Vavuniya District record their growth in the same with the national growth line .The Sri Lanka Telecom Limited is the major supplier in destination of telephone connection for residences and institutions. In this regard the Sri Lanka Telecom has given telephone connections to following categories.

Table 5. Telecom facilities by categories– 2013

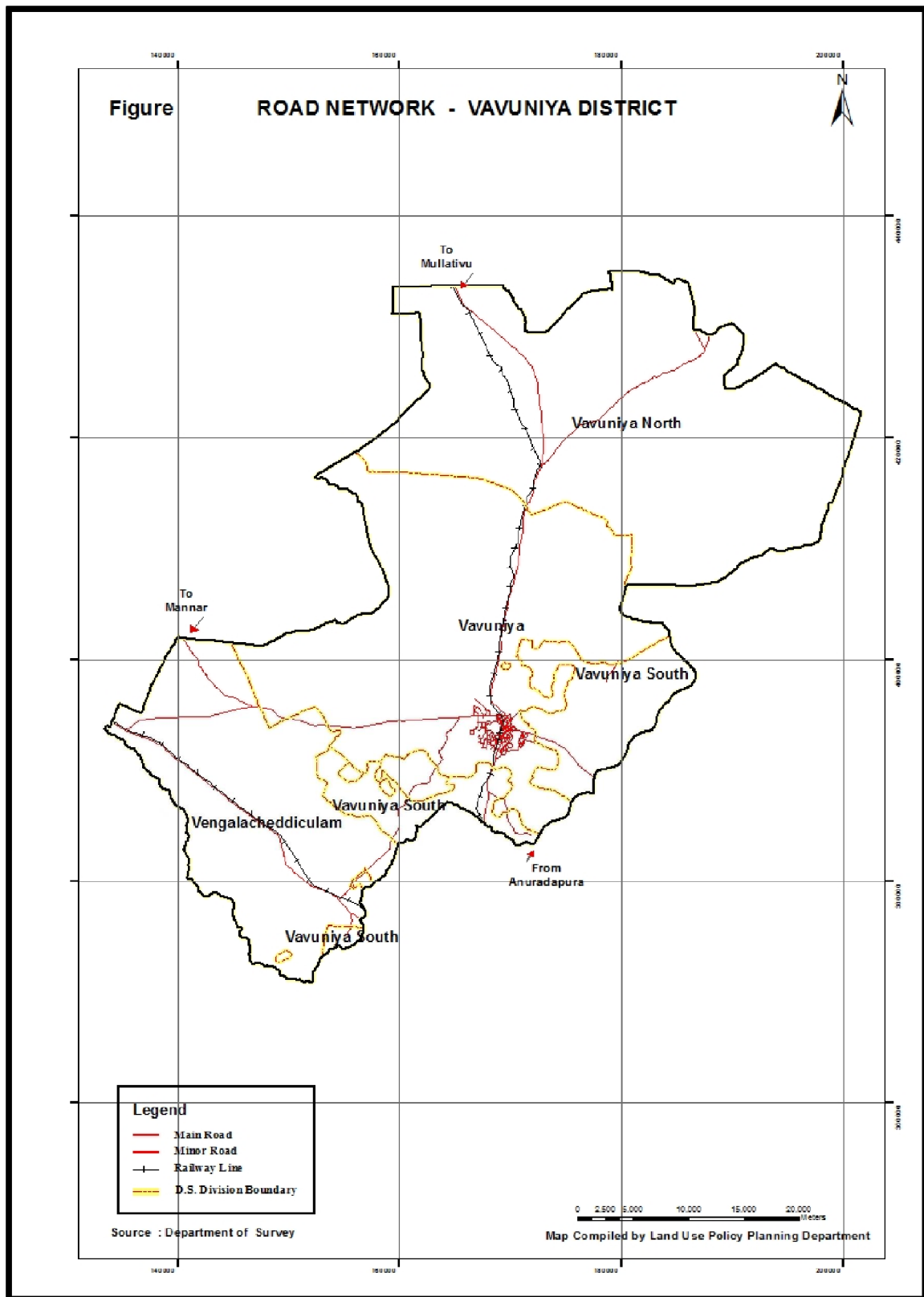
	Category	No. of Telephones
01	Business	2,469
02	Residential	2,338
03	Official	1,719
04	Religious	38
05	Services	35
06	Public phones	3
07	CDMA phones	4,482
	Total	11,084

Source: Sri Lanka Telecom Limited-Vauniya

Except land lines people use mobile phones for their communication. The Postal Department provides the postal services including telemail and courier services in the District. Also, some private companies are engaged in telecommunication and courier services.



Figure 6. ROAD NETWORK – VAUNIYA DISTRICT



## 2.6 Land Use and Land Cover

The Vavuniya district falls within the Northern Low land, it covers an area of 193831.8 ha in extent. The Land Use and Land Cover of the district has been developed since ancient time by the people through early settlement and traditional Agricultural systems, after the European period developed the Land Use system through road and infrastructure facilities.

Summary of Land Use Data is given below in Table 6.

Table 6. Land Use and Land Cover-2014

	<b>Land Use Type</b>	<b>Extent(ha)</b>
1	Built-up Lands	1237.4
2	Homesteads	29917.8
3	Coconut	157.5
4	Cashew	1.5
5	Other Perennial crops	56.3
6	Paddy	27778.2
7	Other field crops	14911.5
8	Dense and Open Forest	94908.6
9	Forest Plantations	122.3
10	Wet Lands	19.3
11	Scrub	11823.6
12	Grass lands	27.9
13	Water bodies	12212.0
14	Barren lands	323.3
15	Rock outcrops	65.1
16	Other	269.5
<b>Total</b>		<b>193831.8</b>

Source: District Land Use Planning Office-Vauniya

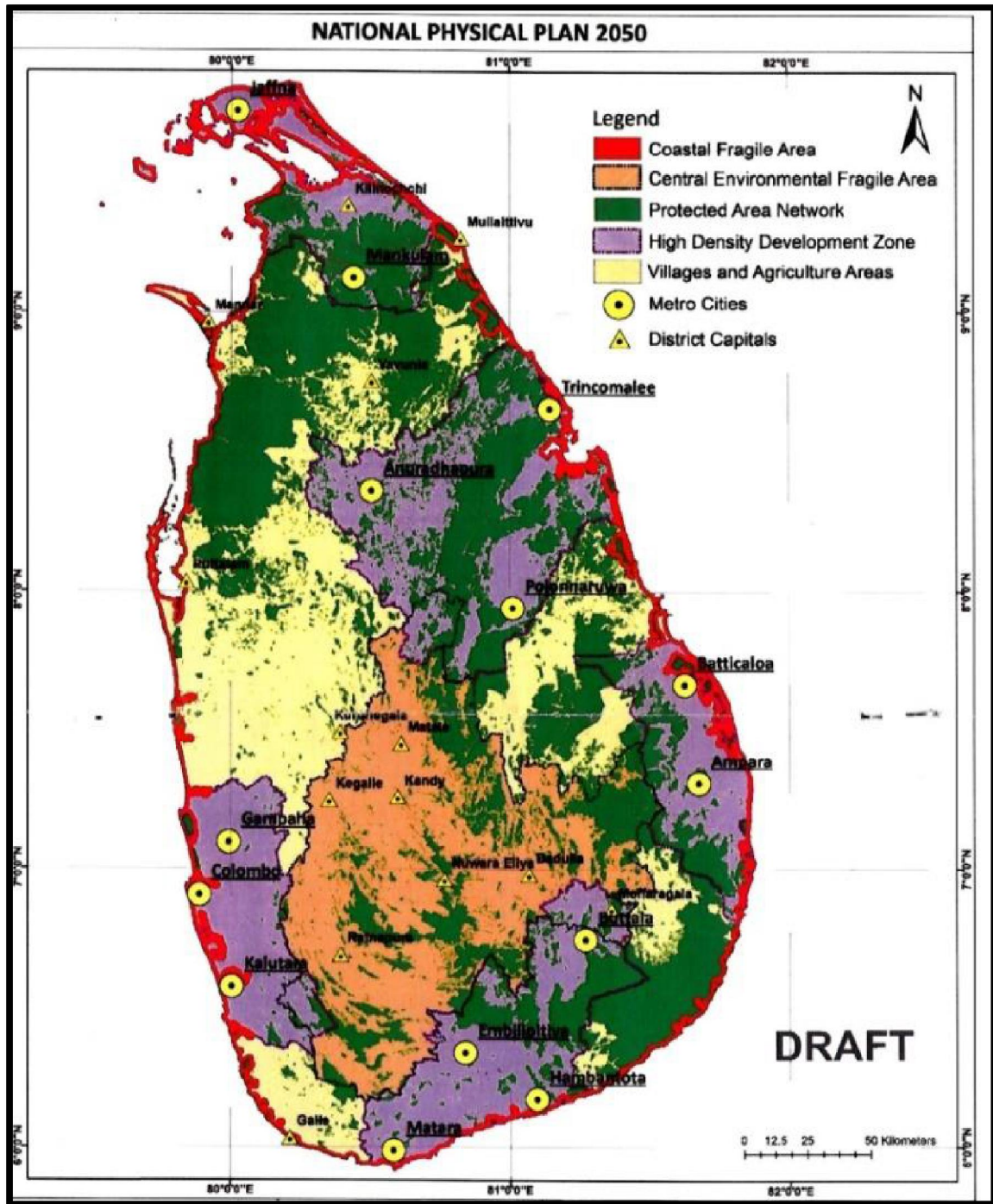
Forest(49.0%),homesteads(15.4%),paddy(14.3%),field crops(7.6%),water bodies(6.2%) and scrub lands (6.0%) are the major Land Use types in Vauniya District. Built-up lands include industrial, recreational and service areas. Coconut and cashew are the major plantation crops.Water bodies include major tanks, minor tanks, rivers, streams, natural ponds and aquaculture-ponds.

## **2.7 Existing Spatial Plans**

### **2.7.1 National Level Plans**

The National Physical Plan prepared by the National Physical Planning Department (NPPD) provides a broad frame work for the national development of the country. It is also the strategic document that outlines the vision of Sri Lanka in 2050. Its role is to promote and regulate the integrated planning of economic, social, physical and environmental aspects of land and territorial waters of Sri Lanka. The main objectives of the National Physical Planning Policy and the Plan are to achieve economic development through the use of available resources of the country including agriculture, realizing a higher living standard for the people and the establishment of an independence economic status internationally 4.

Major themes of the revised draft National Physical Plan – 2050 (shown below) are; (1) Fragile areas, (2) Protected Areas, (3) High density development zones, (4) Metro cities and (5) Village and service center networks (NPPD, 2015). Since it is a National Plan it does not adequately address the land use issues at the grass root levels.



Source: Anon, 2015- National Physical Plan as the Framework for City of Tomorrow-World Cities Day 2015, Consultative Forum, NPPD, Ministry of Mega polis and Western Development

## **2.7.2 Regional and Sub Regional Plans**

The Northern Province regional plan is underpinned by and delivers on the National Physical Planning Policy and National Physical Plan. The National Physical Plan is a strategic document that outlines a vision for Sri Lanka to 2050 and provides a broad framework to secure Sri Lanka's place in the global economy.

The regional plan for the Northern Province has been prepared to be consistent with the National Physical Planning Policy, and interprets and adopts relevant aspects of the National Physical Structure Plan, as they apply to the Northern Province.

According to the regional development plan the Vavuniya District falls within the Northern Provincial Plan. The proposed Northern Provincial Physical Plan consists of many sectoral development plans and the proposed town development plans in Northern Regional Plans include Mankulam and it will be developed as an urban center to inhabit of 0.5million population.

Rehabilitation of rural settlement development project, in the physical plan of the Northern Province, there have been identified many regions in Vavuniya District and the rural settlements will be developed with infrastructure facilities such as, road, electricity, health, education and irrigation systems.

Enhancing the educational facilities is another identified development project in the plan, rehabilitation of provincial level educational networks, and establishment of a University of Science are proposed in the plan.

Developments of industrial estates are also proposed in the Northern Provincial Plan, the locations are selected in Vavuniya District for these projects.

Implementation of the infrastructure development projects are proposed in the Northern Provincial Physical Plan. Within the plan the following projects are included, Development of the railway network, Construction of the roads and express ways, Development of Vavuniya as a transport hub, Rehabilitation of the irrigation schemes, Development and Rehabilitation of the fishery harbours.

The Conservation of archaeological sites also identified in the plan.

According to the Northern Provincial Physical Plan, the Vavuniya district preferred for infrastructure development, industrial and educational development projects.

### **2.7.3 Need for a Land Use Plan**

Although there are some National, Regional and Sub Regional Level Plans, they are mainly focused on infrastructure development, metro city regions, industrial export zones, energy development projects, tourism, agriculture and fisheries sector developments etc.

But, according to the District profile of Vauniya District, there are many issues pertaining to Land Use and there is a need for a scientific guidance to the District administration in land conservation and alienation in order to;

- ensure the protection of environment and bio-diversity;
- recommend uses for unused lands on the basis of land evaluation which may be utilized for future development activities;
- present proposals for enhancing the productivity of home gardens, paddy lands and other agricultural lands(Plantation crops and Field crops);
- present proposals for currently abandoned areas that could be utilized for their earlier use(Abandoned settlements, abandoned paddy lands and abandoned other agricultural lands)

## **PART II-LAND USE PLAN**

### **3. PLANNING APPROACH**

Approaches to spatial planning vary considerably throughout the world, reflecting historical and cultural developments as well as geographical and economic conditions. There are four major approaches can be identified<sup>1</sup>. They are;

a) Regional economic planning approach

In this approach spatial planning is used as a policy tool to pursue wide social and economic objectives, especially in relation to disparities in wealth, employment and social conditions among different regions of the country.

b) Comprehensive integrated approach

A comprehensive integrated approach, where spatial planning is conducted through a systematic and formal hierarchy of plans. In this approach plans at lower levels will not contradict with the planning decisions at higher levels.

c) Land use management approach

In this approach, planning is a more technical discipline in relation to the control of land use. The recommendations or regulations will ensure the sustainable development.

d) Urbanism approach

In this approach key focus is on architectural and urban design through rigid zoning and land use codes and a wide range of laws and regulations.

In the preparation of District Land Use Plan, basically land use management approach was adopted using the guidelines developed for land use planning by Food and Agricultural Organization (FAO).

FAO has stated that Land use planning is the systematic assessment of land and water potential, alternatives for land use and economic and social conditions in order to select and adopt the best land-use options. Its purpose is to select and put into practice those land uses that will best meet the needs of the people while safeguarding resources for the future. The driving force in planning is the need for change, the need for improved management or the need for a quite different pattern of land use dictated changing circumstances.

FAO has indicated that several steps have to be followed in preparing a land use plan. The steps that are followed for the preparation of the plan are given below;

### **3.1 Study the present situation**

Since the existing land use maps for the district were outdated they did not provide the basis to identify the current land use issues in the district. The land use updating process was commenced in 2013 and completed in 2015. Identification of land use issues was done simultaneously. Digital layers of 1:10,000 scale maps were used as base maps which were provided by the Survey Department. Since the existing land use legend was inadequate for the preparation updated land use map a new land use legend was prepared for the updating. The classification of the present land use is given in the Table 9.

There are 82 map sheets (1:10,000 scale) available to cover the entire District (Figure 7.). The land use maps were initially updated using recent satellite images. These maps were subjected to field verification.

