2020

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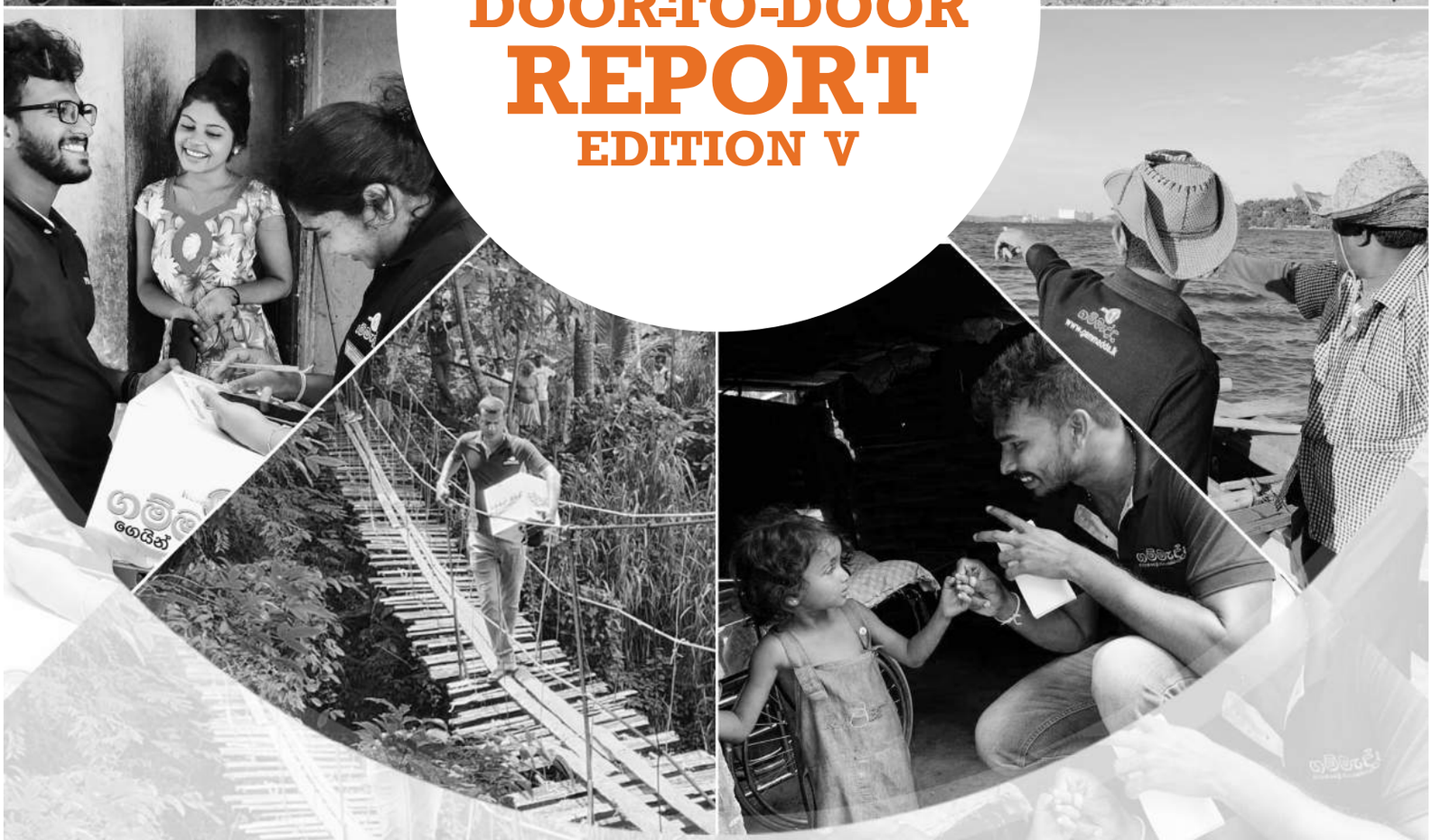
மக்கள் சக்தி | GAMMADDA

# DOOR-TO-DOOR REPORT

## EDITION V



An Initiative by News 1st in Collaboration with University of Peradeniya

# Gammadda Research Report on Socio-Economic and Environmental Challenges in Rural Sri Lanka - 2020

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# Table of Contents

## List of Graphs

## List of Tables

## List of Maps

## Abbreviations

| | |
|---|---|
| DSD | Divisional Secretariat Division |
| GND | Grama Niladari Division |
| LRC | Land Reform Commission |
| LDO | Land Development Ordinance |

## Acknowledgement

On behalf of the University of Peradeniya, we would like to express our sincere appreciation towards Capital Maharaja Organization Limited and News 1st for inviting the University of Peradeniya to collaborate with them to initiate the Gammadda Door to Door outreach program which is being conducted for the fifth consecutive time. It has been a great pleasure to work hand in hand with such a leading media network in Sri Lanka for a cause that would serve thousands of people in the rural areas of Sri Lanka in the long run.

We highly acknowledge and cordially thank all the people in the villages who shared their valuable time and experience with us as we collected data and information on issues and problems they undergo as a community. In fact, the main objective of this research is to reveal the issues faced by the rural communities of remote areas in Sri Lanka in order to enrich their standard of living. We would also like to convey our sincere gratitude to all the government officials for their immense support throughout the process.

We are much grateful to Prof. O. G. Dayarathna Banda, the Dean, Faculty of Arts for extending his support on making this research a success.

The challenge of visiting hundreds of villages, gathering information regarding the issues of the public would not have been accomplished if it was not for the dedication and enthusiasm of the News 1st team and the students of University of Peradeniya. Hence, we would like to express our sincere appreciation to the News 1st team and the students of the University of Peradeniya (Y. M. G. A. C. Yallarawa, Gagana Amararathne, W. A. I. N. Weerasinghe, K. H. M. H. P. Ranasinghe, R. M. A. P. Senavirathne and Upul Chamara) for working from dawn to dusk to make this effort a success.

Moreover, we take this opportunity to thank Ms. E. G. I. Sevwandi who worked tirelessly in compiling the final report. Our special thanks go to Ms. Shalini Wijerathna for her contribution given in proof reading the final report. Finally, we would like to express our gratitude to all other service providers who are not mentioned here but supported us to make this enormous effort fruitful.

# Introduction

Gammadda has become one of the leading community-based programs to identify, analyze and address the regional level issues in Sri Lanka. During the past ten-year period of time Gammadda initiated the Gammadda Door to Door socio economic research which focused on identifying the social, economic and environmental issues facing marginalized communities in Sri Lanka. This is the first ever effort initiated by a leading news network to visit villages and report their striking issues with academic contributions in collaboration with the University of Peradeniya. The Fifth Gammadda Door to Door research project commenced on 29th August 2020 and concluded on 29th September 2020. Over a period of one month, the research team including News 1st members and students of University of Peradeniya visited 470 Grama Niladhari divisions and interviewed 3344 villagers covering all nine provinces. Research participant selection and the methodology of the research project are discussed in the following text.

# Methodology

The ultimate goal of Gammadda's research is to identify the social, economic and environmental issues facing rural communities in Sri Lanka. Research locations were selected for the study based on a purposive sampling technique. Data collection complied with both primary and secondary data through interviews and secondary data sources such as Central Bank Report/ Statistical hand Books respectively.

Initial data was collected by Gammadda Door to Door team via structured questionnaires, interviews, group discussions and observations where necessary. When the research team visits a new village, the team takes care of bringing the community members together in one place and has a group discussion to determine the most common issues they face. Data was collected from individuals in each village by submitting questionnaires and conducting interviews following the discussions. Secondary data was collected mainly from reports published by the Department of Census and Statistics and Central Bank of Sri Lanka while other reports were compiled by international NGOs and relevant websites. Secondary data was utilized basically to provide a contextual description of provinces and districts prior to analysis of primary data.

After collecting quantitative and qualitative data using the above methods, qualitative data analysis was performed using content analysis and quantitative data was analyzed using the software statistical package for the social sciences (SPSS) and MS Excel. The spatial distribution patterns of social, economic and environmental problems in rural areas were illustrated using geographic information system software (ArcGIS 10.7.1). The analyzed data is presented using graphs, tables, maps and written descriptions.