### **3.2 Identification of land use issues**

Field investigations revealed that the land uses could be divided into two broad categories i.e. (i) areas where changes are not required and existing land uses can be continued, (ii) areas where the land use changes or land use improvements are desirable. Plan mainly focuses on the second category. Areas where the land use changes or improvements are desirable because there are several land use issues pertaining to major land uses. These land use issues were identified and mapped by visual observations and by consulting land users. Land use issues are briefed in the section 5.2. The issues provide the basis for the preparation of the land use plan.

### **3.3 Formulation and Validation of recommendations to address the issues**

Initially the recommendations were formulated by the LUPPD Staff by considering physical, technical and socio-economic factors to address the land use issues. The desirable land use changes or improvements that were identified were discussed with the divisional level stakeholders, District Level Expert Group (DEG) and the National Level Expert Group (NEG) (The composition of these expert groups is given in the annex III & IV). The recommendations for land use changes or improvements validated by the above groups.



### **3.4 Preparation of the land use plan**

The land use plan was prepared based on the information and data gathered from the field and considering the views, comments and recommendations made by the divisional level stakeholders, DEG and NEG.

## **4. LAND USE/LAND COVER OF THE DISTRICT**

### **4.1 Introduction**

Details of the present land use and land cover of the district are briefed in this section. In addition past situation of some of the major land use categories are given for more information. Present land use map were used to identify the land use issues and used as a base for the land use plan.

### **4.2 Land Use/Land Cover**

Land use of the district (2015) is shown in the Figure 7 and approximate extents of different land use categories are given in the Table 7. Approximately 49% of the total land area is covered by forest. Second dominant land use is agricultural lands that covers about 37.5%.

	Major Land Use Type	Sub category	Divisional Secretary Division				Total (ha)
			Vavuniya	Vavuniya North	Vavuniya south	Vengalacheddikulam	
1	Built up lands	Industrial Areas	15.4	-	4.5	0.6	20.4
		Recreational Areas	26.5	9.8	5.7	11.8	53.9
		Service Centers	769.7	37.2	88.4	267.8	1163.1
2	Homesteads		13713.6	7540.5	2918.8	5744.8	29917.8
3	Coconut		132.4	-	11.0	14.1	157.5
4	Cashew		-	-	1.5	-	1.5
5	Other Perennial crops		8.5	-	47.8	-	56.3
6	Paddy		12006.3	6019.8	4586.2	5165.9	27778.2
7	Other field crops		5607.5	3264.4	1500.3	4539.3	14911.5
8	Dense and Open Forest		22922.1	53567.2		18554.3	94908.6
9	Forest Plantations		73.8	0.5	44.7	3.3	122.3
10	Wet Lands	Marsh	5.6	-	13.6	-	19.3
11	Scrub		2983.4	2699.2	2014.9	4126.1	11823.6
12	Grass lands		1.1	-	10.4	16.4	27.9
13	Water bodies	Aquaculture ponds	-	-	0.5	-	0.5
		Major Tanks	-	-	647.1	217.5	864.6
		Minor Tanks	4647.1	2483.5	1523.6	2135.0	10924.0
		Natural Ponds	2.8	-	1.8	23.6	28.0
		Rivers and Streams	95.4	117.0	52.1	130.5	394.9
14	Barren lands	Unproductive Lands	63.8	121.8	32.7	105.0	323.3
15	Rock outcrops		-	-	65.1	-	65.1
16	Other		82.5	63.3	101.6	22.2	269.5
Total			63157.4	75924.2	13672.1	41078.1	193831.8

According to the final land use map the forest is the major land use cover of the District. It covers an area of 49.09% from the total land area of the District. The dense forest and open forest covers 95043.5ha and forest plantations cover an area of 122.3 ha in extent.

The agricultural lands are the second largest land use cover of the District. It covers an area of 37.5% from the total land area of the District and the agricultural land uses include homesteads 29917.8ha, paddy lands 27778.2ha, field crops 14911.5ha, coconut 157.5ha, other perennial crops 56.3ha and cashew 1.5ha.

The paddy is cultivated in 27778.2ha in the District. Paddy is cultivated under irrigation systems in both minor and major medium tanks. 10042.2 ha of paddy lands are cultivated under major irrigation schemes, 20361.6ha of paddy lands are cultivated under minor irrigation schemes. 7425.0ha of paddy lands are cultivated under the rain-fed conditions.

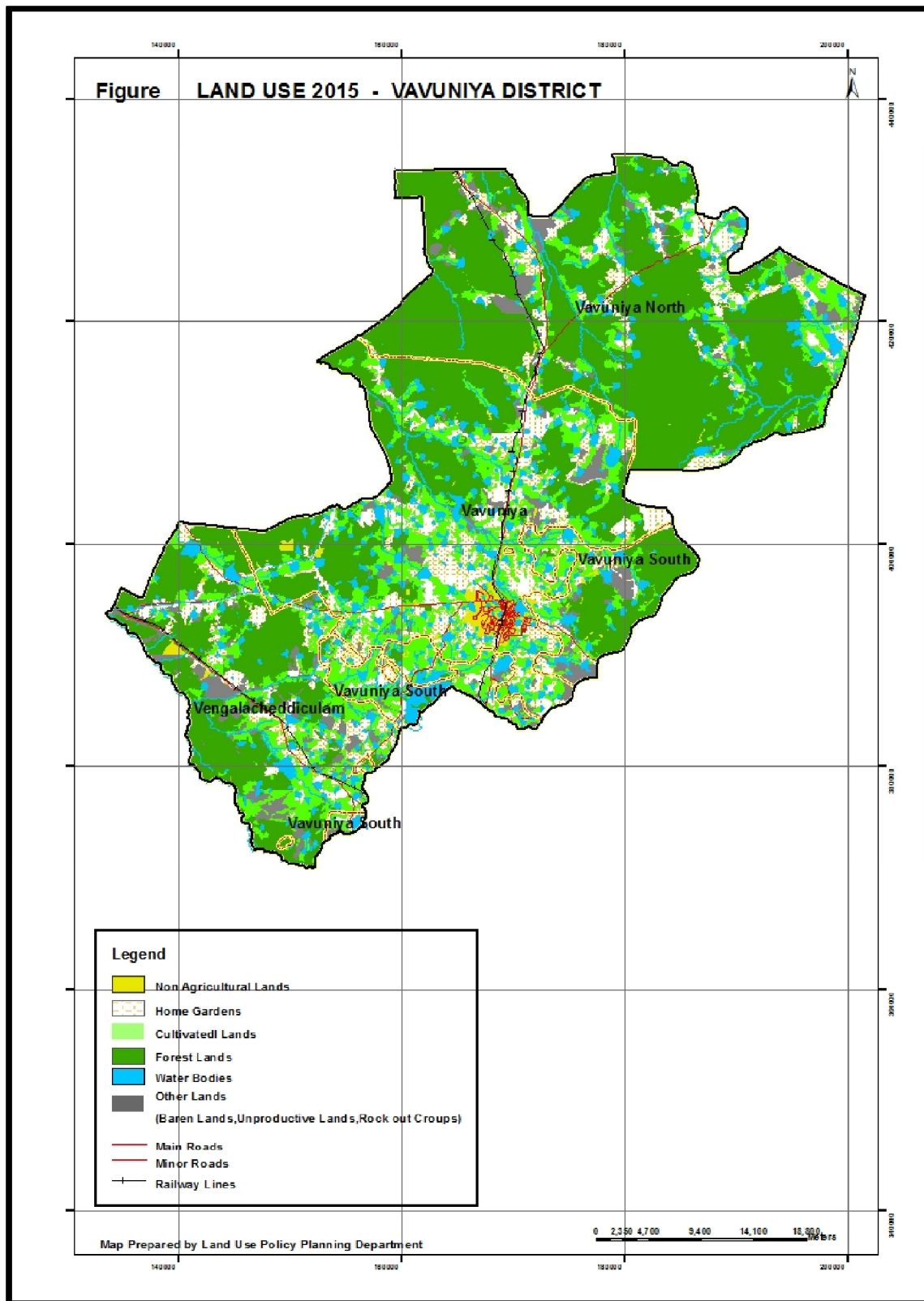
Range lands cover an area of 11851.5 ha and it includes scrub lands (11823.6ha) and grass lands (27.9ha). Scrub lands include abandoned Chena cultivation lands and abandoned highland crops and abandoned settlement areas.

All natural and manmade water bodies such as manmade irrigation tanks, natural ponds, and rivers are included into the water bodies category. There are one major tank, 22 medium tanks and 690 minor tanks in the District. Extent of the water surface of the all tanks is 11653.7ha. There are 3 major river systems in the District. They are as follows.

1. Parankiaru
2. Paaliaru
3. Kanakarayanaru

There are some marshy lands in the District. These marshy lands cover an area of 19.3ha in extent. The urban lands in the District covers an area of 1237.4ha and it covers 6.23% from the total land area of the District. The Vavuniya urban council area is the only urban area in the District. It includes settlements, commercial and institutional areas and also includes some industrial areas, recreational areas and service centers. The barren land covers an area of 323.3ha in extent.

Figure 7. LAND USE 2015 – VAUNIYA DISTRICT



## **5. PROPOSED LAND USE PLAN**

### **5.1 Introduction**

Proposed land use plan has two broad categories i.e. (i) areas where changes are not required and existing land uses can be continued because of these areas do not have major land use issues, (ii) areas where the changes or improvements are desirable. The proposed land use plan indicates the changes or improvements that are desirable. The major categories of the proposed plan are given below;

#### **Areas where the present use can be continued**

- Presently protected/conserved areas
- Other areas where there are no major land use issues (Home gardens, Agricultural Areas, Built-up areas etc.)

#### **Areas where changes or improvements are required**

#### **Additional areas recommended for protection**

#### **Unutilized lands (Proposed areas for future development)**

- Suitable lands for housing
- Suitable lands for agriculture
- Suitable lands for expansion of service areas
- Suitable lands for tourism

#### **Abandoned Paddy Lands**

- Proposed for re-cultivation of paddy/appropriate uses

#### **Abandoned settlements**

- Proposed for resettlements

### **Underutilized Lands (where land use improvements are needed)**

- Home garden
- Paddy
- Field crops
- Plantation crops

All abandoned lands shown in the proposed plan cannot be changed to previous use due to several reasons associated with these lands. These reasons may either be economic or social or environmental. However, some of the abandoned lands can be used to establish the previous use. The possible recommendations for the abandoned lands are given in Table.

## **5.2 Major Land Use Issues**

Number of land use issues mainly related to the protection of the environment and land productivity can be identified in the district.

Six major land use issues were identified. These issues are given below;

### a) Presence of “additional areas that need to be protected”

Some areas in the district are protected by gazette notifications. The protected area network includes Forest, other state forest lands, Archeologically and Historically significant places and Water bodies. However, there are areas or sites that are not presently protected in the district. They have to be protected in order to conserve the bio-diversity, environment and ensure the protection of the religious, cultural and archeological sites.

Therefore, presence of additional areas that needs to be protected is considered as one of the land use issues.

### b) Presence of low productivity agricultural lands

Low productivity agricultural lands (underutilized lands) include areas given over to highland crops (plantation crops (Rubber, Cashew and Coconut) and field crops) and paddy. Underutilized lands devoted to plantation crops include

- (1) Crop lands where the proportion of land used is 70% or less,
- (2) Crop lands where intercropping is not practiced,
- (3) Crop lands where animal husbandry is not practiced though this is possible and
- (4) Crop lands where yield is below the average yield recommended by the research institutions and other relevant agencies.

Underutilized lands devoted to field crops include

- (1) Crop land where the proportion of land used is 70% or less and
- (2) Crop land where yield is below the average yield recommended by the research institutions and other relevant agencies.



Photograph 1. Low productive paddy lands in the District.

Low productivity paddy lands are categorized as

- (1) Lands where the yield per hectare is below the average of the district,
- (2) Lands that are cultivated only during one season.

c) Presence of low productivity home gardens

A home garden is the cultivated area surrounding the dwelling. The size of the home garden could vary from area to area and production is often for domestic consumption. The low productivity home gardens (underutilized) were identified using two criteria.

- (1) Home gardens where the proportion of land being used was 50% or less and
- (2) Home gardens where the Animal Husbandry is not practiced though this is possible.



d) Presence of abandoned settlements

There are settlements that were abandoned due to conflicts. These areas were identified and mapped.



Photograph 2. Abandoned settlement

e) Presence of abandoned agricultural areas.

These lands were classified according to the previous use. This category includes both paddy and high land crops. However, in the district under the abandoned agricultural lands category only paddy lands were identified. These lands were abandoned mainly due to sea water intrusion.

f) Presence of unutilized lands

These lands are idle state lands coming under the jurisdiction of different institutions. e.g, Forest Department and other government institutions. However, utilizing these lands for future development activities depends on the decision taken by the respective managing agencies to release these lands.



Photograph 3. Unutilized lands

Table 8 and Figure 8 show the Major Land Use Issues in Vauniya District.

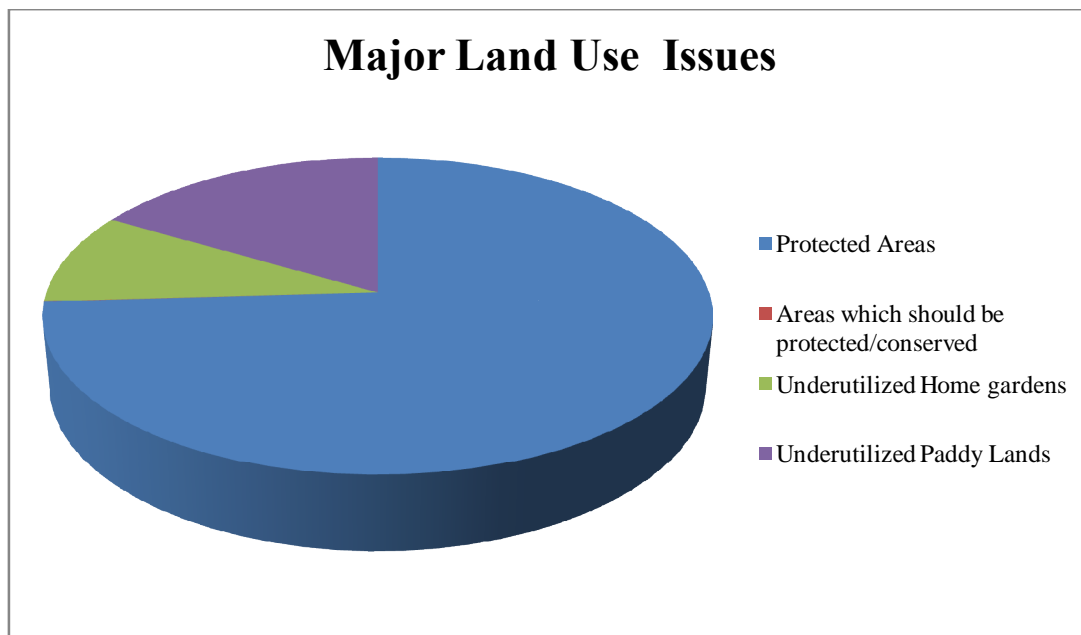
Table 8. Major Land Use Issues

Category		Land Extent (ha)	Percentage
Areas with issues	Protected Areas	102433.6	52.90
	Areas which should be protected/conserved	33.6	0.01
	Underutilized Home gardens	12841.6	6.62
	Underutilized Paddy Lands	22970.3	11.85
	Underutilized Field Crop Lands	11655.2	6.01
	Underutilized Coconut Lands	96.4	0.04
	Underutilized Other Perennial Crop Lands	88.3	0.04
	Abandoned Paddy Lands	1602.0	0.82
	Abandoned Settlements	3665.9	1.89
	Unutilized Lands	11690.5	6.03
	Other Issues related to Land Use	271.0	0.13
Areas without any major issues	Areas Currently Utilized but with no major Land Use Issues at present	26483.4	13.66
Total		193831.8	100.00

Source: District Land Use Planning Office-Vauniya

Protected areas (58.47%), underutilized Paddy lands (11.85%) and underutilized Home gardens (7.6%) are the major land use issues in Vauniya District. Only 7.23% from the total land area is currently utilized but with no major Land Use issues at present.

Figure 8. Major Land Use Issues



### 5.3 Recommendations

Basically there are two areas were identified and presented in the plan (see Figure 18). They are;

1. Areas where the present use can be continued
2. Areas where changes or improvements are required

#### 1. Areas where the present use can be continued

These lands include presently protected areas, productive home gardens, productive cultivated lands, and built-up areas etc. where land use changes or improvements are not required. Existing land use of these lands can be continued without major changes or improvements.

##### (a) Protected Areas

Basically two categories of protected areas were identified on the field. They are

- (1) Presently protected areas,
- (2) Additional areas recommended for protection.

Presently protected areas are gazetted and managed by several agencies and the issues in these areas should be addressed by a “protected area management plan” prepared by the respective agencies. The distribution of the presently protected areas is shown in Fig. 9. Approximate extents of the presently protected areas are given in the Table 9. More information (managing agencies, present issues in the areas and recommendations) regarding the presently protected areas is given in the Table 1 in the Annex V. Additional areas recommended for protection comes under second category where changes or improvements are required.

**(b) Other areas/uses located outside of the protected areas that can be continued**

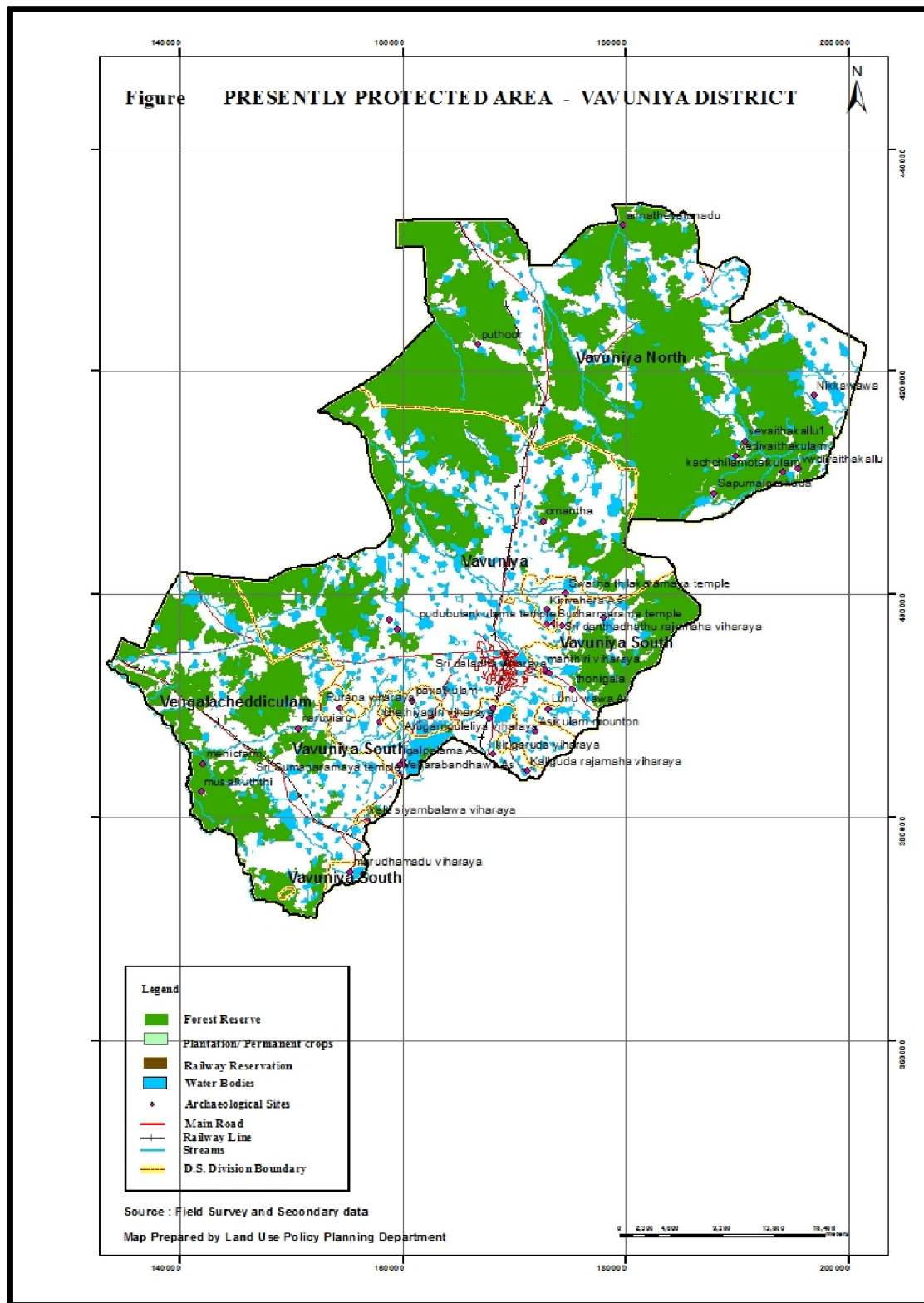
There are some other areas located outside the protected area network where the uses of those areas can also be continued without any changes or improvements. Because minimum land use issues are available in these areas. These uses include productive home gardens, productive agricultural lands, service areas etc... The percentage of the extent of these areas is 13.6% (excluding the presently protected area) of the total land area of the district. Rest of the areas needs some changes or improvements.

Table 9. Approximate extents of the presently protected areas in the District.

D.S.Division	Approximate Extents(ha)		
	Archaeological Reserves*	Forest Reserves	Water bodies
Vavuniya	5*	22445.0	4788.5
Vavuniya North	8*	55104.0	2648.7
Vavuniya South	25*	6013.0	2232.8
Vengalcheddikulam	4*	18249.0	2542.0
<b>Total(ha)</b>		<b>101811.0</b>	<b>12212.0</b>

\*Extents are not given and only the number of sites are given.

Figure 9. PRESENTLY PROTECTED AREAS – VAUNIYA DISTRICT



## 2. Areas where changes or improvements are required

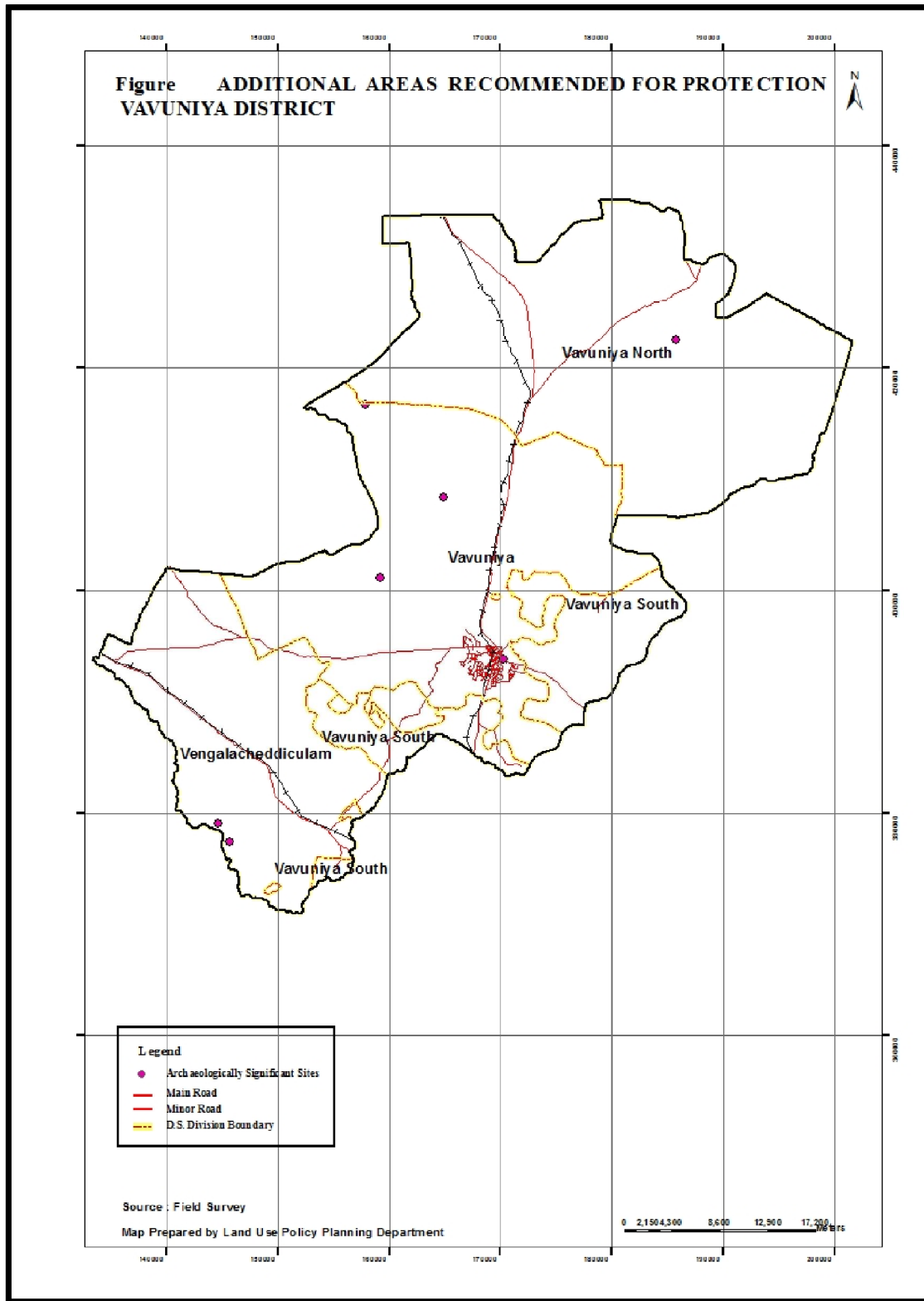
### (a) Additional areas recommended for protection

There are other areas besides the currently protected areas that need to be protected. These areas have to be protected to ensure the protection of religious, cultural, archeological sites and the protection of environment. The relevant institutions need to confirm the recommendations given in this plan. The approximate extents of the additional areas that need to be protected are given in the Table 10 and their locations are given in the Figure 10. Details are given in the Table 2 in the Annex V.

Table 10. Additional areas recommended for protection and their approximate extents in the District

D.S.Division	Approximate Extents(ha)
	Areas of Archaeological and Historical value
Vavuniya	7.4
Vavuniya North	4.2
Vavuniya South	5.3
Vengalacheddikulam	16.7
<b>Total(ha)</b>	<b>33.6</b>

Figure 10. ADDITIONAL AREAS RECOMMENDED FOR PROTECTION- VAUNIYA DISTRICT



## **(b) Underutilized Home gardens**

The home gardens in the District include

- (1) Properly utilized home gardens where no major changes are required and
- (2) Underutilized home gardens where improvements are recommended.

There are several reasons why these home gardens are underutilized. The major reasons were;

- a) Lack of capital
- b) Inadequate Technical know-how
- c) Presence of degraded lands/areas (poor soil quality)
- D) Unreliable rainfall.
- e) Damage to crops from wild animals

In general, majority of the home gardens are underutilized due to one or more of the above reasons. The recommendations for the above issues are given below.

Table 11. Major reasons for underutilization of home gardens and proposed recommendations.

<b>Major Reasons for underutilization</b>	<b>Recommendations</b>
Lack of capital	-Awareness creation on agricultural loans or subsidy schemes
Inadequate Technical know-how	-Awareness creation and training
Presence of degraded lands/areas (poor soil quality)	-Introduction of conservation farming practices and provide necessary inputs
Unreliable rainfall.	-Carry out a study to explore the possibility of using ground water by constructing agro-wells. - Introduction of soil and water conservation technique. - Introduction of drought tolerant crops.
Damage to crops from wild animals	-Establish a new electric fence or extending the present fence

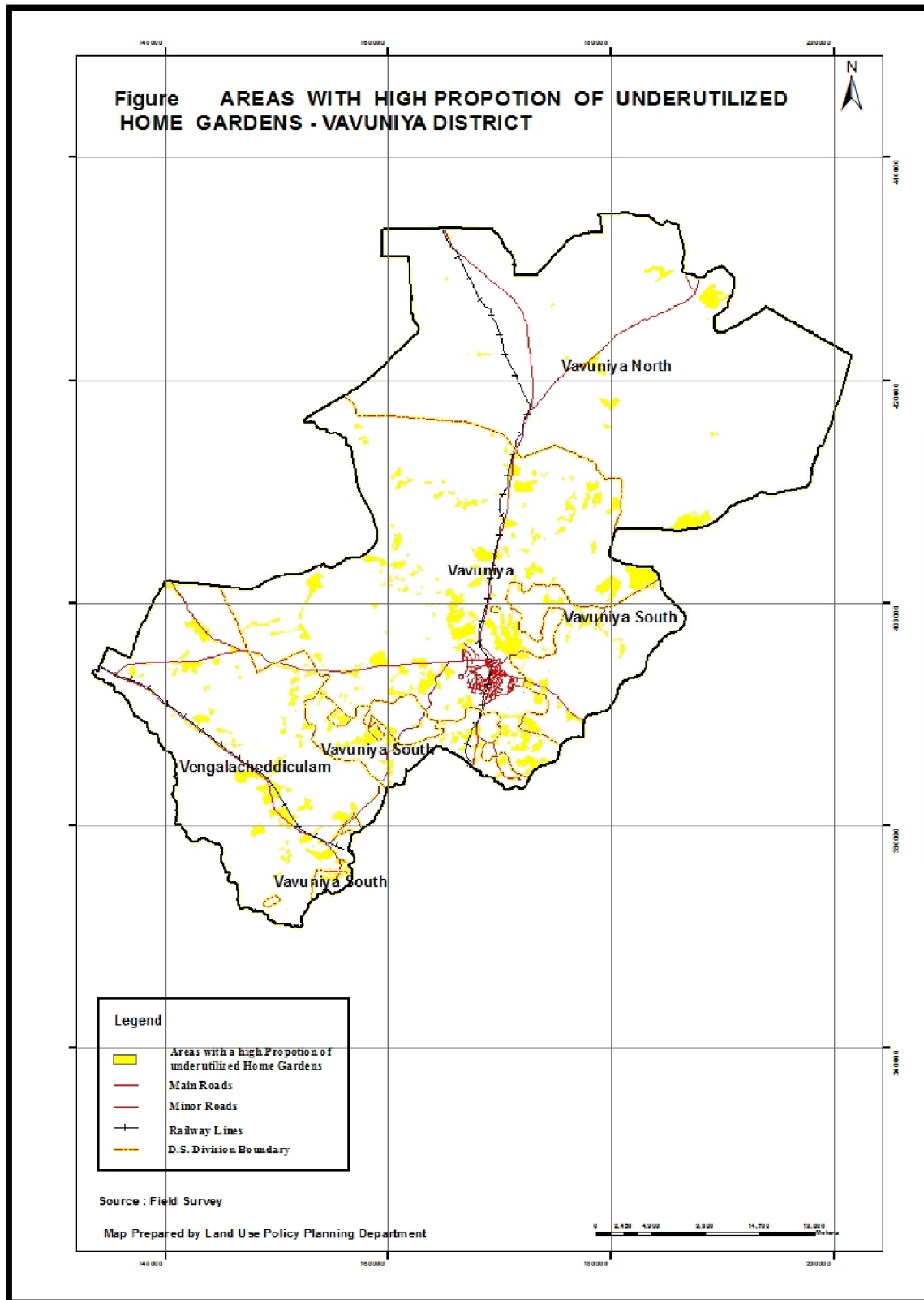


The extents of the home gardens are varying from one area to other. The areas where the high proportion of underutilized home gardens is available were identified and mapped. The divisions in which these home gardens are found and total extents are given in the Table 12 and their distribution are given in the Figure 11.