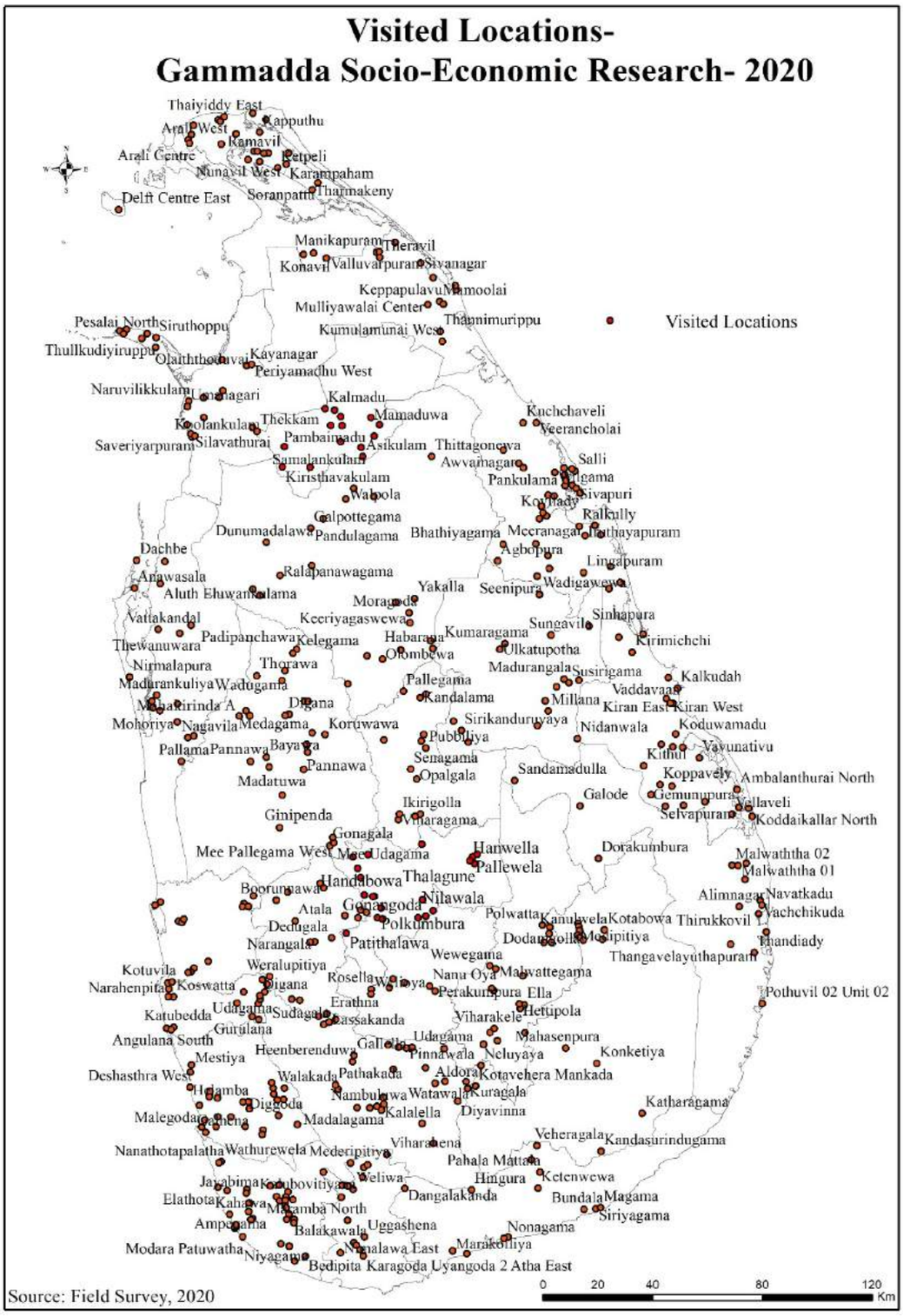
The Gammadda research has been carried out at the village level which is the lowest administrative unit of the island. Sri Lanka is divided into nine provinces namely; Central Province, Eastern Province, Northern Province, North Central Province, North Western Province, Sabaragamuwa Province, Southern Province, Uva Province and Western Province. Provinces are divided into districts and then to Divisional Secretariat Divisions (DSD) and Grama Niladhari Divisions (GND). In some instances, the GND boundaries are similar to the village boundaries and some are not. For the purpose of data processing depending on the availability of GN boundary maps/ data, Gammadda project's data is analyzed and summarized. The following table sums up Gammadda research sample quantities and number of interviewees based on districts.

Since the field data collection was carried out within a time period of one month, the time constraints faced by the team can be considered as a limitation.

| Province | District | No of villages Visited | No of responses |
|---|---|---|---|
| Western | Colombo | 18 | 162 |
| | Gampaha | 13 | 108 |
| | Kaluthara | 26 | 160 |
| Central | Kandy | 21 | 141 |
| | Matale | 13 | 85 |
| | Nuwara Eliya | 8 | 42 |
| Southern | Galle | 33 | 179 |
| | Matara | 18 | 151 |
| | Hambanthota | 12 | 104 |
| Eastern | Batticaloa | 26 | 138 |
| | Ampara | 17 | 139 |
| | Trincomalee | 34 | 152 |
| North Central | Anuradhapura | 21 | 166 |
| | Polonnaruwa | 17 | 181 |
| Northern | Kilinochchi | 4 | 20 |
| | Vavuniya | 14 | 157 |
| | Mannar | 22 | 193 |
| | Mullaitivu | 13 | 93 |
| | Jaffna | 22 | 85 |
| North Western | Kurunagala | 24 | 163 |
| | Puttalam | 17 | 175 |
| Uva | Badulla | 18 | 105 |
| | Monaragala | 13 | 126 |
| Sabaragamuwa | Kegalle | 14 | 139 |
| | Rathnapura | 32 | 180 |
| Total | | 470 | 3344 |

Table 1: Summary

The following Map 01 show the visited villages and the names of the villages are given in Annex 1.




Map 1: Visited Locations

# Setting the Scene

## Physical Background

Sri Lanka is an island with vast environmental and climatic variation within 65,360 km2 of land area. More than 80% of the surface dates back to the Precambrian era and is divided into three main geological formations such as, Vijayan, Highland and Vanni. Surface soil is formed based on the geology and the tropical climatic conditions and around 17 soil types are identified in dry zone and wet zone areas in Sri Lanka. Climatologically, Sri Lanka is divided into three climatic zones, the wet zone, dry zone and intermediate zone. Rainfall in Sri Lanka has multiple origins. Monsoonal, Convectional and Depression induced rain brings a major share of the annual rainfall. The mean annual rainfall varies from less than 900mm in the driest parts, southeastern and northwestern, to over 5000mm in the wettest parts, western slopes of the central highlands.

The regional differences observed in air temperature in Sri Lanka are mainly due to altitude rather than latitude. Average monthly temperatures vary slightly with the seasonal movement of the sun, with some effects being adjusted for precipitation. Sri Lanka's average annual temperature is evidenced by largely homogeneous temperatures in the lowlands and rapidly falling temperatures in the highlands. In the lowlands, up to a height of 100 meters to 150 meters, the mean annual temperature varies from 26.5°C to 28.5°C, with an average annual temperature of 27.5°C. The temperature drops rapidly with increasing altitude. The mean annual temperature of Nuwara Eliya, at the 1800 m level, is 15.9°C. The coldest month compared to the mean monthly temperature is generally January, and the hottest months are April and August.

The annual average temperature ranges from 27°C in the coastal lowlands to 16°C in Nuwara Eliya, in the central highlands (1900 meters above sea level). This relatively unique feature that appears like sunny beaches in the interior rainforest is a tourist attraction. (http://www.meteo.gov.lk/).

Based on the average rainfall and soil type, Sri Lanka is divided into 24 agroecological zones which means that a huge variation of crops can be grown. Apart from these divisions, Sri Lanka consists of around 11 natural vegetation zones which are home to thousands of flora and fauna species, some which are native to the island. Because of this incredible diversity Sri Lanka has become one of the most iconic islands in the world. Further Sri Lanka is designated as a biodiversity hotspot. The physical uniqueness of the country results in it becoming one of the major tourist attractions in Asia.

## Socio-Economic Background

The relative location of the island in the Indian Ocean made Sri Lanka a geopolitically critical location. Thus, it helped evolve Sri Lanka to its contemporary position. This is supported by historical records. Sri Lanka is home for 21,803,000 persons with a 0.6% annual population growth rate and a population density of 348 persons per sq. km in 2019. Further, according to the Central Bank statistics, the labour force participation rate of the island was recorded as 53.2% and 4.2% of the population were unemployed in 2019. Out of the total, the majority of the population are engaged in the service sector which is 47.1%; 25.3% in agriculture and 27.6% of the population is engaged in the industrial sector. Compared to the South Asian regional statistics, Sri Lanka is able to stand out with relatively higher positions in education, health and social conditions. For instance, the Human Development Index of the island is 0.780 (2018) and it is positioned at 71 out of 189 countries. Further, life expenctancy is 75.5 years (2018), Sri Lanka's Prosperity Index (2018) value is 0.783 and the literacy rate is recorded at 92.5%. According to the Central Bank of Sri Lanka, the government has continued its efforts to expand the country's economic and social infrastructure in 2019 despite severe budgetary constraints, as it facilitates infrastructure to harness the economy's resources for production, improve resource productivity and well-being of populations. As a result, the government continued to facilitate numerous infrastructure projects in several areas and implemented measures aimed at developing human resources in the country. In order to strengthen the infrastructure base of the country, the government of Sri Lanka has initiated various road development activities, urban development and housing projects, water supply and irrigation systems and telecommunication projects.

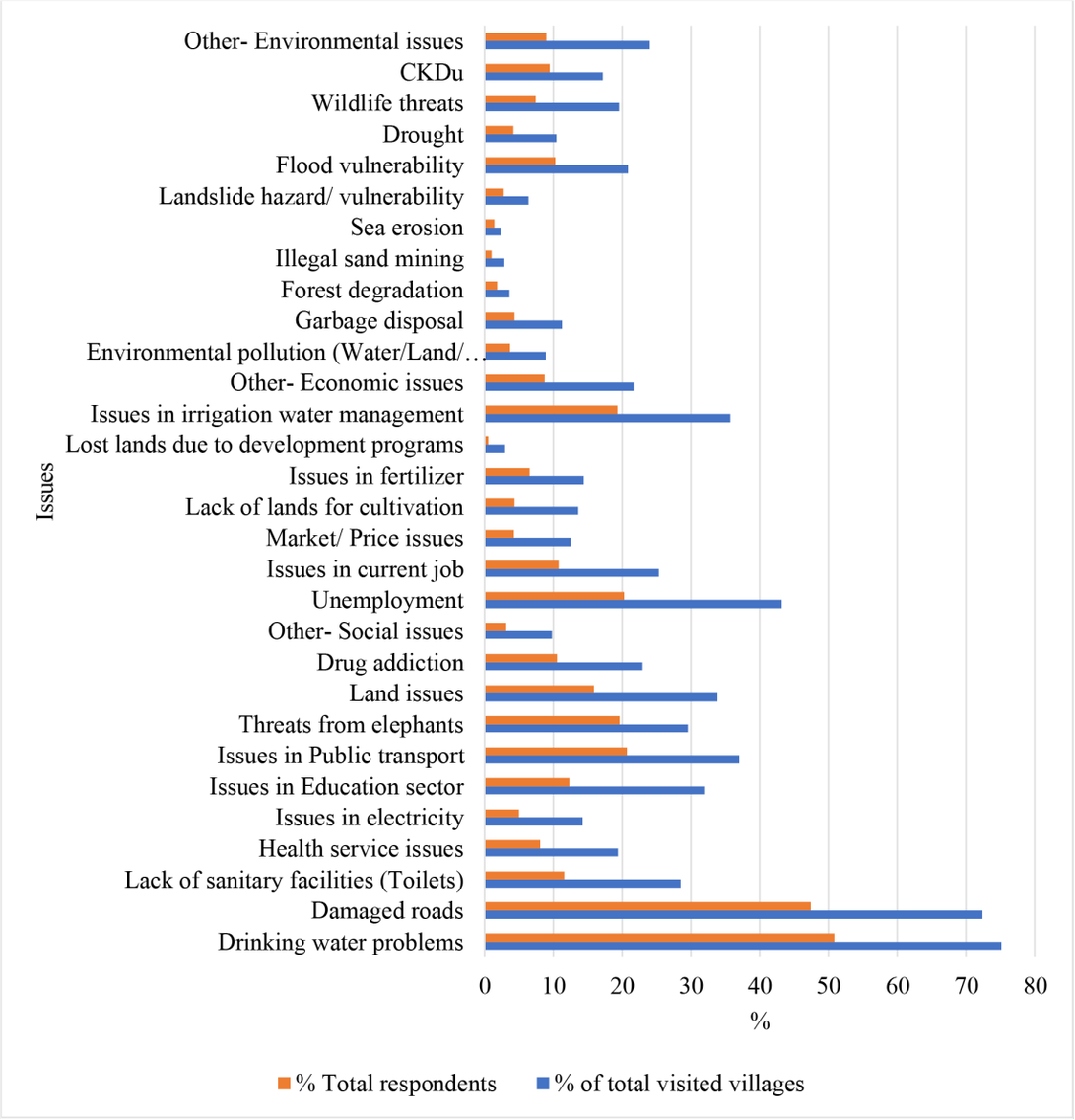
Even though various development activities have been carried out over the country, regional disparity still remains relatively high. Furthermore, development activities did not bring prosperity to the villages as expected because of the sluggish trickle down of benefits. On the other hand, the scale of the issues and the causes for the burning issues in regional localities show relatively divergent origins. A wide understanding of the issues is mandatory to address these rural issues in a sustainable manner. Gammadda socio economic research focuses to elaborate these rural issues by visiting the locations where these issues are extensively recorded.