Table 12. Underutilized Home gardens and their total extents in the District

<b>D.S.Division</b>	<b>Extent (ha)</b>
Vavuniya	6466.5
Vavuniya North	1150.8
Vavuniya South	2025.4
Vengalacheddiculam	3199.0
<b>Total(ha)</b>	<b>12841.6</b>

Figure 11. AREAS WITH HIGH PROPOTION OF UNDERUTILIZED HOME GARDENS-  
VAUNIYA DISTRICT



### (c) Underutilized Agricultural Lands

Some of the agricultural lands in the District are underutilized due to various reasons.

#### Underutilized Paddy Lands

Underutilized paddy lands are cultivated only during one season. The reasons for underutilization and the recommendations are given in the Table 13. The divisions where the underutilized paddy lands are available and their total extents are given in the Table 14. Distribution of these lands is shown on the Figure 12. The reasons will vary from one land to another.

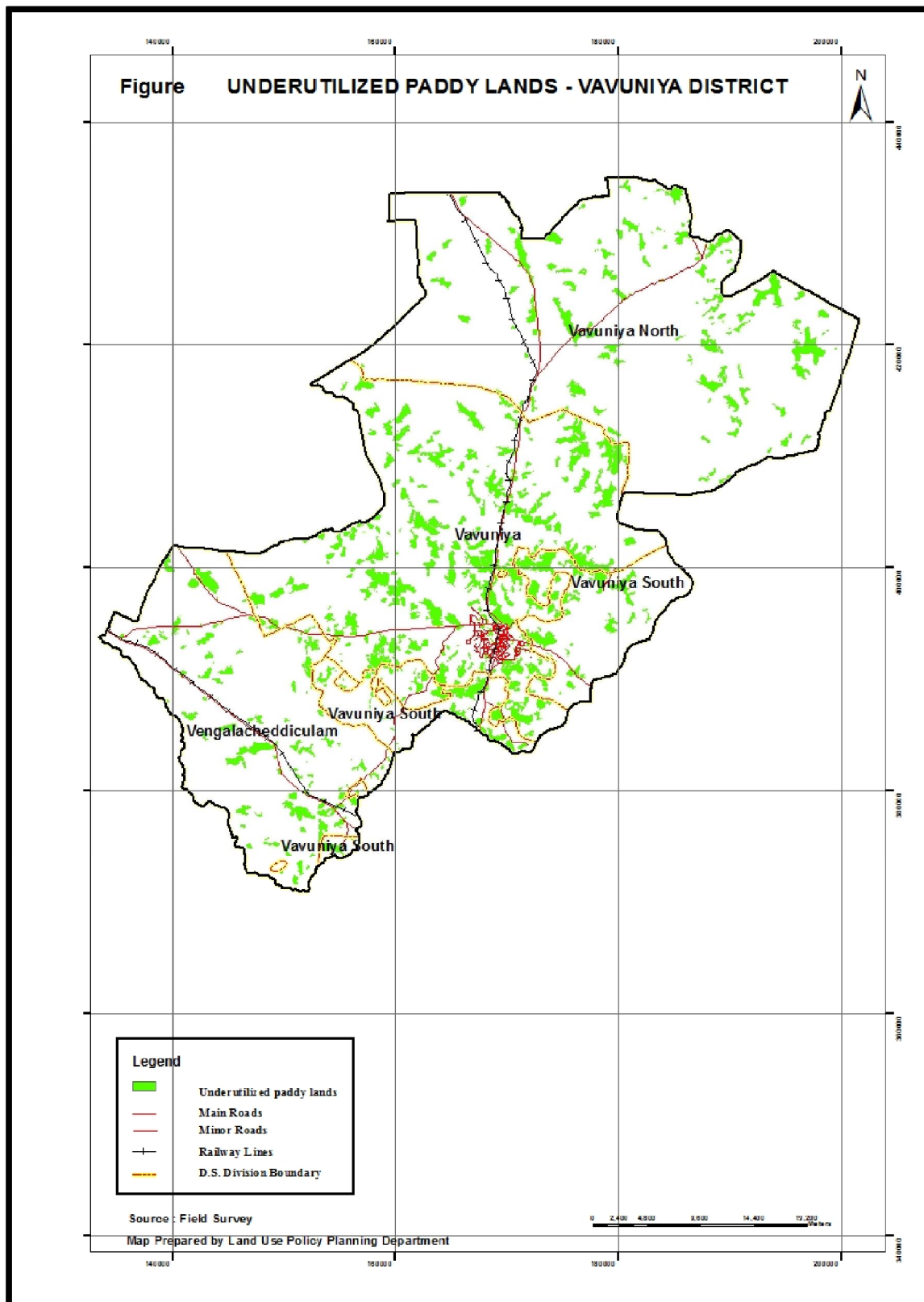
Table 13. Reasons for the underutilization of paddy lands and recommendations

Reasons	Recommendations
Lack of water	Rehabilitation of irrigation structures
Lack of capital	Facilitate to obtain cultivation loans
Inundation	Carry out a feasibility study for drainage improvement
Presence of degraded areas	Provide training on use of organic matter for degraded areas Explore other land use options

Table 14. Underutilized paddy lands and their extents in the District

D.S.Division	Extent (ha)
Vavuniya	11509.4
Vavuniya North	5052.7
Vavuniya South	2981.4
Vengalacheddiculam	3426.8
<b>Total(ha)</b>	<b>22970.3</b>

Figure 12. UNDERUTILIZED PADDY LANDS – VAUNIYA DISTRICT



## Underutilized other Agricultural Lands

The underutilized other agricultural lands include lands devoted to field crops and plantation crops such as Rubber, Coconut and Cashew. The reasons for underutilization and recommendations are given in the Table 15. The underutilized other agricultural lands and their extents are given in the Table 16 and their distribution are shown on the Figure 13 and 14.

Table 15. Reasons for underutilization of other agricultural lands and the recommendations.

Reasons	Recommendations
Lack of capital	-Awareness creation on loans and subsidy schemes
Water scarcity	-Carry out a feasibility study to use the ground water by constructing agricultural wells. -Introduce soil and water conservation measures.
Wild life threat	-Extension of the existing electric fence or establishment of new fence to keep away wild animals.
Presence of degraded lands	-Introduce conservation farming
Land tenure/ownership issues	-Resolve the issues by studying the cases separately

Table 16. Underutilized lands devoted for Field crops, Rubber, Coconut and Cashew and their extents in the District.

<b>Type of crop</b>	<b>D.S.Division</b>	<b>Extent(ha)</b>
Plantation Crops-Coconut	Vavuniya	82.0
	Vavuniya South	6.0
	Vengalacheddiculam	7.0
Plantation Crops- Rubber and Cashew	Vavuniya	6.5
	Vavuniya South	81.0
	Vengalacheddiculam	2.3
Field Crops	Vavuniya	4535.6
	Vavuniya North	1429.3
	Vavuniya South	1527.2
	Vengalacheddiculam	4163.1
<b>Total(ha)</b>		<b>11840.0</b>

Figure 13. AREAS WITH HIGH PROPOTION OF UNDERUTILIZED LANDS DEVOTED TO FIELD CROPS-VAUNIYA DISTRICT

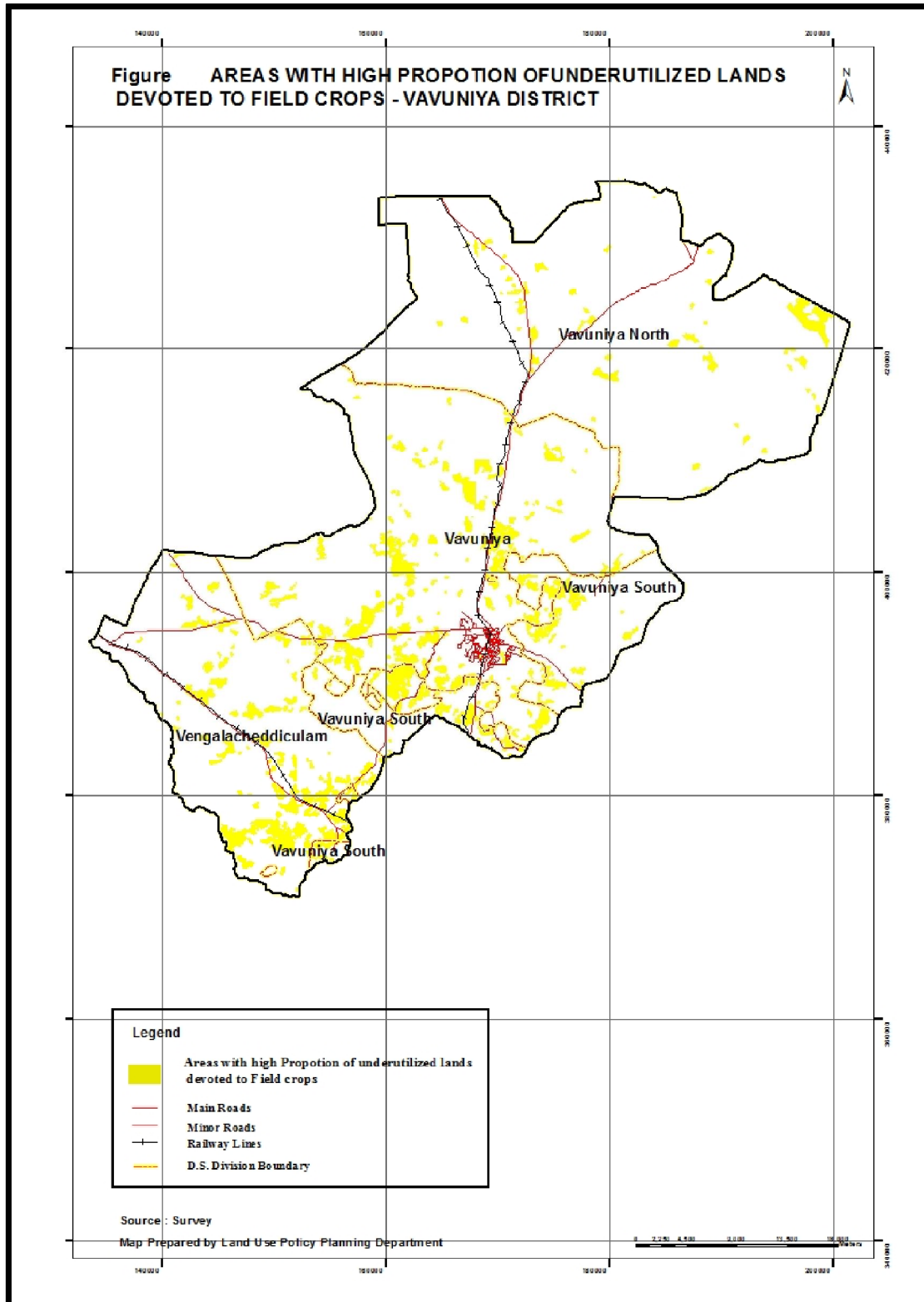
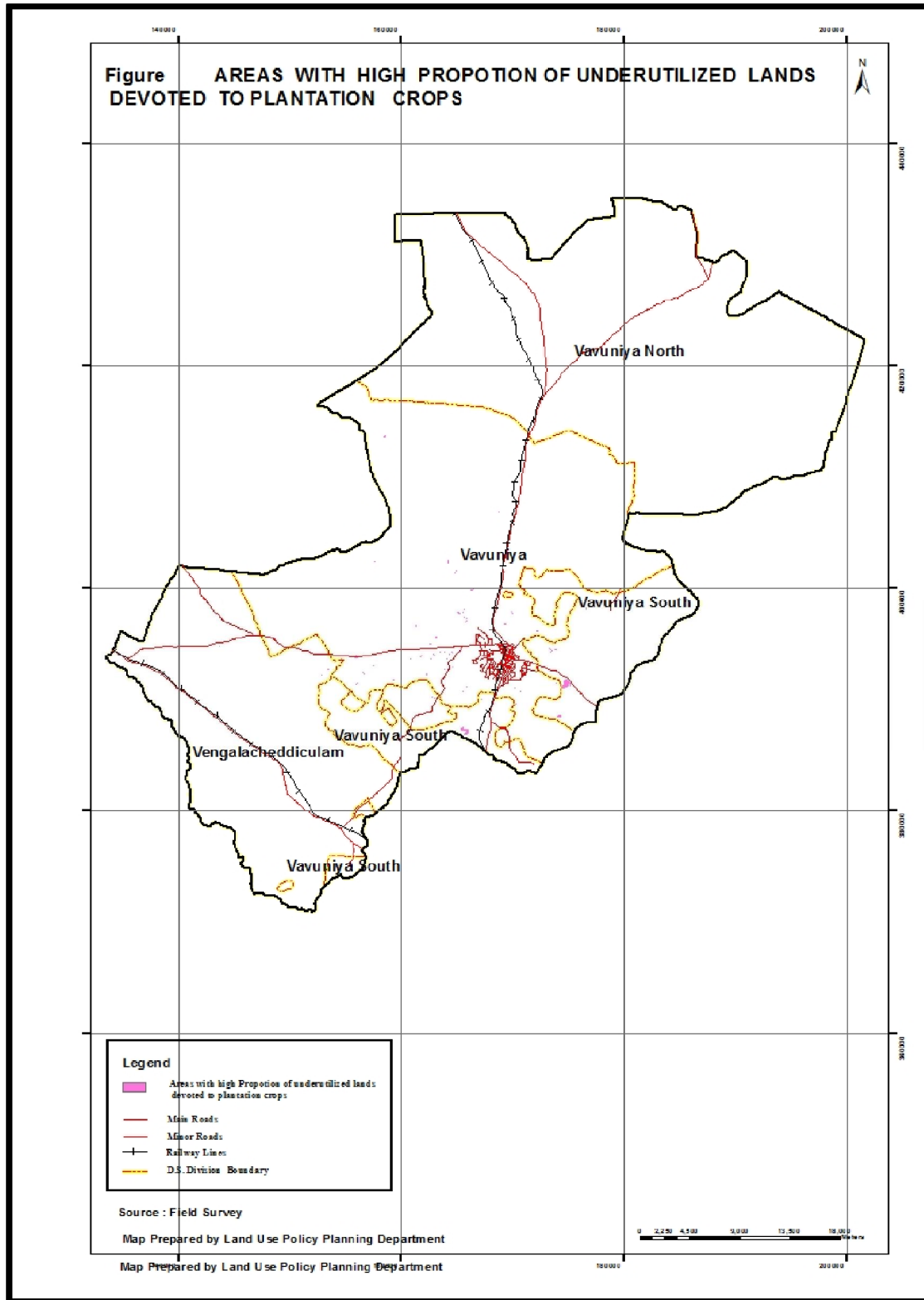


Figure 14. AREAS WITH HIGH PROPOTION OF UNDERUTILIZED LANDS DEVOTED TO PLANTATION CROPS- VAUNIYA DISTRICT





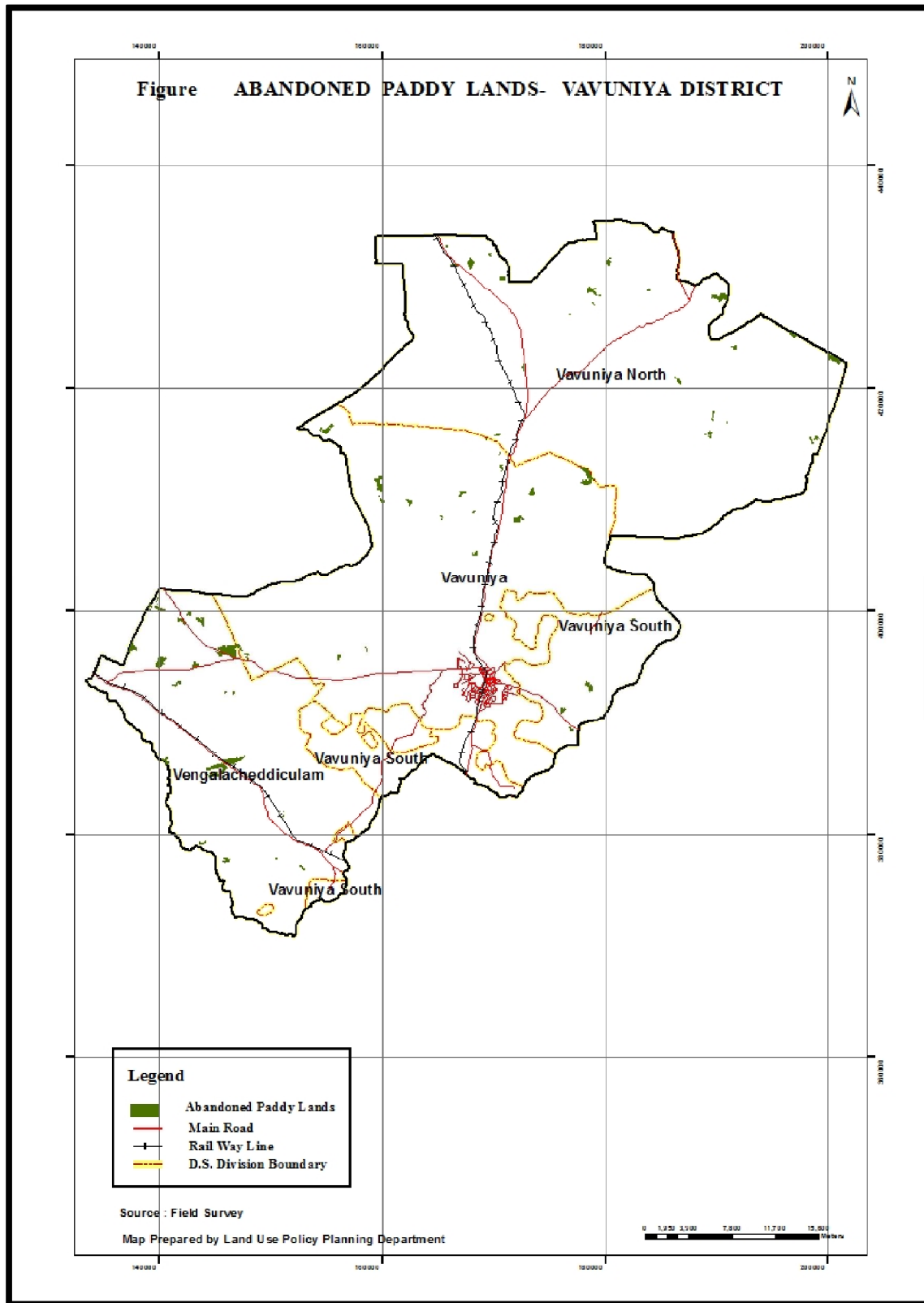
**(d) Abandoned Agricultural lands**

Some of the paddy lands in the district have been abandoned due to physical limitations. The approximate extents and reasons for abandonment are given in the Table 17 and their locations are shown in the Figure 15. To resolve the issue, further studies are needed. However, some suggestions were made at the stakeholder discussions but economic feasibility has to be studied.

Table 17. Abandoned paddy lands and their extents in the District.

<b>D.S.Division</b>	<b>Extent(ha)</b>	<b>Reasons for abandonment</b>
Vavuniya	420.3	Previous conflict situation;
Vavuniya North	414.0	Lack of water;
Vavuniya South	74.2	Salinity problem Absence of land owner;
Vengalcheddiculam	693.6	Lack of capital ;
<b>Total</b>	<b>1602.0</b>	Low yield;
		Threats from wild animals;
		Stray animal problem

Figure 15. ABANDONED PADDY LANDS – VAUNIYA DISTRICT



### (e) Abandoned Settlements

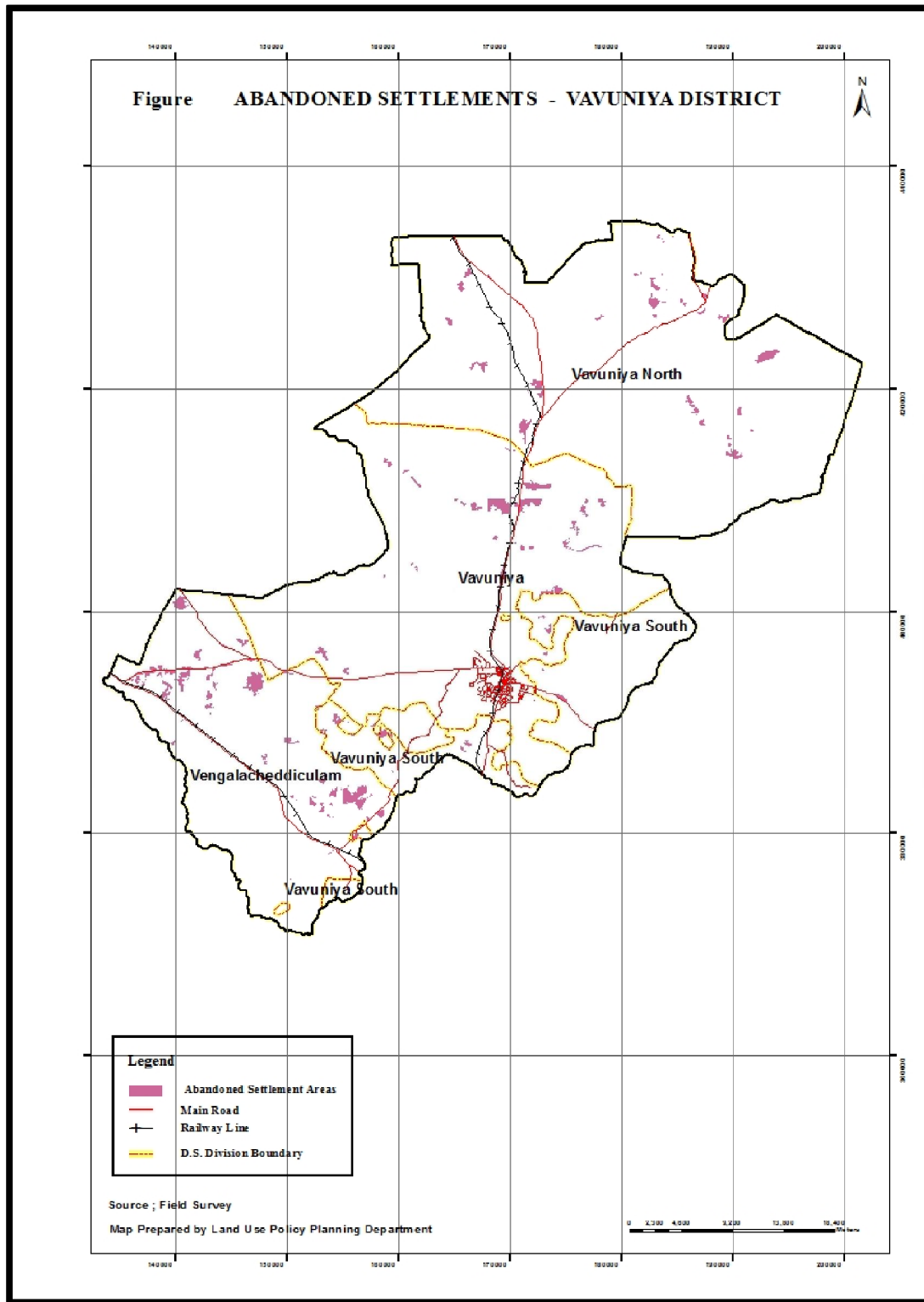
There are several settlements abandoned mainly due to conflict situation in the past. The information about these settlements is given in the Table 18 and the distribution of abandoned settlements are shown in Figure 16.

However, most of the settlements cannot be used for the resettlement since some of the areas are declared by Forest and Wild life Departments. The information provided by the plan can be used to resolve the issue. More details are given in the Table 3 in the Annex V.

Table 18. Distribution of the abandoned settlements

<b>D.S Division</b>	<b>Extent(ha)</b>	<b>Reasons for abandonment</b>	<b>Abandoned period</b>
Vavuniya	1013.1	Previous conflict situation; People migrated to abroad; Threats from wild animals	30 years
Vavuniya North	959.7		
Vavuniya South	222.7		
Vengalacheddiculam	1470.5		
<b>Total (ha)</b>	<b>3666.0</b>		

Figure 16. ABANDONED SETTLEMENTS-VAUNIYA DISTRICT



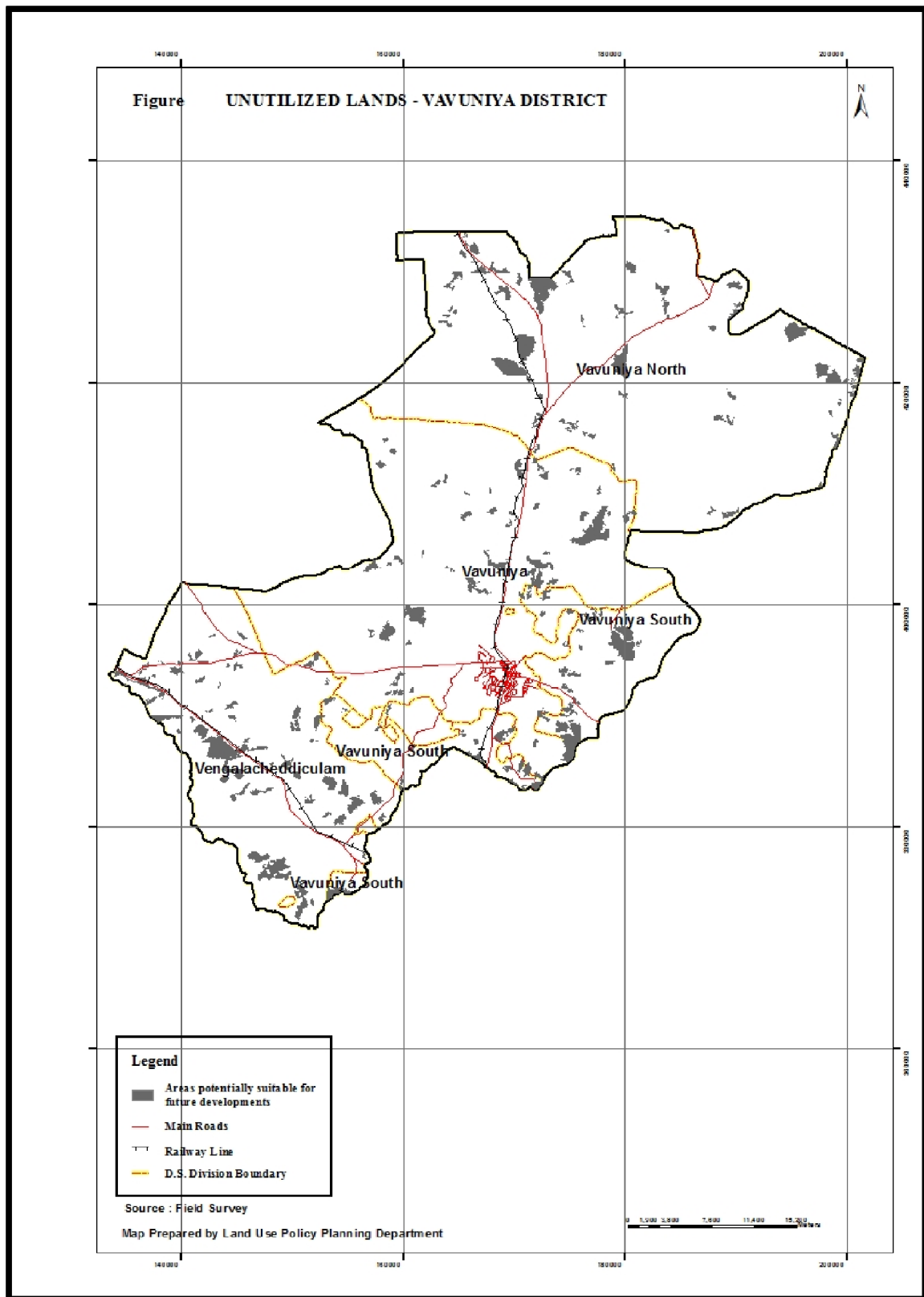
**(f) Unutilized lands**

The unutilized state lands were identified and site assessments were done to determine their suitability for different purposes such as housing, agriculture, tourism and service centers. The criteria used to determine the suitability for different uses are given in the Annex VI. The extents and their suitability for different uses are given in the Table 19 and their distribution is shown in the Figure 17.

Table 19. Unutilized lands and their suitability for different uses

DS Division	Extent(ha)	Recommended Use			
		Agriculture (ha)	Settlements (ha)	Industries (ha)	Tourism (ha)
Vavuniya	2748.4	2328.4	331.0	89.0	-
Vavuniya North	3540.3	2029.3	1415.0	96.0	-
Vavuniya South	2012.8	1645.8	320.0	34.0	13.0
Vengalacheddikulam	3389.0	2229.9	577.0	575.0	8.0
<b>Total(ha)</b>	<b>11690.5</b>	<b>8233.4</b>	<b>2643.0</b>	<b>794.0</b>	<b>21.0</b>

Figure 17. UNUTILIZED LANDS – VAUNIYA DISTRICT



## 5.4 Other issues related to Land Use

Illegal Gravel and Rock mining, deforestation ,illegal Sand extraction on river beds, Tank beds encroachment are some of the other issues in the District. In Table 20 the other land related issues are given.