## Sri Lankan Overview of the Research

This section discusses the major issues that were identified in the visited locations. The collected data is tabulated and mentioned below. Furthermore, Graph 01 summarizes the scale of the reported issues and responses as a percentage in the visited locations.

| Issues | No of villages the issue was recorded in. | No of responses |
|---|---|---|
| Drinking water problems | 353 | 1700 |
| Damaged roads | 340 | 1585 |
| Lack of sanitary facilities (Toilets) | 134 | 388 |
| Health service issues | 91 | 271 |
| Issues in electricity | 67 | 167 |
| Issues in Education sector | 150 | 412 |
| Issues in Public transport | 174 | 692 |
| Threats from elephants | 139 | 658 |
| Land issues | 159 | 531 |
| Drug addiction | 108 | 352 |
| Other- Social issues | 46 | 105 |
| Unemployment | 203 | 678 |
| Issues in current job | 119 | 360 |
| Market Price Issues | 59 | 144 |
| Lack of lands for cultivation | 64 | 147 |
| Issues in fertilizer | 68 | 220 |
| Lost lands due to development programs | 14 | 19 |
| Issues in irrigation water management | 168 | 645 |
| Other- Economic issues | 102 | 294 |
| Environmental pollution (Water/Land/ Noise/Air) | 42 | 124 |
| Garbage disposal | 53 | 145 |
| Forest degradation | 17 | 62 |
| Illegal sand mining | 13 | 34 |
| Sea erosion | 11 | 47 |
| Landslide hazard/ vulnerability | 30 | 90 |
| Flood vulnerability | 98 | 344 |
| Drought | 49 | 142 |
| Wildlife threats | 92 | 249 |
| CKDu | 81 | 316 |
| Other- Environmental Issues | 113 | 300 |

Table 2: Summary of Identified Issues



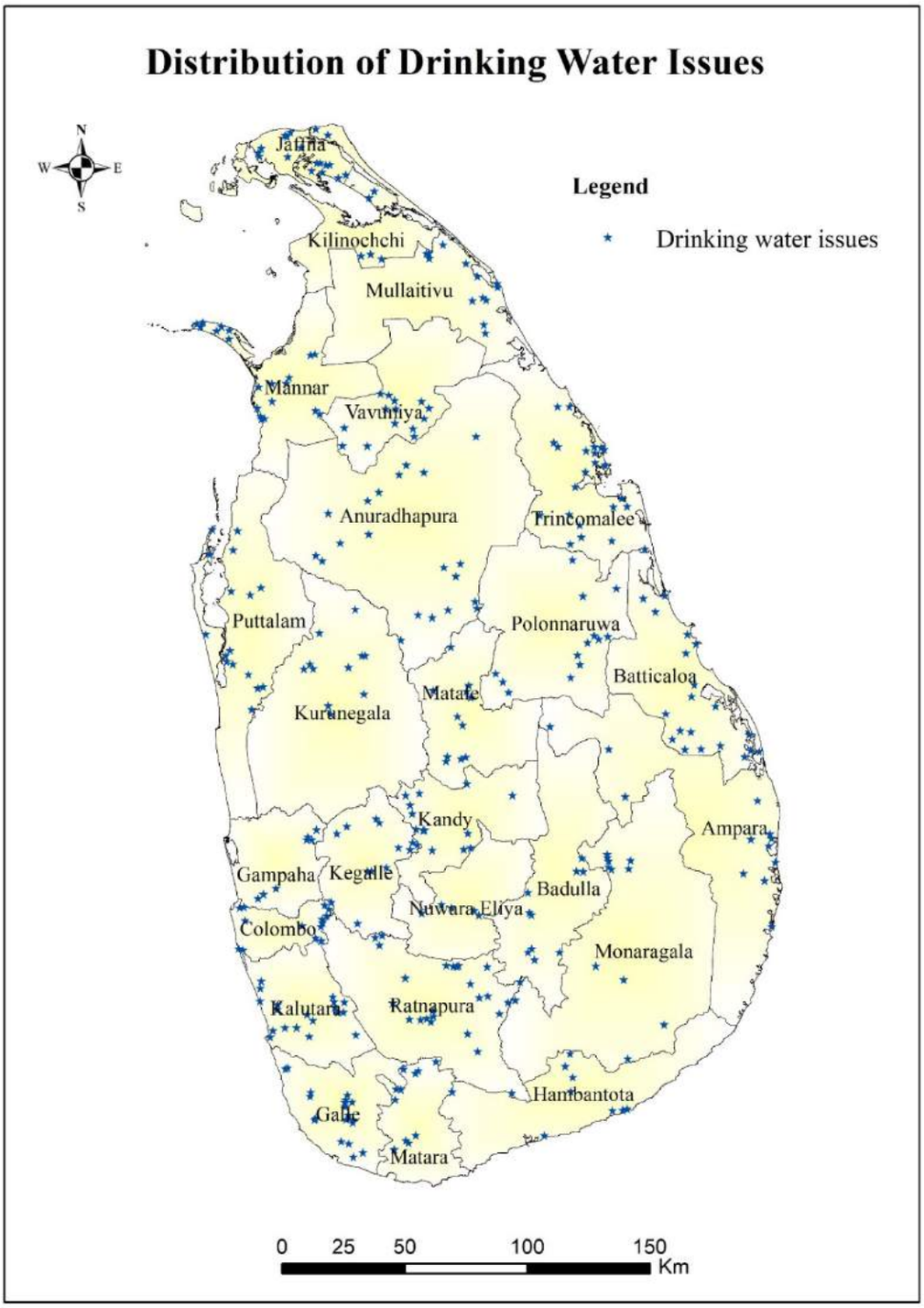

Graph 1 : Identified Issues in Visited Locations

According to the survey results, drinking water problems and damaged roads are the highly stated and highly recorded issues over the visited locations in Sri Lanka. Different faces of this issue could be identified over numerous socio-economic settings. Even though other issues were not reported frequently, they were the burning issues in some specific locations. Drug addiction is becoming a relatively prominent issue in the visited locations compared to the previous years' results. The following maps elaborate the spatial distribution of prominent issues and its divergence according to the results received.

Map 02 shows the locations where drinking water problems were recorded. Drinking water is a prominent problem in over 75% of visited locations and 51% of the respondents recorded that they have suffered from drinking water problems. As mentioned in the following map it is not limited to the dry zone or intermediate zone. Some locations have enough water sources but villagers do not have access or do not get safer and pure water because of contamination. Denial of access is prominent, especially in the wet zone and intermediate zones. Another dimension of the drinking water problem is especially in the estate sector; even though water projects are in