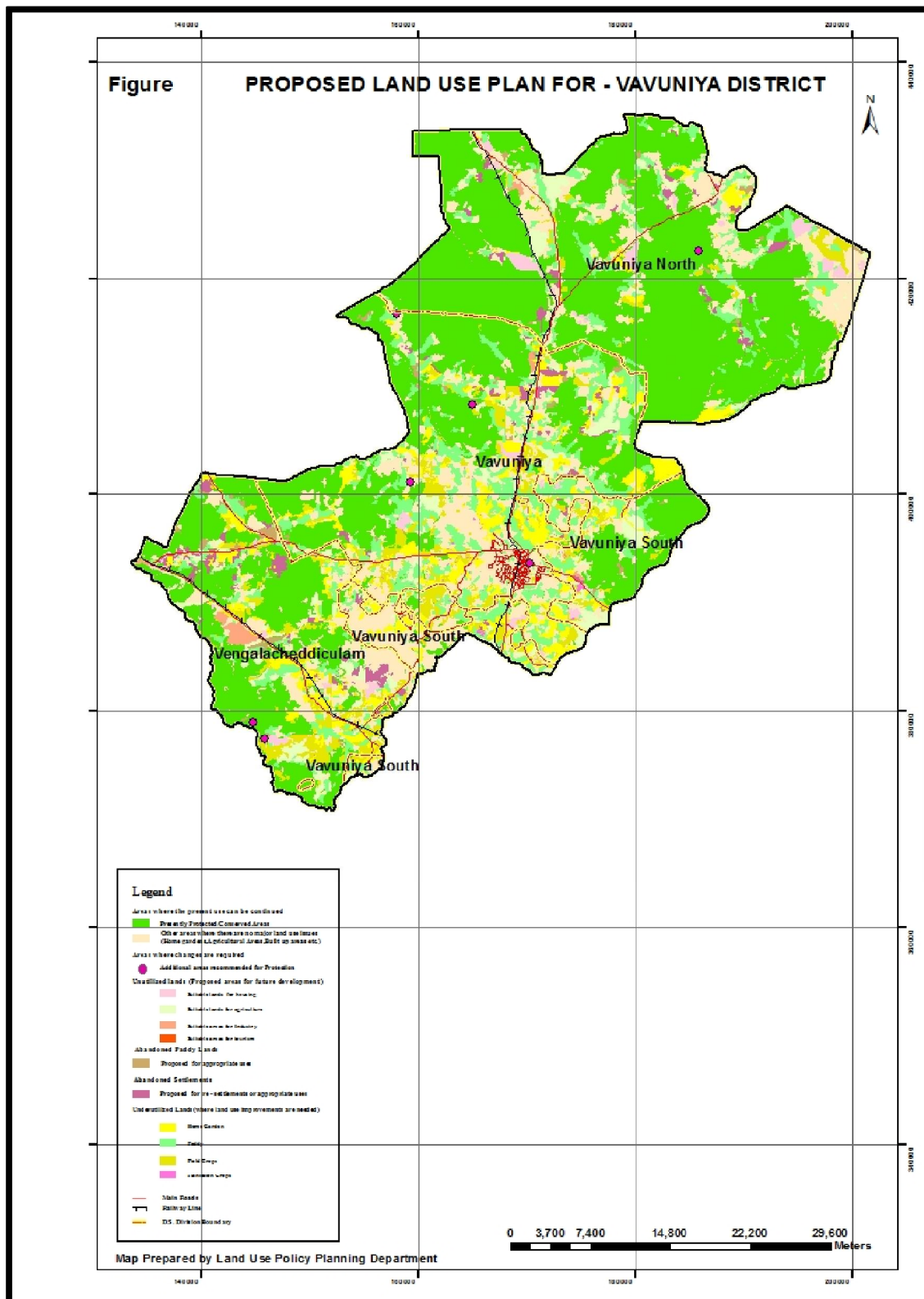
Table 20. Other issues related to Land Use

D.S.Division	G.N.Division	Extent (ha)	Issues	Recommendations	
Vavuniya Vavuniya North Vavuniya South Vengalcheddikulam		72.0	Over extraction of gravel	Strictly implement the law and order	
		62.0		Introduce monitoring mechanism	
		7.0			
		43.0		Environmental problems	Refill the quarries and replanting the sites
Vavuniya Vavuniya South Vengalcheddikulam		33.0	Over extraction of rocks even up to the under ground	Strictly implement the law and order	
		38.0			
		16.0		Environmental problems	
Vavuniya Vavuniya North Vavuniya South Vengalcheddikulam		72.0	Over extraction of gravel	Strictly implement the law and order	
		62.0		Introduce monitoring mechanism	
		7.0			
	43.0				
Vavuniya	Echchankulam Kallikulam		Reduction of the vegetation cover	Reforestation	
Vavuniya North	Ananthapuliyankulam Paddikudigiruppu Kanakarajankulam north Vedivaithakallu Olumadu Maruthodai		Environmental problems	Strictly implement the law and order	
Vavuniya South	Madukanda Alagalla			Introduce monitoring mechanism	
Vengalcheddikulam	Andiapuliyankulam Sinnasippikulam				
Vavuniya Vavuniya North Vavuniya South Vengalcheddikulam	<b>Kanakarayan Aru</b> Karapukuththi ; Kanakarajankulam North ; Semamadu			1. Over extraction of sand 2. Land degradation 3. Soil erosion 4. Environmental	Strictly implement the law and order Introduce monitoring mechanism

	<p><b>Malwathu Oya</b> Muthaliyakulam ; Andiyapuliyankulam; Christhokulam</p>		<p>problems 5. Flood Hazard</p>	
	<p><b>Kal Aru</b> Acre 400 Knthasamy Nagar Christhokulam</p>			
<b>Vavuniya</b>	<p>1.Vavuniyakulam 2.Vairavapuliyankulam 3.Pandarikulam 4.Thachchanathankulam 5.Palaikkallukulam 6.Mathavuvaithakulam 7.Velikkulam 8.Kovilkulam 9.Kovilputhukulam 10.Sinnaputhukulam 11.Periyarkulam 12.Thandikulam 13.Paththiniyarmakilankulam 14.Oyarsinnakulam 15Paddanichchipuliyankulam 16.Paddakaddukulam 17.Karaiyankulam 18.Veppankulam 19Kalnaddinakulam 20.Periyakalveerankulam</p>		<p>Sedimentation of tank beds</p>	<p>.Legal action against the encroachers</p>
<b>Vengalacheddikulam</b>	<p>.Mukathankulam</p>			



Figure 18. PROPOSED LAND USE PLAN –VAUNIYA DISTRICT



## **6. SUGGESTED IMPLEMENTATION STRATEGY**

Implementation strategy can be defined as methods or techniques used to enhance the adoption, implementation and sustainability of the Proposed Land Use Plan. In order to guarantee the effective implementation of the Land Use Plan, there should be an integrated approach and interrelationship between all intervening government and non-government organizations in the District.

In implementing the recommendations given in the plan to address the issues two approaches could be adopted.

- (1) Parallel approach where all the issues could be addressed simultaneously.
- (2) Step wise approach based on the priorities.

The approach to be adopted would of course depend on the available financial and other resources.

At the district level there is no central agency that could undertake the implementation of the recommendations of the plan. Hence, the implementation of the recommendations will have to be shared by several agencies. These agencies could be categorized as main responsible agencies and as supportive agencies. Each agency should incorporate the implementation activities in their annual action plans. The funds to implement these activities should be obtained either from routing government funds or from other external sources.

Implementation programme for the entire district will be monitored by the different level committees such as District Coordinating Committee (DCC), District Agricultural Committee (DAC), and District Land Use Planning Committee (DLUPC). Entire implementation programme will be coordinated by Government Agent/District Secretary.

The time frame for the implementation of each recommendation will vary depending on the nature of the activity and it may be short term, medium term and long term.

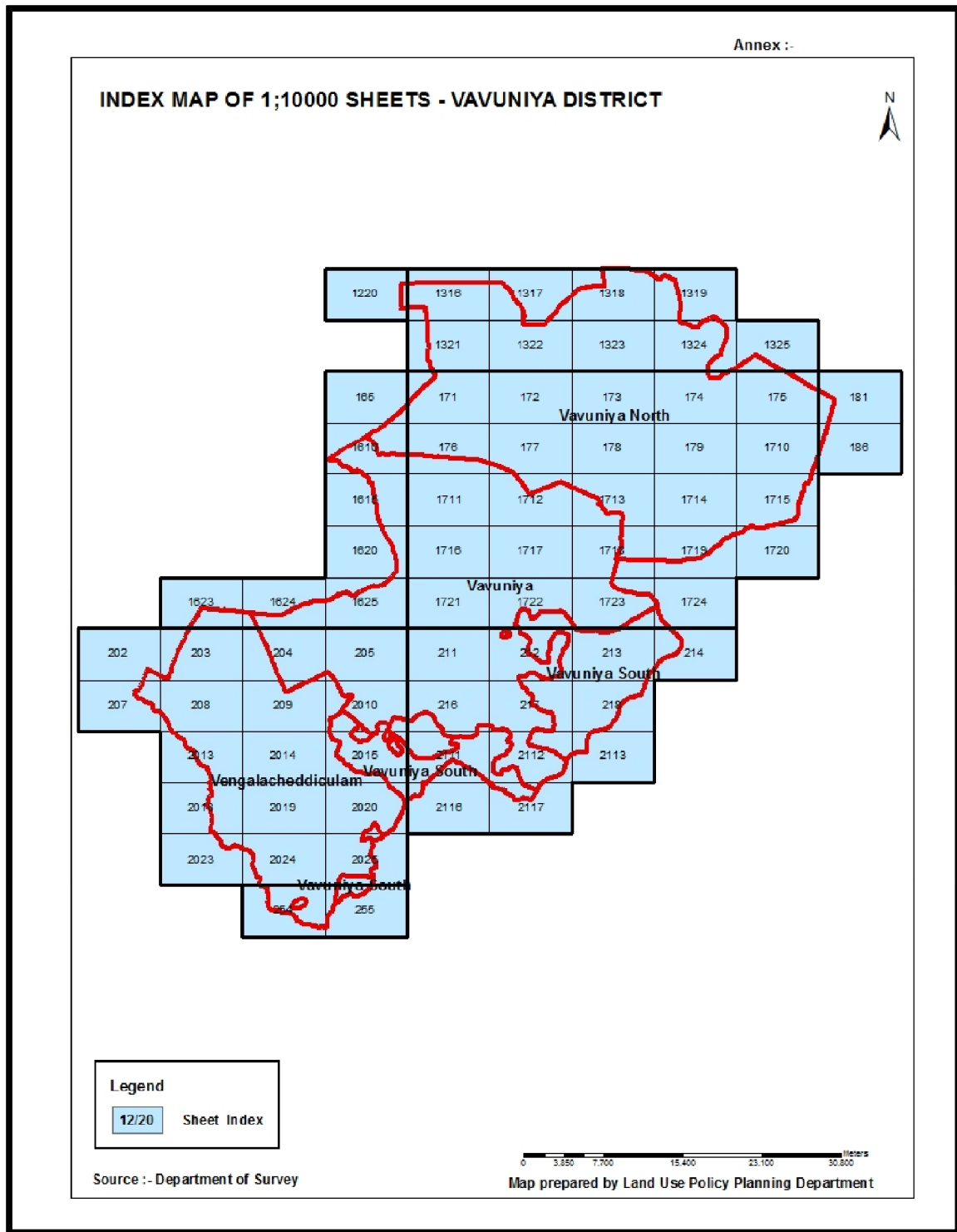
Planning projects should stimulate this implementation and support it technically, e.g. financing concepts and process monitoring systems. This is a step-by-step as well as participatory process.

## **List of References**

1. Official Web site of District Secretariat-Vauniya
2. Official Web site of Sri Lanka Telecom Limited
3. Publications of Census and Statistics Department
4. Publications of Land and Water Use Division-Irrigation Department
5. Publications of Land Use Policy Planning Department
6. Publications of Metrological Department
7. Publications of National Physical Planning Department

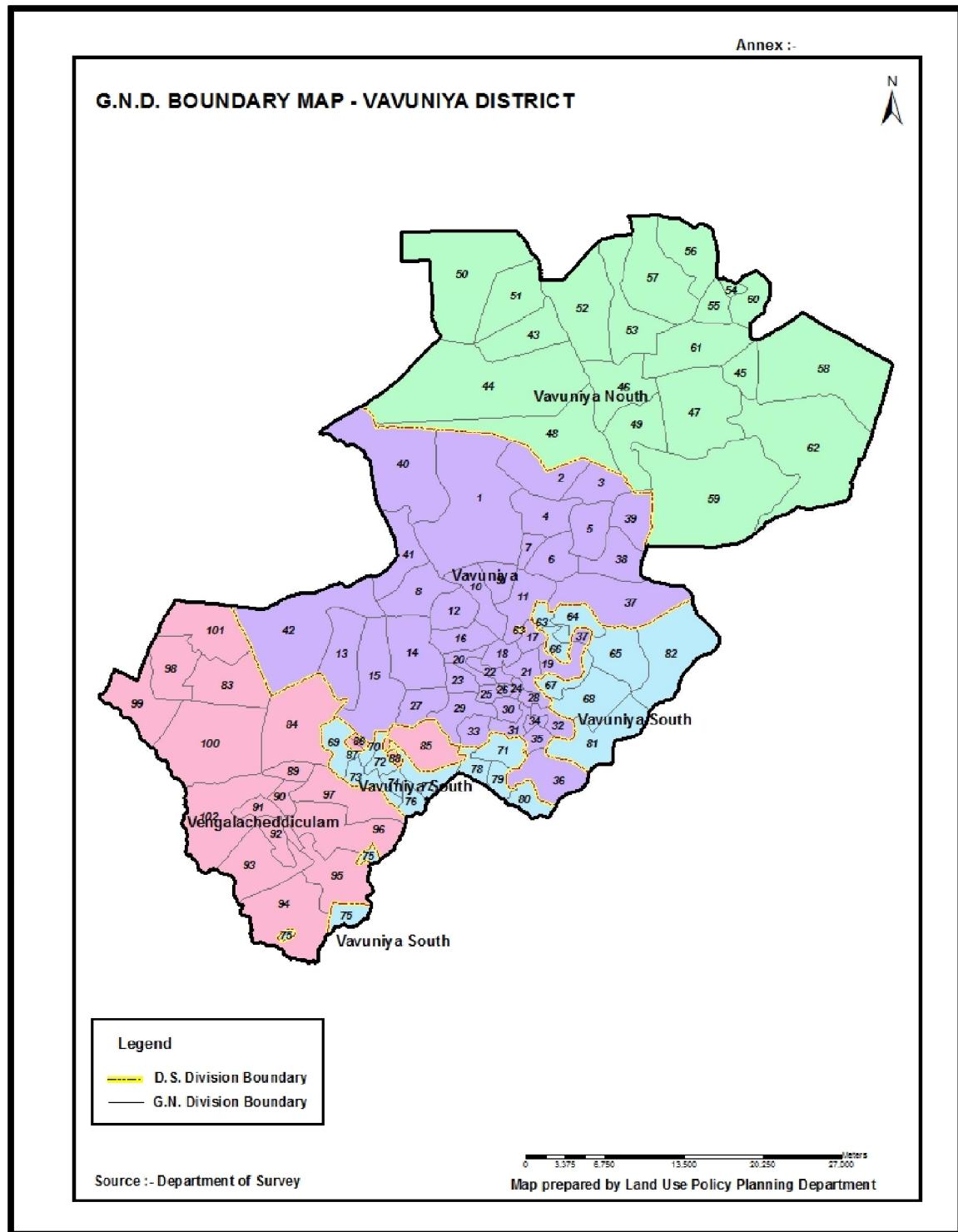
**Annex I.**

**INDEX MAP OF 1:10,000 SHEETS**



## Annex II.

### G.N.BOUNDARY MAP AND NAME LIST



<b>I.D</b>	<b>D.S.Division name</b>	<b>G.N.Division Number</b>	<b>G.N.Division Name</b>
1	Vavuniya North	225	Kanakarayankulam South
2	Vavuniya North	224A	Puliyankulam North
3	Vavuniya North	221D	Katkulam
4	Vavuniya North	223	Paranthan
5	Vavuniya North	221	Unchalkaddy
6	Vavuniya North	224	Puliyankulam South
7	Vavuniya North	223A	Anantha Puliyakulam
8	Vavuniya North	225B	Mannakulam
9	Vavuniya North	225A	Kanakarayankulam North
10	Vavuniya North	223B	Sinnadampan
11	Vavuniya North	223C	Nainamadu
12	Vavuniya North	222A	Nedunkerny North
13	Vavuniya North	222	Nedunkerny South
14	Vavuniya North	222E	Marailupai
15	Vavuniya North	222D	Kulavisuddan
16	Vavuniya North	221C	Paddikudiyiruppu
17	Vavuniya North	221A	Vedivaithakallu
18	Vavuniya North	222C	Mamadu
19	Vavuniya North	222B	Olumadu
20	Vavuniya North	221B	Maruthodai
21	Vavuniya	219	Maruthamadhu
22	Vavuniya	220C	Panrikkeithakulam
23	Vavuniya	220E	Arumuhathanputhukulam
24	Vavuniya	220F	Mahilankulam
25	Vavuniya	220B	Maligai
26	Vavuniya	220	Maruthankulam
27	Vavuniya	220D	Omanthai