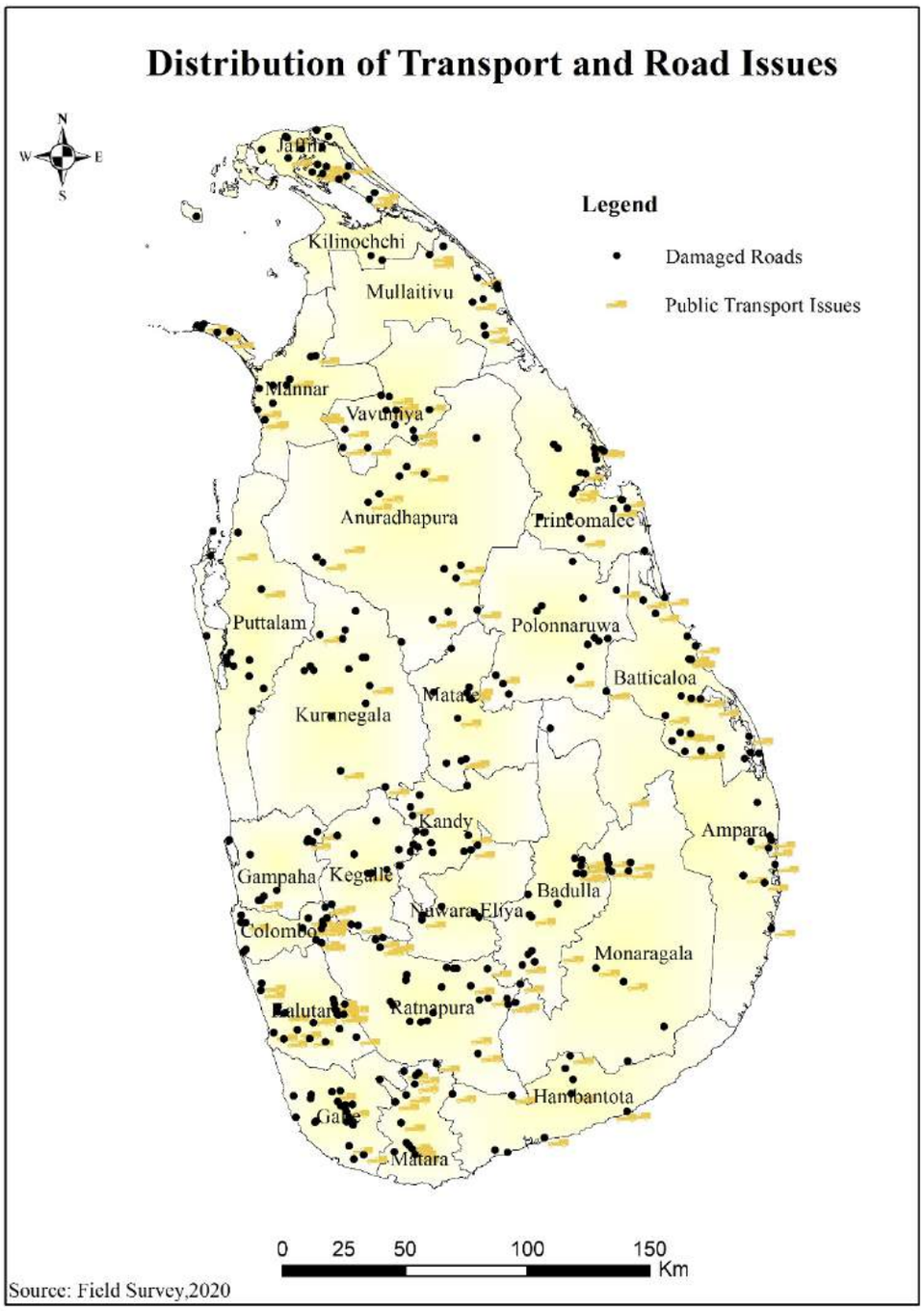
place, the amount of water circulated through the pipelines is insufficient to all residents. Thus, some residents have to either depend on the natural water sources or common tap line, which is often located far from their houses.

Considering the other main causes for the drinking water problem, ground water has been contaminated either through agro-chemicals or sea water incrustation. Contamination with agro-chemicals and other unknown water contamination sources are more prominent in the Anuradhapura and Polonnaruwa areas. Further, chemically contaminated wells could be identified in these locations. Salt water intrusion is apparent along the coastline villages. Disposing garbage to water ways is another cause of water contamination in a few visited locations. The final impact of these issues is health problems especially kidney failure and other urinary system diseases. Eventually, this creates a significant impact to the economy and society.




Map 2: Distribution of Drinking Water Issues

The next map shows the distribution of transport issues and damaged roads over the visited locations. Damaged roads are an issue recorded in over 72% of visited locations and 425 of total respondents have stated that it is one of the major issues they face.



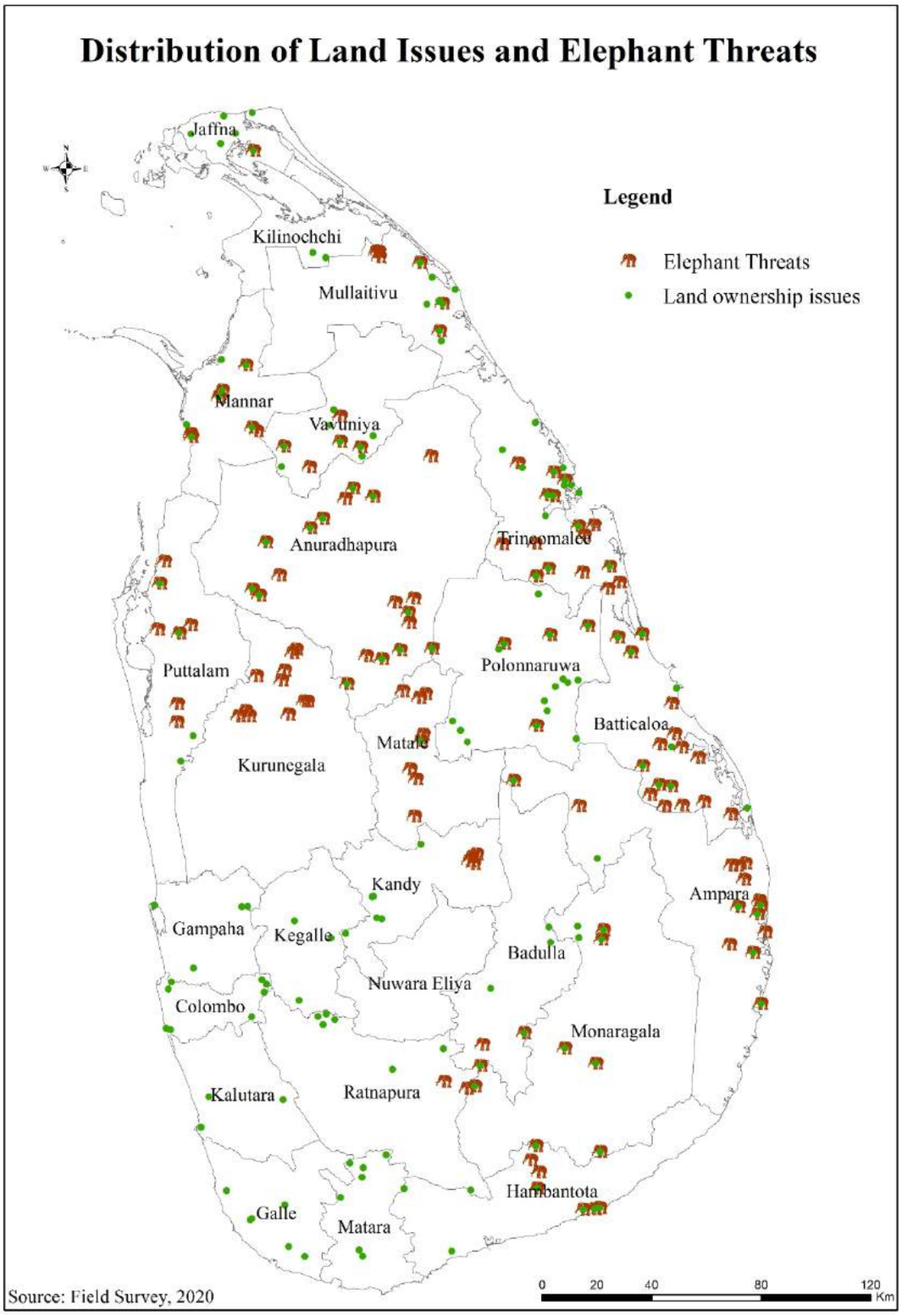

Map 3: Distribution of Transport Related Issues

Most of the rural roads have been developed through different rural development projects over the past decades. However, most of the villages which are in-need have not got enough funds to develop or renovate their entrance roads. Not even the village roads where a bridge is absent across the streams which flows across the village were funded, especially in Rathnapura district. As a result, villagers have to use a long detour to reach the city for their daily activities. Further, farmers and other small industry people have to bear a huge transport cost which causes a reduction in their profits eventually.

On the other hand, absence of public transportation sources is another striking issue recorded over the visited locations. This is caused either due to the absence of proper roads to the villages or the insufficiency of public transport buses to remote villages. However, all these factors combine to cause the degradation of the social status of the villagers.

Land issues and elephant threats are the next salient issues that confront the rural villagers that were visited by the Gammadda team. These locations are elaborated in the following map. Around 84% of the total land area of Sri Lanka is owned by the state and only 16% is privately owned. Out of the state owned land area, 51% is under large inland waters or forest reserves. On the other hand, 27% of land distributed among the agricultural lands include LRC, LDO, Mahaweli and other categories (Bastian, 2009). Analysis of the land ownership data demonstrate the fact that still rural villagers have no ownership of the land they live. Even though different land policies and reforms are taken into the development agenda, land ownership re-distribution has not taken place to a satisfactory level. According to the Gammadda research results, 16% of the respondents in 34% of locations stated that they are not granted permission for a deed where they have lived or cultivated for a long time.

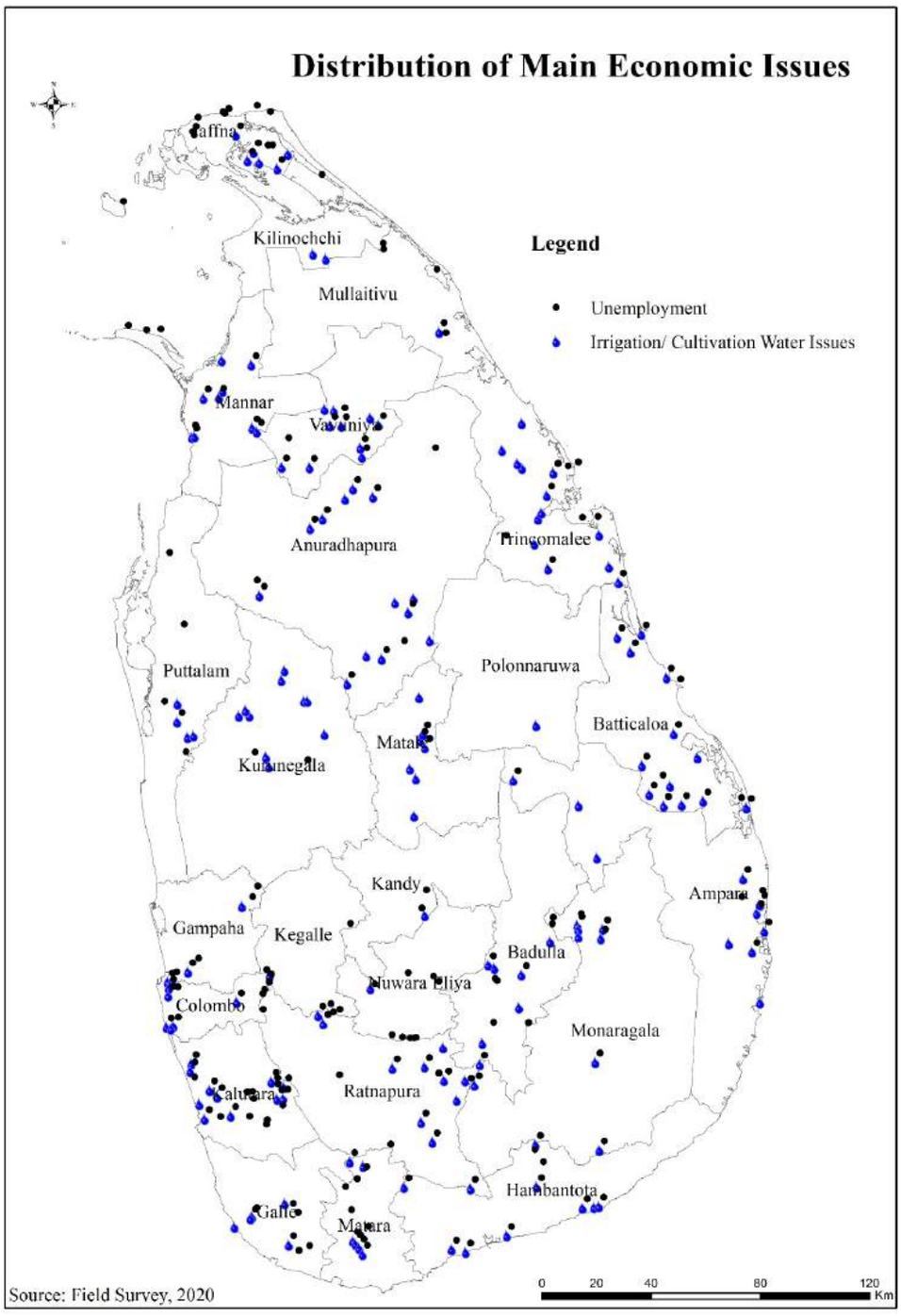
Elephant threats are the next striking issue recorded over the visited rural locations. Mosaic land use pattern of settlements, forest reserves and agricultural area is the general landscape which can be observed over the visited locations. Elephants are used to moving across the patchy forested areas for grazing. However, these patches are directly connected with the agricultural and settlement areas. On the other hand, human encroachments toward the patchy forested areas interfere with the traditional migratory pathways of the elephants. Eventually this has ended up with an enormous issue between elephants and humans. According to the affected villagers' responses, they have no guarantee to their lives or cultivations and this endless issue brings uncertainty to them.




Map 4: Distribution of Selected Issues in Visited Locations

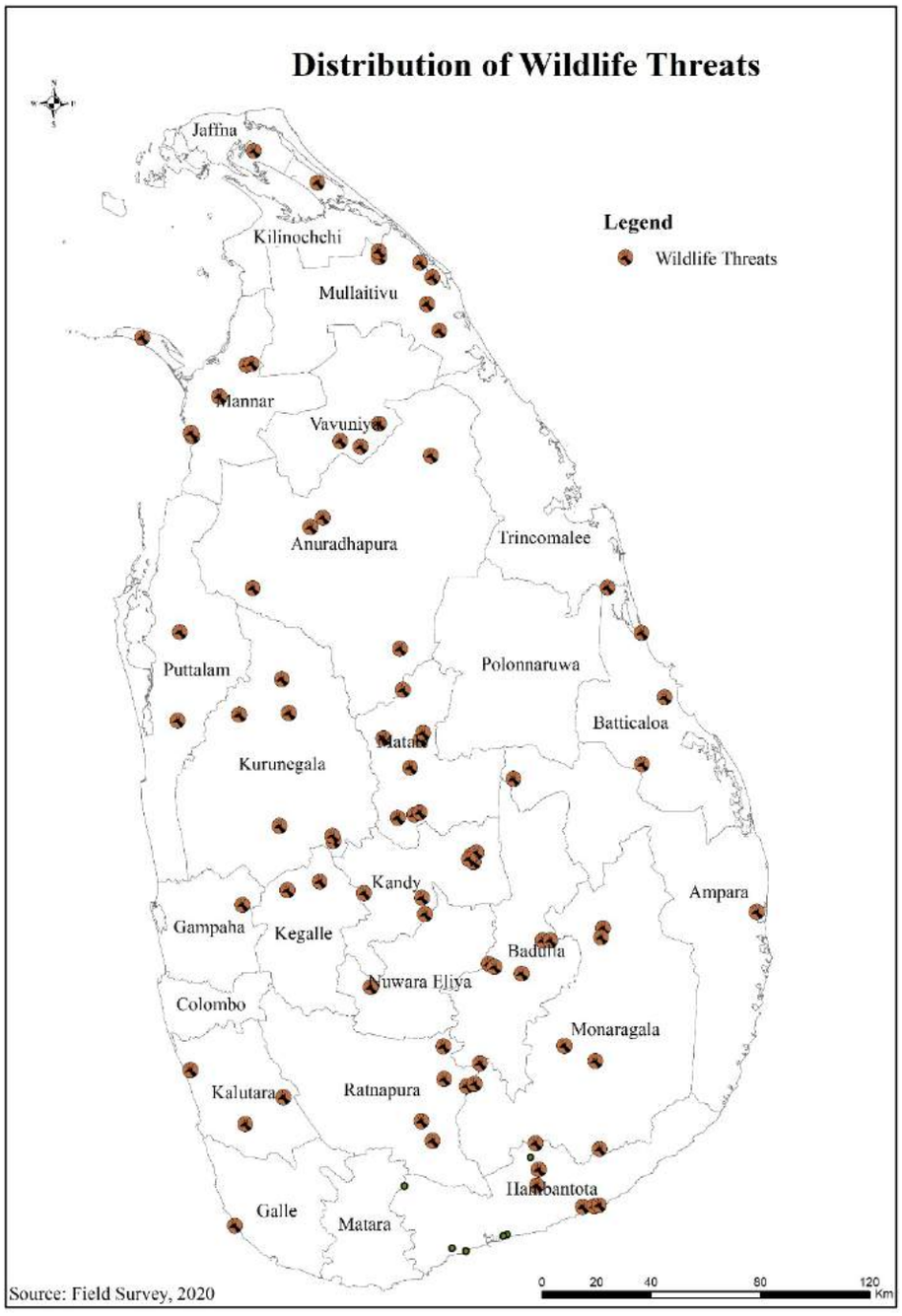
As the Central Bank stated, education is the foundation of employment, but a considerable amount of Sri Lankan youth still do not receive adequate formal, university level and vocational education. Although Sri Lanka provides free primary and secondary education for every child, higher education and other higher education opportunities in the country are insufficient to address the knowledge and skills gaps of the workforce. In support of this, UGC statistics confirm that only about 20% of students who qualify for GCE A/L get the chance to enter universities and other higher education institutions established under the Universities Act No. 16 of 1978 and its amendments. The rest, who are unable to connect to other higher and professional education institutions for lack of awareness, affordability, as well as the uneven distribution of these institutes, are often ignored and pushed towards easy and informal short-term profits recruitment. As a result, a majority of them do not have a permanent income source which matches their education level and skill level. This has been proved through the Gammadda research results. 20% of respondents in 43% of visited locations recorded that unemployment as the main economic issue they face. Map 05 shows these locations over the island.

Irrigation water schemes are developed to store water to be utilized during the dry season, especially in dry zone. As revealed during the research, irrigation water management systems are not functioning well enough to gain the maximum benefits to the nation. In some visited locations irrigation water channels were not well maintained nor were they renovated according to the water capacity of the tanks. Further in some instances, small tanks do not function well which adversely disrupts the functioning of the entire cascade. As a result of the fluctuations of the rainy season due to climate change, wet zone farmers also face troubles in receiving enough water for their cultivations. Since these areas do not follow an irrigation water system, new adaptation strategies need to be introduced. If not farmers are in danger.