28	Vavuniya	218E	Echchankulam
29	Vavuniya	216A	Paranaddakal
30	Vavuniya	216	Puthukulam
31	Vavuniya	215	Nochchimoddai
32	Vavuniya	218D	Sasthirikoolankulam
33	Vavuniya	217A	Poovarasankulam
34	Vavuniya	218A	Pampaimadu
35	Vavuniya	217B	Salampaikulam
36	Vavuniya	218C	Marekkaranpalai
37	Vavuniya	215A	Maharambaikulam
38	Vavuniya	214A	Thandikulam
39	Vavuniya	215B	Katharsinnakulam
40	Vavuniya	218F	Koomankulam
41	Vavuniya	214C	Vavuniya Town North
42	Vavuniya	214B	Pattanichchippuliyankulam
43	Vavuniya	218	Nelukulam
44	Vavuniya	214	Vavuniya Town
45	Vavuniya	214E	Pandarikulam
46	Vavuniya	214D	Vairavapuliyankulam
47	Vavuniya	217C	Sekkadipulavu
48	Vavuniya	244A	Rambaikulam
49	Vavuniya	217	Rajendrankulam
50	Vavuniya	214F	Thonikal
51	Vavuniya	214G	Moonrumurippu
52	Vavuniya	244D	Velikulam
53	Vavuniya	218G	Kandapuram
54	Vavuniya	244C	Kovilkulam

55	Vavuniya	244B	Samalankulam
56	Vavuniya	244	Asikulam
57	Vavuniya	215C	Kallikulam
57	Vavuniya	215C	Kallikulam
58	Vavuniya	220G	Ilamaruthankulam
59	Vavuniya	220A	Semamadu
60	Vavuniya	219A	Palamoddai
61	Vavuniya	218B	Kalmadu
62	Vavuniya	217D	Velankulam
63	Vavuniya South	213D	Agbopura
63	Vavuniya South	213D	Agbopura
64	Vavuniya South	213	Mamaduwa
65	Vavuniya South	213A	Mahakachchakodiya
66	Vavuniya South	213B	Puthubulankulama
67	Vavuniya South	212E	Nedunkulama
68	Vavuniya South	212	Madukanda
69	Vavuniya South	209B	Rangethgama
70	Vavuniya South	209A	Poomaduwa
71	Vavuniya South	212A	Eratperiyakulama
72	Vavuniya South	209E	Awaranthulawa
73	Vavuniya South	209G	Acre 400
74	Vavuniya South	209F	Acre 20,40,60
75	Vavuniya South	209C	Maruthammaduwa
75	Vavuniya South	209C	Maruthammaduwa
75	Vavuniya South	209C	Maruthammaduwa
76	Vavuniya South	209	Periya Ulukulama
77	Vavuniya South	209D	Paravakkulam South Bank,Track 7



78	Vavuniya South	212C	Avusathapitiya
79	Vavuniya South	212D	Kalukunnamaduwa
80	Vavuniya South	212B	Alagalla
81	Vavuniya South	212F	Mahamylankulama
82	Vavuniya South	213C	Pirappamaduwa
83	Vengalacheddiculam	207D	Piramanalankulam
84	Vengalacheddiculam	208A	Kurukkalputhukullam
85	Vengalacheddiculam	208	Sooduventhapilavu
86	Vengalacheddiculam	208D	Unit 4 Pavatkulam
87	Vengalacheddiculam	208C	Unit 2 Pavatkulam
88	Vengalacheddiculam	208E	Unit 5 Pavatkulam
89	Vengalacheddiculam	208B	Kanthasamy Nagar
90	Vengalacheddiculam	211E	Kankankulam
91	Vengalacheddiculam	211A	Cheddikulam
92	Vengalacheddiculam	211B	Mugaththankulam
93	Vengalacheddiculam	210	Muthaliyakulam
94	Vengalacheddiculam	210A	Sinnasippikulam
95	Vengalacheddiculam	210B	Neriyakulam
96	Vengalacheddiculam	211	Periyapuliyankulam
97	Vengalacheddiculam	211C	Unit 9 Pavatkulam
98	Vengalacheddiculam	207C	Kannaddy
99	Vengalacheddiculam	207B	Periyakadu
100	Vengalacheddiculam	207	Andiyapuliyankulam
101	Vengalacheddiculam	207A	Periyathampanai
102	Vengalacheddiculam	211D	Christhokulam

## **Annex III.**

### **NATIONAL LEVEL EXPERT GROUP-MEMBERS LIST**

1. Secretary, Ministry of Lands (Chair Person)
2. Director General, Land Use Policy Planning Department (Coordinator)
3. Secretary, Ministry of Economic Development
4. Secretary, Ministry of Religious and Cultural Affairs
5. Secretary, Ministry of Defense
6. Secretary, Ministry of Tourism
7. Secretary, Ministry of Environment
8. Government Agent/ District Secretary, Jaffna District
9. Government Agent/ District Secretary, Mannar District
10. Government Agent/ District Secretary, Vavuniya District
11. Government Agent/ District Secretary, Mullativu District
12. Government Agent/ District Secretary, Kilinochchi District
13. Government Agent/ District Secretary, Batticaloa District
14. Government Agent/ District Secretary, Ampara District
15. Government Agent/ District Secretary, Trincomalee District
16. Conservator General, Department of Forest Conservation
17. Commissioner General, Land Commissioner General's Department
18. Director General, Department of Agriculture
19. Director General, Coast Conservation Department
20. Commissioner General, Department of Archeology
21. Director General, Department of Wild Life Conservation
22. Survey General, Survey Department
23. Director General, National Physical Planning Department
24. Director General, Department of Irrigation.
25. Commissioner General, Land Settlement Department
26. Director General, Central Environmental Authority
27. Director General, Disaster Management Center
28. Director General, Geological Survey and Mines Bureau
29. Director General, Urban Development Authority
30. Director General, Road Development Authority
32. Commissioner, Department of Agrarian Services

## **Annex IV**

### **DISTRICT LEVEL EXPERT GROUP – MEMBERS LIST**

1. Government Agent/District Secretary (Chair Person)
2. Land Use Planning Officer (Secretary)
3. Provincial Land Commissioner
4. Divisional Secretaries
5. Director of Irrigation, Department of Irrigation
6. Director, Urban Development Authority
7. Deputy Director Agriculture, Provincial Department of Agriculture
8. District Forest Officer, Department of Forest Conservation
9. Senior Superintendent of Survey, Survey Department
10. District Engineer, Road Development Authority
11. District Engineer, Water Supply and Drainage Board
12. District Manager, Water Resource Board
13. District Manager, National Housing Development Authority
14. Assistant Commissioner, Rubber Control Department
15. Deputy General Manager, Ceylon Electricity Board
16. Deputy Director, Industrial Development Board
17. Deputy Director, Board of Investment
18. Assistant Commissioner, Department of Agrarian Development
19. Assistant Commissioner, Local Government
20. District Archeological Officer, Department of Archeology
21. Regional Manager, Coconut Cultivation Board
22. Assistant Director, Central Environmental Authority
23. Regional Mining Engineer, Geological Survey and Mines Bureau
24. Assistant Director, Department of Wild Life Conservation

## Annex V.

### DATA TABLES

#### PRESENTLY PROTECTED AREAS

##### ARCHAEOLOGICAL SITES-VAUNIYA D.S.DIVISION

	G.N Division	Place	Archaeological Site	Gazetted Date & Gazette No
1	Asikulama	Asikulam	Pagoda in Tammannawa Mountain	2007-02-23 1446
2	Omanthai	Omanthai	Stone block and ruins back side Tamil temple	2008-06-06/1553
3	Pampamadu	Pampamadu	Old pagoda with ruins, Near the Tamil temple	2008-06-06/1553
4	Pampamadu	Pampamadu	Stone Block with ruins	2008-06-06/1553
5	Pampamadu	Pampamadu	Old pagoda with ruins	2008-06-06/1553

##### ARCHAEOLOGICAL SITES-VAUNIYA NORTH D.S.DIVISION

	G.N Division	Place	Archaeological Site	Gazetted Date & Gazette No
1	Vedivaithakallu	Sapumalgaskada	Pagoda, Rock Cave, Stone Black, Buddhist stature with ruins	2013/08/16-11A
2	Vedivaithakallu	Vedivaithakulam	Stone Block place and ruins	2013/08/16-11A
3	Maruthodai	Vedivaithakallu	Two pagoda, Buddhist temple and epigraph	2013/08/16-11A
4	Maruthodai	Vedivaithakallu	Stone Block with ruins	2013/08/16-11A
5	Vedivaithakallu	Vedivaithakallu	Stone Block with ruins	2013/08/16-11A
6	Kulavisuddan	Panainindran	Ruins Near the Nedunkarni Annathevanmadu place	2013/08/16-11A
7	Nikawawa	Nikawawa	Pagoda, Stone Block temple with ruins	2013/08/16-11A

##### HISTORICAL SITES-VAUNIYA NORTH D.S.DIVISION

	G.N Division	Place
1	Puthoor	Puthoor Nagathampiran Hindu temple

**ARCHAEOLOGICAL SITES-VAUNIYA SOUTH D.S.DIVISION**

	<b>G.N.Division Name and Number</b>	<b>Place</b>	<b>Type of Archaeological Site</b>	<b>Gazetted Date &amp; Gazette Number</b>
1	Madukanda C 212	Madukanda	Two pagoda, Temple Stone Block	1951-07-03 10270
2	Vavuniya South	Awaranthawa Forest	Two pagoda	1986
3	Agbopura D 213	Mamaduwa	Old Megalithika Cemetery	
4	Alagalia C 212 B	Galnattankulama	Rock cave with two Buddhist stature	2008-06-06/1553
5	Madukanda C 212	Ambalangodalla	Old Pagoda	2008-06-06/1553
6	Pudubulankulama C 213 B	Irattaperiyakulama	Old Buddhist stature and ruins	2008-06-06/1553
7	Irattaperiyakulama C 212 A	Irattaperiyakulama	Old Pagoda and ruins	2008-06-06/1553
8	Alagalla C 212 B	Alagalla	Pagoda, Stone block with Ruins	2008-06-06/1553
9	Makakachchakodiya C 213 A	Aluthwatta	Old Ruins	2008-06-06/1553
10	Makakachchakodiya C 213 A	Erupoththana	24 Rock Car, Pagoda and ruins	2008-06-06/1553
11	Irattaperiyakulama C 213 A	Nawagama (Kiriwehera)	Old pagoda and ruins	2008-06-06/1553
12	Pavatkulama Unit 2	Awaranthulawa	Old pagoda and ruins	2008-06-06/1553
13	Pavatkulama Unit 2	Rankethgama	Old pagoda and ruins	2008-06-06/1553
14	Makamailankulama C 212 A	Kudakachchakodiya	Thanigala epigraph and ruins	2008-06-06/1553
15	Makamailankulama C 212 A	Makamailankulama	Stone Block	
16	Makamailankulama C 212 A	Mahakachchakodiya	Rock cave and ruins	
17	Mahamailankulama C 212 A	Pandiwettikulama	Stone block/rock cave and ruins	2008-06-06/1553
18	Makamailankulama C 212 A	Lunuwawa (Uppukulama)	Stone block/Rock cave stone bed and ruins	2008-06-06/1553
19	Ulukkulama C 209	Ulukkulama	Stone block and stone bridge	2008-06-06/1553
20	Ulukkulama C 209	Sohankulama	Pagoda and ruins	2008-06-06/1553
21	Ulukkulama C 209	Ulukkulama	Epigraph	
22	Agbopura D 212	Agbopura	Epigraph with ruins	
23	Parappanmaduwa No 213 C	Karunkalikulama	Stone place	
24	Pudubulankulama C 213 B	Karadikkulama	Old pagoda with stone drain	2008-06-06 /1553
25	Alagalla D 212	Kalukkunammaduwa (628)	Crypt with Buddhist ruins	2008-06-06/ 1553

## ARCHAEOLOGICAL SITES-VENGALACHEDDIKULAM D.S.DIVISION

	G.N.Division Name and Number	Place	Type of Archaeological Site
1	Cheddikulam	Aandiyapuliyankulam	A/s Manikfarm Ruins place
2	Cheddikulam	Pavatkulam	Two old Pagoda
3	Christhokulam 211 D	Karampakulam (Near Naraviaru)	A/s ruins and Bisokotuwa
4	Christhokulam 211 D	Musalkutti	Musalkuththi Frast

## ADDITIONAL AREAS RECOMMENDED FOR PROTECTION

### AREAS OF ARCHAEOLOGICAL AND HISTORICAL VALUE

Name/Location	Extent (ha)	Name of the G.N.Division	Ownership	Reasons for protection and conservation
Vannankulam Kannakai Amman Kovil	5.3	Muruthanmadu	State	Historical Value
St.Antony's Church	4.2	Rambaikulam	State	Historical Value
Kidachchuri Kannakai Amman Kovil	2.0	Echchankulam	State	Historical Value
Kunsukulam Muththumari Amman Kovil	1.2	Palamoddai	State	Historical Value
Wawalai Snthirasekaraech chram Sivan Ruined Temple	8.2	Muthaliyakulam	State	Historical Value
Konkarayan Malai	8.5	Muthaliyakulam	State	Historical Value
Vedukunari Malai	4.2	Olumadu	State	Historical Value