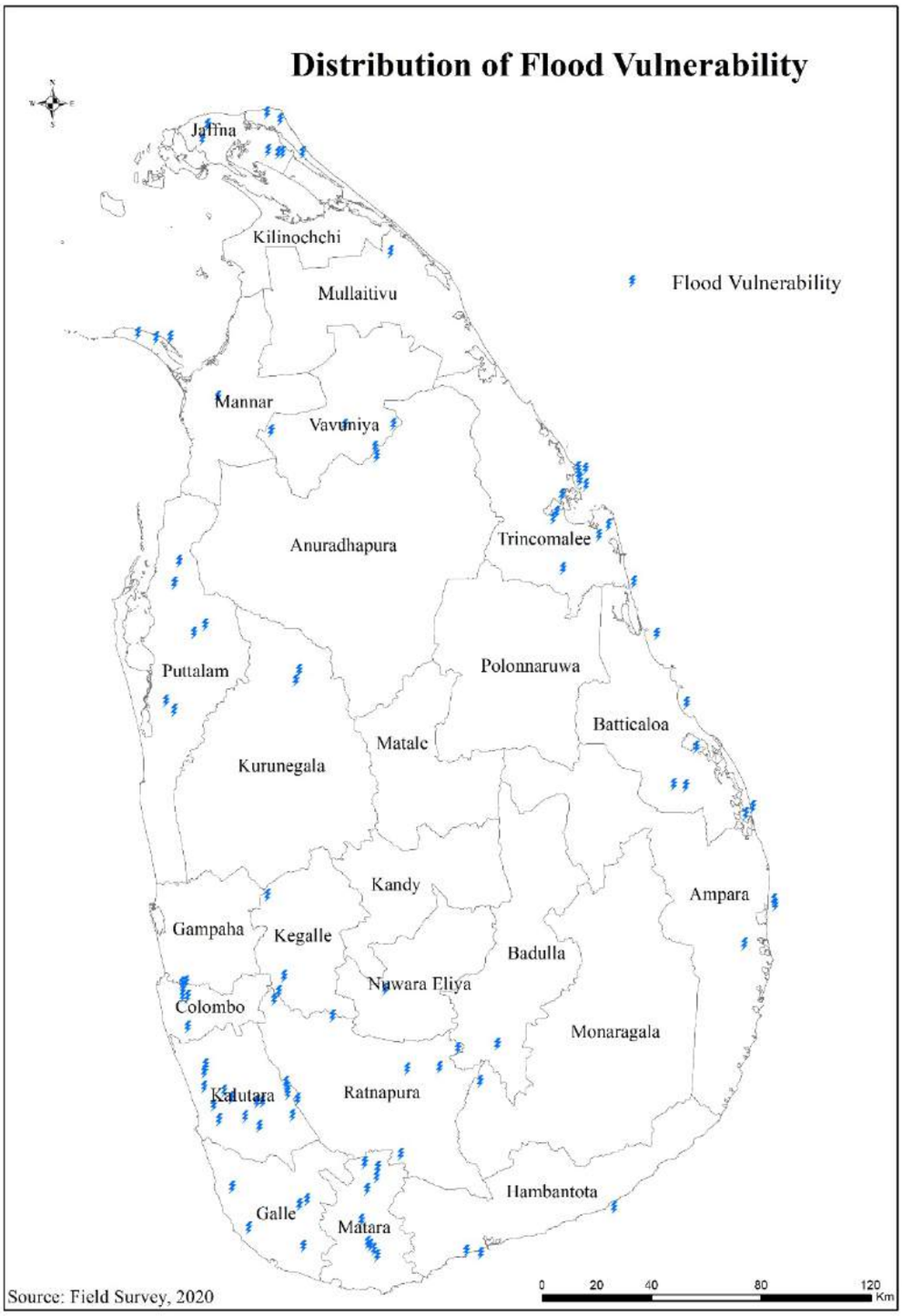

Map 5 : Distribution of Main Economic Issues

Besides the threat from wild elephants, other wild animals such as wild boars, porcupines, monkeys and peacocks have become an emerging threat to the farm lands and home gardens in the recent past. According to Gammadda results, this can be pointed out in over 20% of visited locations. In consequence, farmers are unable to get the maximum production out of the cultivation which results in reducing the farmers' income. In some instances, these wild animals become a severe threat to the home gardens where the production is used for family consumption which leads to reduce the nutrition extraction received from the garden.




Map 6: Distribution of Wildlife Threats

Flood vulnerability is much more common over the Colombo, Kalutara, Galle and Matara districts compared to the other coastal districts where the issue was recorded. Flood vulnerability is heightened as a result of irregular structures and waste dumping over the streams. Thus, an adequate environmental management plan would be benefited to overcome this issue in most of the visited locations.



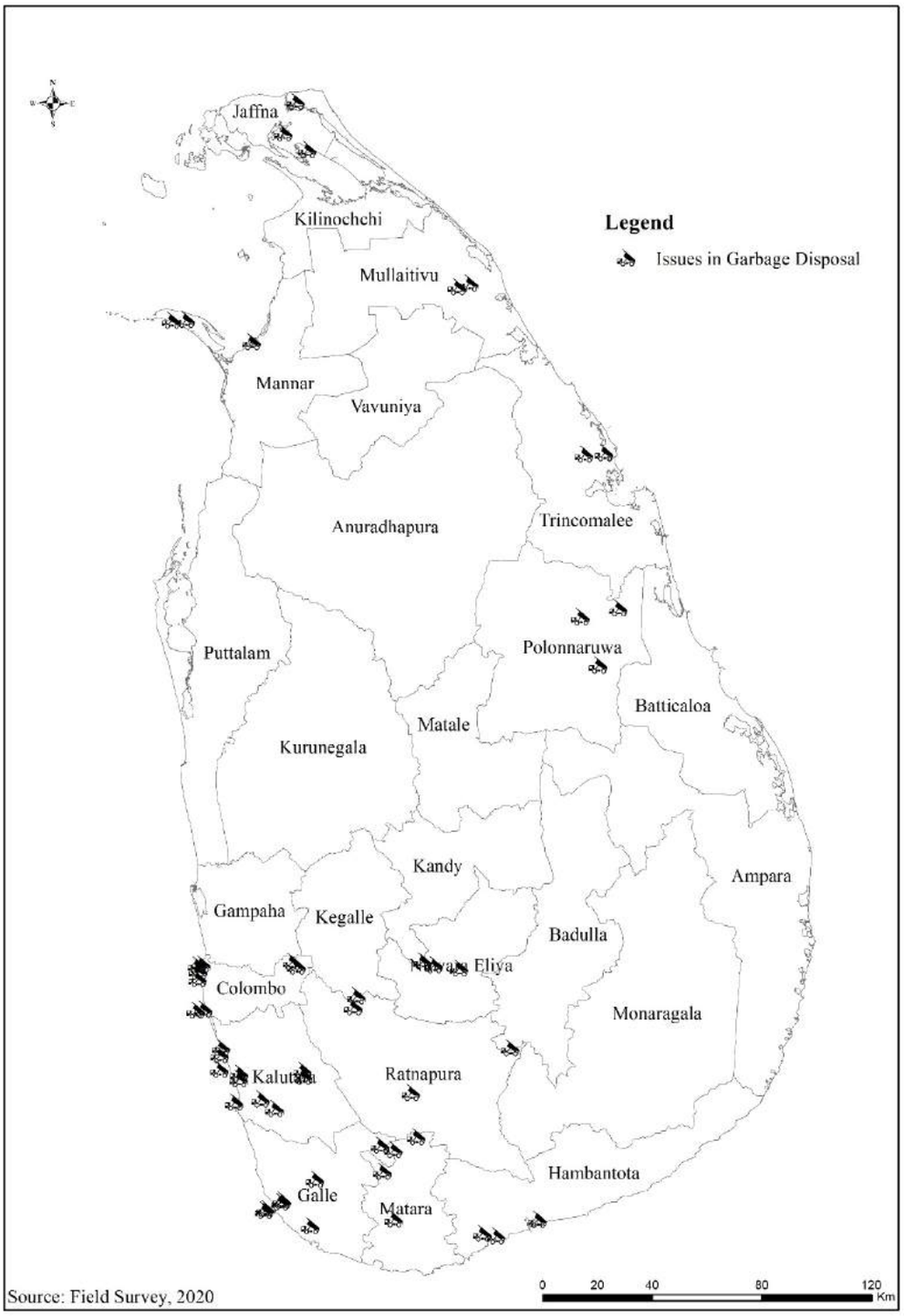

Map 7: Flood Vulnerability over the visited locations

Map 08 shows the locations where garbage disposal issues were reported, they were predominantly where high population densities were observed over the visited locations in the island. Two types of waste dumping can be identified over the visited locations namely, industrial waste dumping and domestic waste dumping. Among them industrial effluent disposed illegally in and around the rural areas and forests which are bounded to the rural villages. On the other

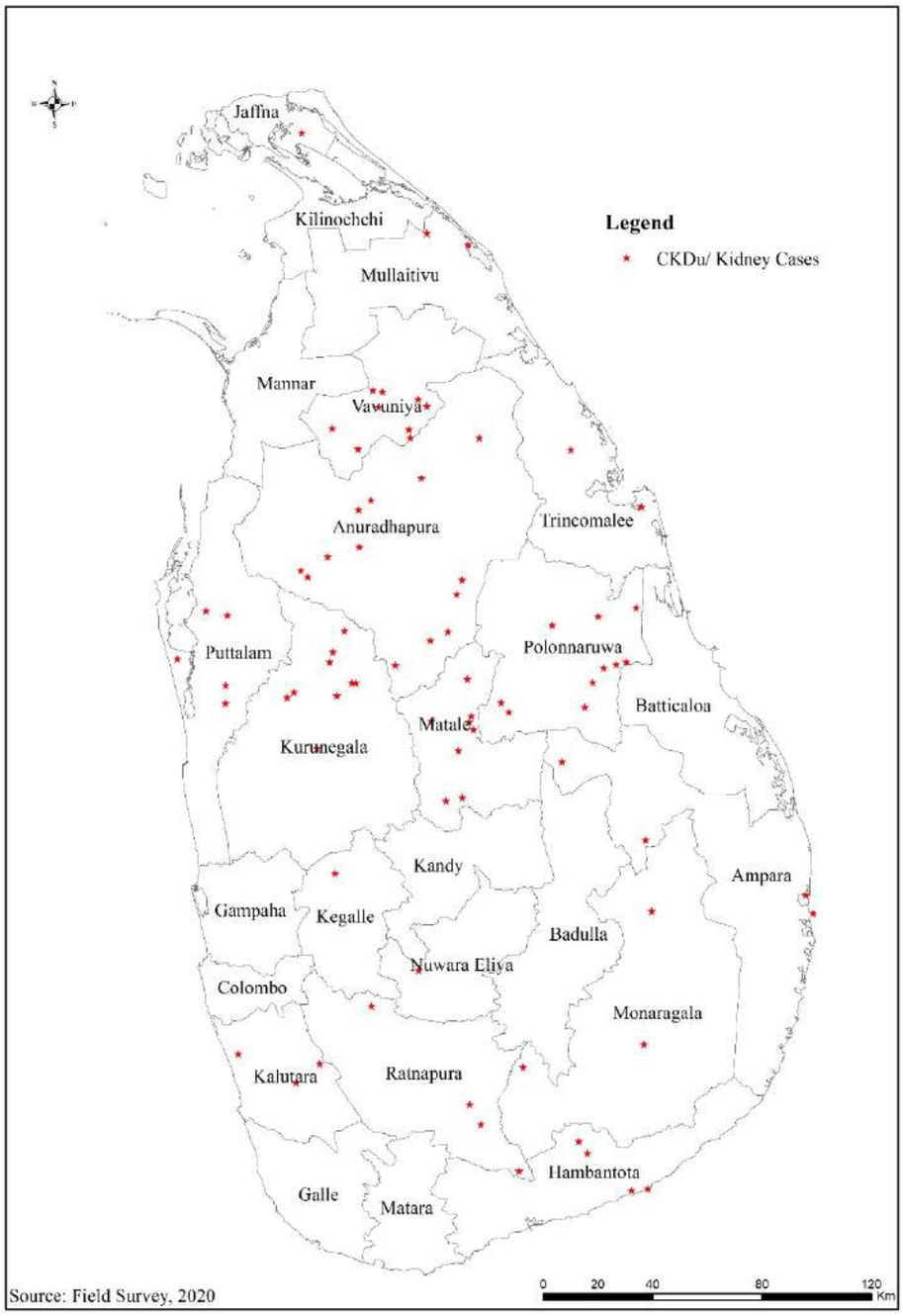
hand, improper domestic waste dumping along the roads and streams/ drainage system is frequent across some visited villages. Improper waste dumping has caused other issues such as water contamination, flooding, pollution and health problems. As consequence of the waste blockage over the streams and drainage system, flood events have become more prominent in few locations in Matara and Colombo districts. On the other hand, it has resulted in water stagnation and made breeding grounds for mosquitoes. Eventually, this environmental issue drives to emerge divergent environmental and health issues over the region.