## UNUTILIZED LANDS-VAUNIYA D.S.DIVISION

	G.N.Division	Polygon Number	Extent (ha)	Recommended Land Use
1	Arumuhathanputhukulam	110	89.0	Industry
2	Asikulam	228	19.0	Agriculture
3	Echchankulam	119	8.0	Agriculture
4		120	38.0	Agriculture
5		202	125.0	Agriculture
6	Ilamaruthankulam	166	58.0	Agriculture
7	Kallikulam	121	22.0	Agriculture
8	Kalmadu	176	235.0	Agriculture
9		108	6.0	Agriculture
10		171	9.0	Agriculture
11	Mahilankulam	132	43.0	Agriculture
12	Maligai	118	10.0	Agriculture
13	Maruthamadhu	115	23.0	Agriculture
14		173	17.0	Agriculture
15		114	19.0	Agriculture
16		103	25.0	Agriculture
17		172	28.0	Agriculture
18		101	28.0	Agriculture
19		104	6.0	Agriculture
20	Nochchimodai	232	15.0	Agriculture
21	Palamodai	102	12.0	Agriculture
22		106	23.0	Agriculture
23		107	12.0	Agriculture
24		233	8.0	Agriculture
25		105	37.0	Agriculture
26	Panrikkeithakulam	168	25.0	Agriculture
27		110	89.0	Industry
28		112	24.0	Agriculture
29		109	32.0	Agriculture
30	Paranaddakal	204	48.0	Settlements
31	Puthukulam	203	119.0	Settlements
32	Salampaikulam	122	36.0	Agriculture
33		185	56.0	Agriculture
34	Samalankulam	198	31.0	Agriculture
35	Sekkadipulavu	186	101.0	Industry
36		123	13.0	Agriculture
37		139	7.0	Agriculture
38		140	20.0	Agriculture
39	Semamadu	113	48.0	Agriculture
40		117	45.0	Agriculture
41		167	86.0	Agriculture
42	Pampaimadu	177	7.0	Agriculture
43		178	19.0	Agriculture
44		175	77.0	Agriculture
45		124	23.0	Agriculture

## UNUTILIZED LANDS-VAUNIYA NORTH D.S.DIVISION

	GND Name	Polygon Number	Extent (Ha)	Recommended land use
1	Anantha Puliyakulam	55	12.0	Agriculture
2		45	7.0	Settlements
3	Kulavisuddan	35	19.0	Agriculture
4		155	24.0	Agriculture
5		25	13.0	Agriculture
6	Mamadu	40	7.0	Agriculture
7		38	19.0	Agriculture
8		39	30.0	Agriculture
9	Mannakulam	28	14.0	Agriculture
10		29	5.0	Agriculture
11		31	87.0	Agriculture
12		32	13.0	Agriculture
13		33	12.0	Agriculture
14		34	57.0	Settlements
15		22	59.0	Settlements
16		145	325.0	Settlements
17	Marailupai	27	5.0	Agriculture
18		26	5.0	Agriculture
19		24	68.0	Agriculture
20		23	6.0	Agriculture
21	Nainamadu	37	70.0	Agriculture
22	Olumadu	160	17.0	Agriculture
23	Paddikudiyiruppu	156	53.0	Settlements
24		157	256.0	Settlements
25		60	35.0	Agriculture
26		158	214.0	Settlements
27		162	12.0	Agriculture
28		161	13.0	Agriculture
29		163	57.0	Agriculture
30		159	29.0	Settlements
31	Paranthan	46	27.0	Agriculture
32		47	25.0	Agriculture
33	Puliyankulam North	221	40.0	Settlements
34	Puliyankulam South	170	34.0	Agriculture
35		169	35.0	Agriculture
36		54	13.0	Agriculture
37		144	11.0	Agriculture
38		42	55.0	Settlements
39		41	14.0	Settlements
40	Sinnadampan	153	442.0	Agriculture
41		36	67.0	Agriculture
42	Vedivaihakallu	57	7.0	Agriculture
43		164	49.0	Agriculture
44	Kanakarayankulam North	190	57.0	Industry
45		133	15.0	Agriculture
46		151	69.0	Settlements
47	Maruthodai	56	23.0	Agriculture
48		165	485.0	Agriculture
49		53	9.0	Agriculture
50		51	41.0	Agriculture



**UNUTILIZED LANDS-VAUNIYA SOUTH D.S.DIVISION**

	<b>G.N.Division</b>	<b>Polygon Number</b>	<b>Extent (ha)</b>	<b>Recommended Land Use</b>
<b>1</b>	Agbopura	143	60.0	Agriculture
<b>2</b>		0	23.0	Settlements
<b>3</b>	Alagalla	209	20.0	Agriculture
<b>4</b>		12	12.0	Agriculture
<b>5</b>		197	64.0	Agriculture
<b>6</b>	Avusathapitiya	20	40.0	Agriculture
<b>7</b>		9	23.0	Agriculture
<b>8</b>		210	52.0	Agriculture
<b>9</b>	Awaranthulawa	229	19.0	Agriculture
<b>10</b>	Eratperiyakulama	230	285.0	Settlements
<b>11</b>	Madukanda	15	23.0	Settlements
<b>12</b>		7	34.0	Industry
<b>13</b>		21	29.0	Agriculture
<b>14</b>		201	19.0	Agriculture
<b>15</b>		18	13.0	Agriculture
<b>16</b>		8	28.0	Agriculture
<b>17</b>	Mahakachchakodiya	207	144.0	Agriculture
<b>18</b>		208	20.0	Agriculture
<b>19</b>		206	350.0	Agriculture
<b>20</b>		209	52.0	Agriculture
<b>21</b>		2	52.0	Agriculture
<b>22</b>		3	9.0	Agriculture
<b>23</b>	Mahamylankulama	199	86.0	Agriculture
<b>24</b>		10	89.0	Settlements
<b>25</b>		200	41.0	Agriculture
<b>26</b>	Mamaduwa	205	15.0	Agriculture
<b>27</b>	Maruthammaduwa	214	98.0	Agriculture
<b>28</b>	Paravakkulam South Bank,Track 7	13	13.0	Tourism
<b>29</b>	Periya Ulukulama	11	8.0	Agriculture
<b>30</b>		213	116.0	Agriculture
<b>31</b>	Pirappamaduwa	4	13.0	Agriculture
<b>32</b>	Rangethagama	184	15.0	Agriculture

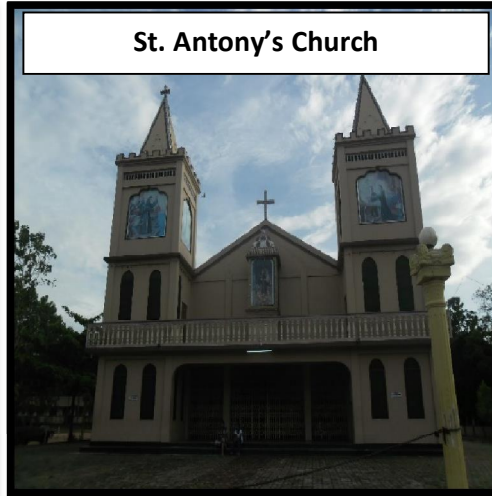
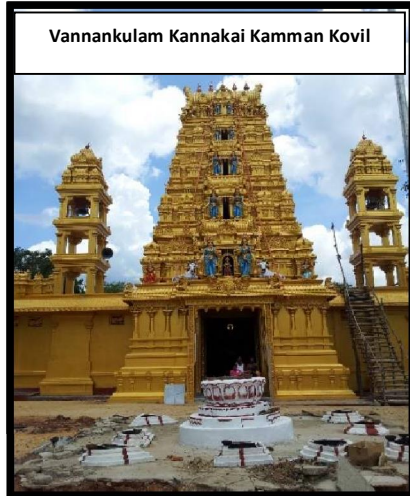
**UNUTILIZED LANDS-VENGALACHEDDIKULAM D.S.DIVISION**

	<b>GND Name</b>	<b>Polygon Number</b>	<b>Extent (Ha)</b>	<b>Recommended land use</b>
1	Sinnasippikulam	215	97.0	Agriculture
2		216	135.0	Agriculture
3	Sooduventhapilavu	149	97.0	Industry
4	Unit 9 Pavatkulam	211	121.0	Settlements
5	Periyakadu	193	13.0	Agriculture
6		192	106.0	Agriculture
7		191	41.0	Settlements
8		69	9.0	Agriculture
9		75	10.0	Agriculture
10		234	4.0	Tourism
11		190	57.0	Industry
12	Periyapuliyankulam	226	421.0	Industry
13		212	24.0	Agriculture
14		225	82.0	Agriculture
15		84	38.0	Agriculture
16	Periyathampanai	63	11.0	Settlements
17	Piramanalankulam	78	16.0	Agriculture
18		77	30.0	Settlements
19		224	107.0	Agriculture
20		196	36.0	Agriculture
21		61	11.0	Agriculture
22	Neriyakulam	218	63.0	Agriculture
23		219	21.0	Agriculture
24	Muthaliyarkulam	138	13.0	Settlements
25	Kurukkalputhukullam	183	41.0	Agriculture
26		182	63.0	Agriculture
27		79	10.0	Agriculture
28		222	71.0	Agriculture
29		223	29.0	Settlements
30	Kankankulam	180	13.0	Agriculture
31	Kannaddy	73	10.0	Agriculture
32		76	10.0	Settlements
33		62	26.0	Agriculture
34	Kanhasamy Nagar	181	123.0	Agriculture
35	Christhokulam	189	38.0	Agriculture
36		188	72.0	Agriculture
37		217	15.0	Agriculture
38		82	21.0	Agriculture
39		235	4.0	Tourism
40	Andiyapuliyankulam	222	71.0	Agriculture
41		179	73.0	Settlements
42		187	59.0	Agriculture
43		80	18.0	Settlements
44		195	30.0	Agriculture
45		134	343.0	Agriculture
46		81	10.0	Agriculture
47		72	55.0	Agriculture
48		74	17.0	Settlements
49	194	42.0	Agriculture	

**Annex VI.**

**PHOTOGRAPHS OF THE LAND USE ISSUES**

**ADDITIONAL AREAS RECOMMENDED FOR PROTECTION**



**Santhirasekara Eachcharam Sivan Kovil**



**Konkarayan Malai**



**Vedukkunari Malai**



**OTHER LAND RELATED ISSUES**

**ILLEGAL GRAVEL AND ROCK MINING AREAS**



**DEFORESTATION**



**ILLEGAL SAND EXTRACTION FROM RIVER BEDS**



**TANK BED ENCROACHMENTS**



## Annex VII .

### CRITERIA USED TO DETERMINE THE LAND SUITABILITY FOR DIFFERENT USES

#### 1. The factors that were considered to assess the lands for agriculture

Parameter	Level 1	Level 2	Level 3	Level 4
1. Slope	0-30%	30-40%	40-60% >60 %	>60 %
2. Soil depth	Very deep > 120 cm	Deep (120 – 60) cm	Moderately Deep (60 – 30 ) cm	Shallow < 30cm
3. Soil erosion hazard	Nil	Slight	Moderate	High
4. Soil texture	Loam	Sandy loam	Sand	Sand with stones
5. Drainage	Well drained	Moderately well Drained	Manageable	Poorly Drained
6. Rockiness	Nil	Few	Significant	High
7. Water availability for cultivation	Water sources available within the land	Sources available close to the land	Sources available within manageable distance	Difficult to obtain water supply
8. Road Accessibility	Available to the land	Available close to the land	Available within manageable distance	Difficult to get

Based on the above parameters matrix, the land should be evaluated based for its suitability for Agriculture under appropriate category as follows:

Symbol	Category	Parameters
S1	Highly Suitable	If 1-6 parameters are at level - 1, 7-8 parameters are at level - 3 or below
S2	Suitable	If 1-6 parameters are at level -2 or below and 7 -8 parameters at level -3 or below
S3	Moderately Suitable	If 1-8 parameters are at level -3 or below
N	Not suitable	If any of the parameters are at level -4

## 2. The Factors that were considered to assess the lands for Housing

Parameter	Level -1	Level -2	Level -3	Level -4
1. Water availability	Water sources available within the land	Sources available close to the land	Sources available within manageable distance	Difficult to obtain water supply
2. Electricity	Electricity available	Electricity about to be supplied	Possible to get electricity	Difficult to get electricity
3. Telephone	Facilities are available	Facilities about to be supplied	Only Mobile coverage available	No coverage area
4. Transport facilities	Transport available to the land	Available closer to the land	Not available but can be developed	Very difficult to obtain transport
5. Environmental impact	Not significant	Mild problem could be expected	Could be overcome by planning	Very sensitive environmental issues will arise
6. Social impact	Very slight	Slight	Moderate	High
7. Drainage	Manageable	Unmanageable		
8. Rockiness	Possible to construct building	Impossible to construct building		
9. Slope	<45%	> 45%		

Based on the above parameters matrix, the land should be evaluated based for its suitability for Housing under appropriate category as follows:

Symbol	Category	Parameters
S1	Highly Suitable	If all (1-9) Parameters are at level -1
S2	Suitable	If 1-7 parameters are at level -2 or below and 8-9 parameters at level -1
S3	Moderately Suitable	If 1-7 parameters are at level -3 or below and 8-9 parameters at level -1
N	Not suitable	If any of 1-7 parameters are at level -4 or any 8-9 at level -2



### 3. The Factors that were considered to assess the lands for Industries

Parameter	Level -1	Level -2	Level -3	Level -4
1. Water availability	Water sources available within the land	Sources available close to the land	Sources available within manageable distance	Difficult to obtain water supply
2. Electricity	Electricity available	Electricity about to be supplied	Possible to get electricity	Difficult to get electricity
3. Telephone	Facilities are available	Facilities about to be supplied	Only Mobile coverage available	No coverage area
4. Transport facilities	Transport available to the land	Available closer to the land	Not available but can be developed	Very difficult to obtain transport
5.Environmental impact	Not significant	Mild problem could be expected	Could be overcome by planning	Very sensitive environmental issues will arise
6.Population in surrounding area	Surrounding area is not populated	Surrounding area is slightly populated	Surrounding area Moderately populated	Heavily populated
7. Availability of urban facilities for employees	Available within 1 Km	Available within 5 Km	Available within 15 Km	Available > 15 Km
8. Slope	<45%	> 45%		
9. Drainage	Manageable	Unmanageable		
10. Rockiness	Possible to construct building	Impossible to construct building		

Based on the above parameters matrix, the land should be evaluated based for its suitability for Industry under appropriate category as follows:

Symbol	Category	Parameters
S1	Highly Suitable	If all (1-10) Parameters are at level -1
S2	Suitable	If 1-7 parameters are at level -2 or below and 8-10 parameters at level -1
S3	Moderately Suitable	If 1-7 parameters are at level -3 or below and 8-10 parameters at level -1
N	Not suitable	If any of 1-7 parameters are at level -4 or any 8-10 at level -2at level -2

#### **4. Factors considered in assessing the lands for Tourism development**

- 1) Quality of beach /Beauty of the View
- 2) Condition for Swimming
- 3) Condition for Surfing
- 4) Proximity to Historical or Archeological Sites
- 5) Availability of infrastructure facilities
- 6) Social acceptance
- 7) Possible Environmental impact (Low, Moderate, High)
- 8) Closeness to the natural habitats