CKDu/ kidney issues are more frequent over the central dry zone rather than the wet zone and other parts of the dry zone. This could be a result of water contamination or the absence of safe drinking water sources.

Apart from these striking problems, few more issues were identified during the field survey. All identified issues are summarized in the above graph (Graph 01) and discussed in detail in next chapters under relevant districts.




Map 8: Distribution of Selected Issues



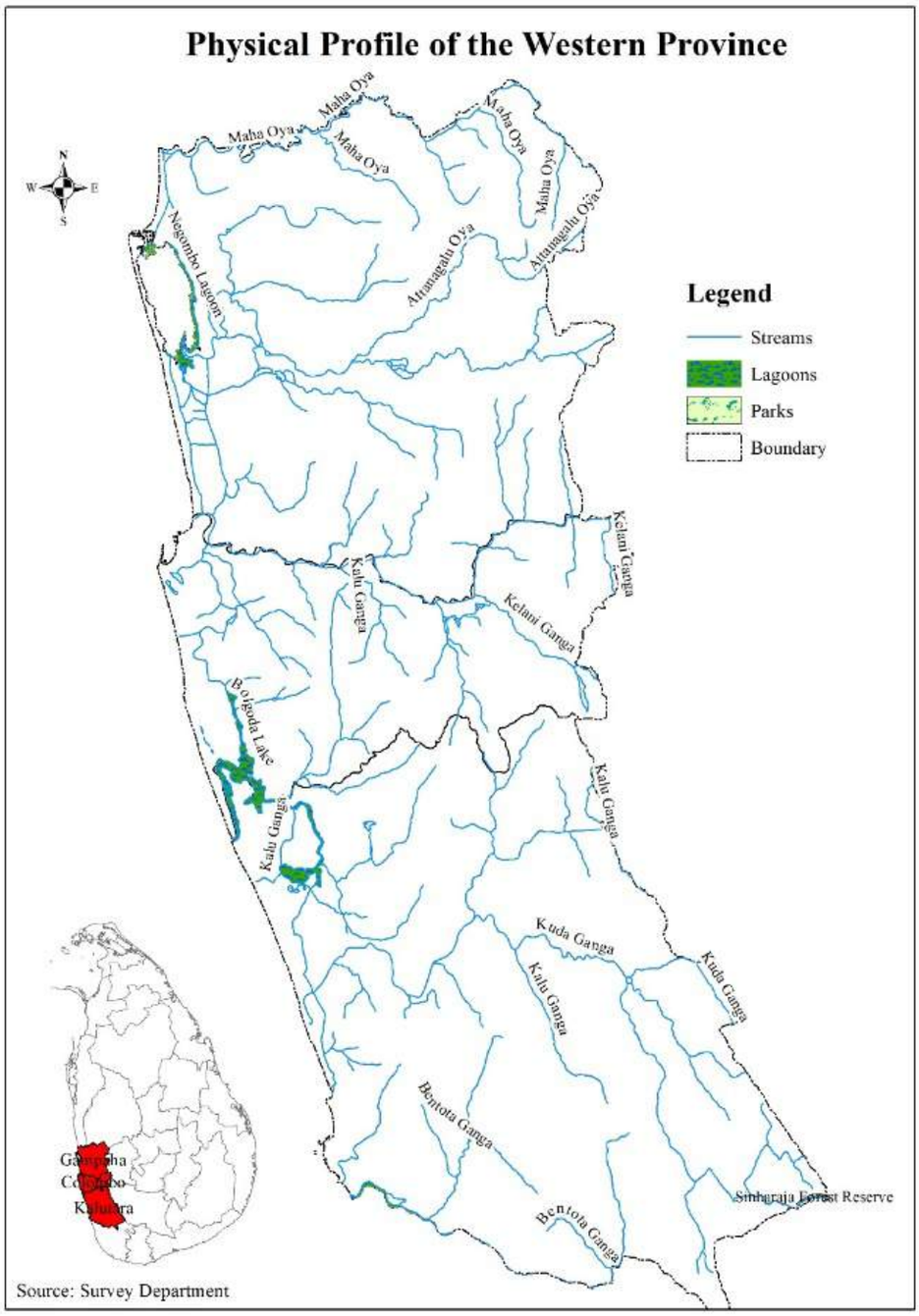

Map 9 - Distribution of CKDu/ Kidney Cases

# Western Province

The Western Province is the most economically and socially advanced province in Sri Lanka. It consists of three districts, Colombo: the administrative hub of the province, Gampaha and Kalutara. Parts of the present-day Western Province were part of the pre-colonial Kingdom of Kotte. Then the province came under Portuguese, Dutch and British control. In 1815, the British took control of the entire island of Ceylon. They divided the island into three ethnic administrative structures: Low Country Sinhala, Kandyan Sinhala, and Tamil. The Western Province was part of the Sinhalese administration of the Low Countries. In 1833, according to the recommendations of the Colebrooke-Cameron Commission, administrative structures based on race were consolidated into a single administration divided into five geographic provinces. The provinces of Chilaw, Colombo, Kalutara, Puttalam, Seven Korale (present day Kurunegala District), Three Korale, Four Korale and Lower Bulatgama (present day Kegalle District) formed the New Western Province. Chilaw district, Puttalam District, and Seven Korale were transferred to the newly established Northwest Territory in 1845. Three Korale, Four Korale and Lower Bulatgama were transferred to the newly established Sabaragamuwa Province in 1889.

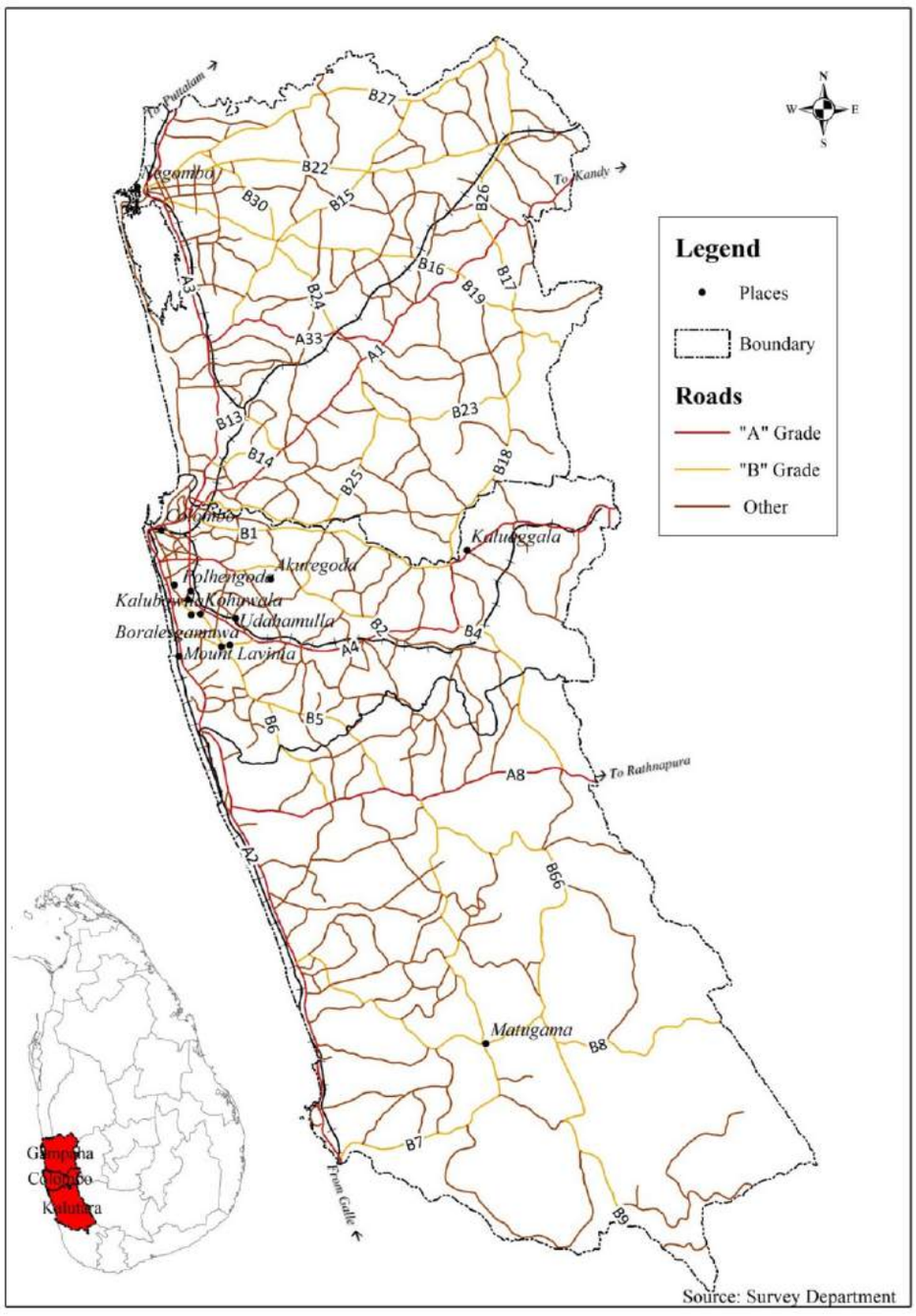
The Western Province is located in the wet zone of Sri Lanka and is vulnerable to recurrent flooding as a result of an increase in average rainfall coupled with heavy rainfall events, with knock-on impacts on the infrastructure, utility supply, and the urban economy of the province. As the most urbanized province in Sri Lanka, these climate events pose a number of problems due to the rapid urban growth the province has undergone.

Map 10 shows the physical landscape of the province. The province has well distributed rivers and streams which brings heavy water flow during the rainy season. Bolgoda Lake and Negombo lagoon consists of mangrove and related species which expand the environmental value of the province.




Map 10: Physical Profile- Western Province

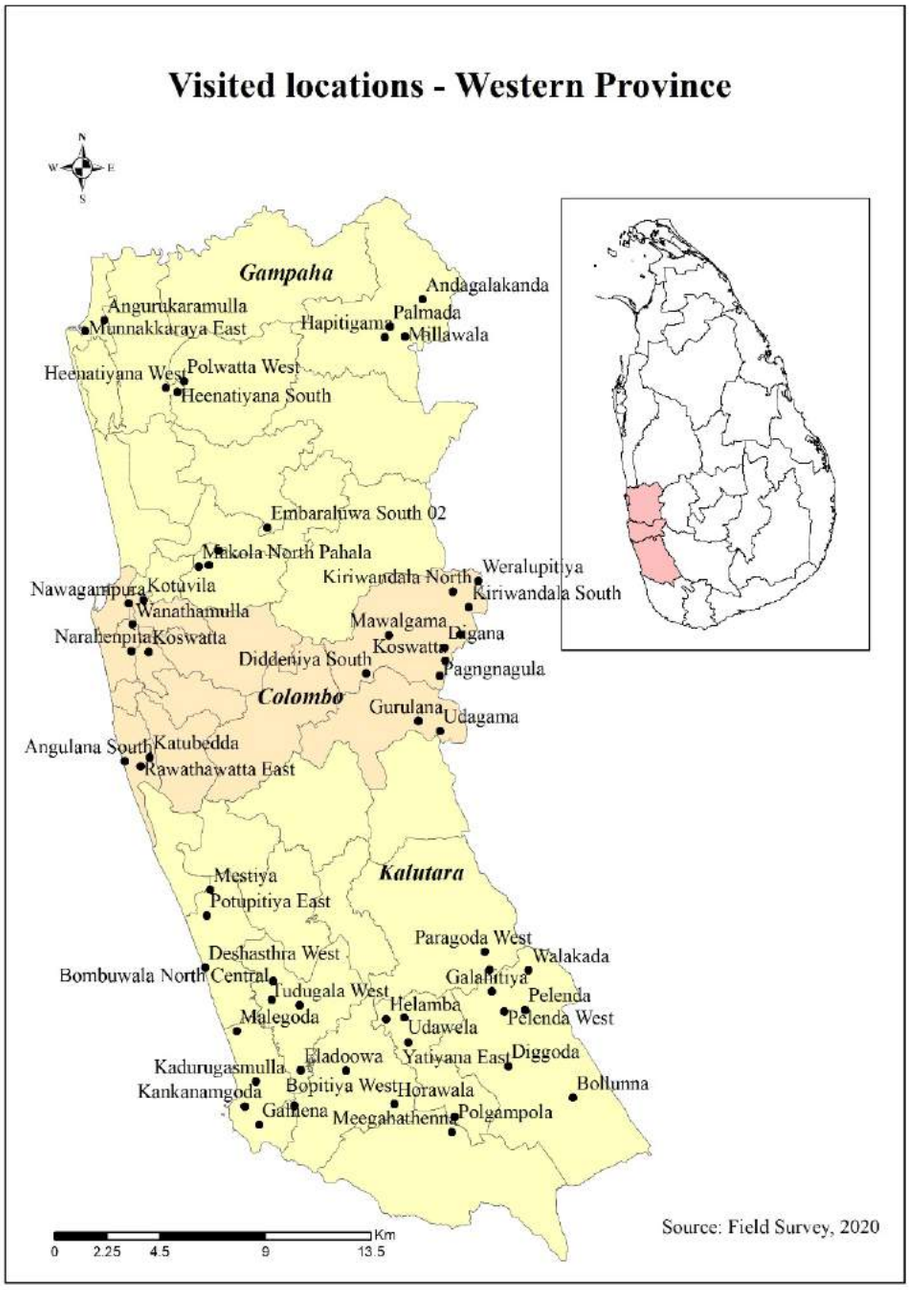
Map 11 shows the road network over the province (except the expressway). By 2019 total length of the roads constructed is 3,664 km. Out of the total length, A Class roads – 374 km, B Class roads - 1,230 km, C Class roads - 1,078 km, D Class roads – 874 km and 108 km of express ways are distributed over the district.




Map 11: Road Network- Western Province

As illustrated in the map, the western province shows good connectivity all around the district except the area in southern edge of the province, which is in the edge of the Kalutara district.

Gammadda team visited 55 GNDs in the western province and interviewed 430 people. The following map illustrates the visited locations of the province.




Map 12: Visited Locations- Western Province

The next sections will discuss the identified issues of each visited locations by district level.

# Colombo District

The name 'Colombo', which was first introduced by the Portuguese in 1505, is believed to be derived from the classical Sinhala name Kolon thota, meaning "port on the river Kelani". Another belief is that the name is derived from the Sinhala name "Kola-amba-thota" which means 'Harbour with leafy/green mango trees'. This coincides with Robert Knox's history of the island while he was a prisoner in Gampaha. He writes that "On the West, the City of Columbo, so-called from a Tree the Natives call Ambo, (which bears the Mango-fruit) growing in that place; but this never bears fruit, only leaves, which in their Language is Cola and thence they called the Tree Colambo: which the Christians in honour of Columbus turned to Columbo".

The history of Colombo can be traced back to even before the colonial period. Since Colombo possesses a natural harbour, it was known to Indian, Greek, Persian, Roman, Arab, and Chinese traders over 2,000 years ago. During the Portuguese, Dutch and British periods Colombo gradually developed as the economic hub of the island. Even after independence it remained as the economic hub while the administrative hub was shifted to Sri Jayawardhanapura, Kotte, which is located in the Colombo district.

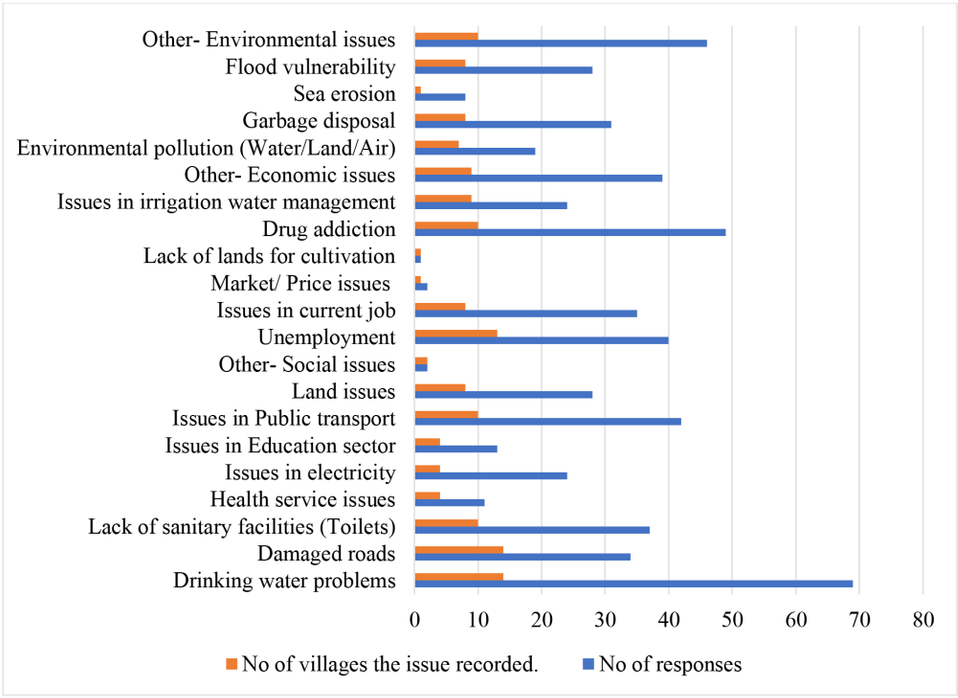
The current extent of the district is 675 sq. kilo meters. Colombo district is connected by the north Kelani River, the Bolgoda Sub Panadura River, the West Coast and the eastern border of Sabaragamuwa Province. This district, in which the capital of Sri Lanka is located, has a population of 2,324,300 and consists of 13 DSDs and 560 GNDs. Population density of the district is recorded as 3,621 persons per sq. km, which is the highest population density in the island. Considering the sectorial population of the district 77.6% live in the urban sector, 22.1% in the rural sector and 0.3% live in the estate sector. Out of the total district population 76.5% are Sinhalese, 10.1% Sri Lankan Tamils, 1.1% Indian Tamils, 10.7% Sri Lankan Moors and 1.6% belong to other ethnic groups.

According to the sectorial employment over the district, 70.2% engage in the service sector, 28.2% in the industrial sector and 1.6% engage in the agricultural sector. The total unemployment rate of the district population was recorded as 4.1% in 2019. Considering the educational infrastructure of the district, 18,000 teachers were serving 368,000 students in 402 government schools in 2019. Out of the total government schools in the district, 44 schools function with less than 100 students, 161 schools with 101-500 students, 84 schools with 501-1000 students, 36 schools with 1001-1500 students, 21 schools with 1501-2000 students, 36 schools with 2001-3500 students and 13 schools function with above 3500 students.

Even though Colombo is designated as one of the highly developed areas of the country, different socio-economic and environmental issues can be identified even within the city hub. Gammadda team visited selected locations over the district in order to identify the issues in the community. The team visited 18 selected GNDs and interviewed 162 people over the locations. The following table and graph illustrate the identified issues and responses. The next table and graph show the identified issues and responses of the Colombo district.

| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 69 | 14 |
| Damaged roads | 34 | 14 |
| Lack of sanitary facilities (Toilets) | 37 | 10 |
| Health service issues | 11 | 4 |
| Issues in electricity | 24 | 4 |
| Issues in Education sector | 13 | 4 |
| Issues in Public transport | 42 | 10 |
| Land issues | 28 | 8 |
| Other- Social issues | 2 | 2 |
| Unemployment | 40 | 13 |
| Issues in current job | 35 | 8 |
| Market/ Price issues | 2 | 1 |
| Lack of lands for cultivation | 1 | 1 |
| Drug addiction | 49 | 10 |
| Issues in irrigation water management | 24 | 9 |
| Other Economic issues | 39 | 9 |
| Environmental pollution (Water/Land/ Air) | 19 | 7 |
| Issues in garbage disposal | 31 | 8 |
| Sea erosion | 8 | 1 |
| Flood vulnerability | 28 | 8 |
| Other Environmental issues | 46 | 10 |

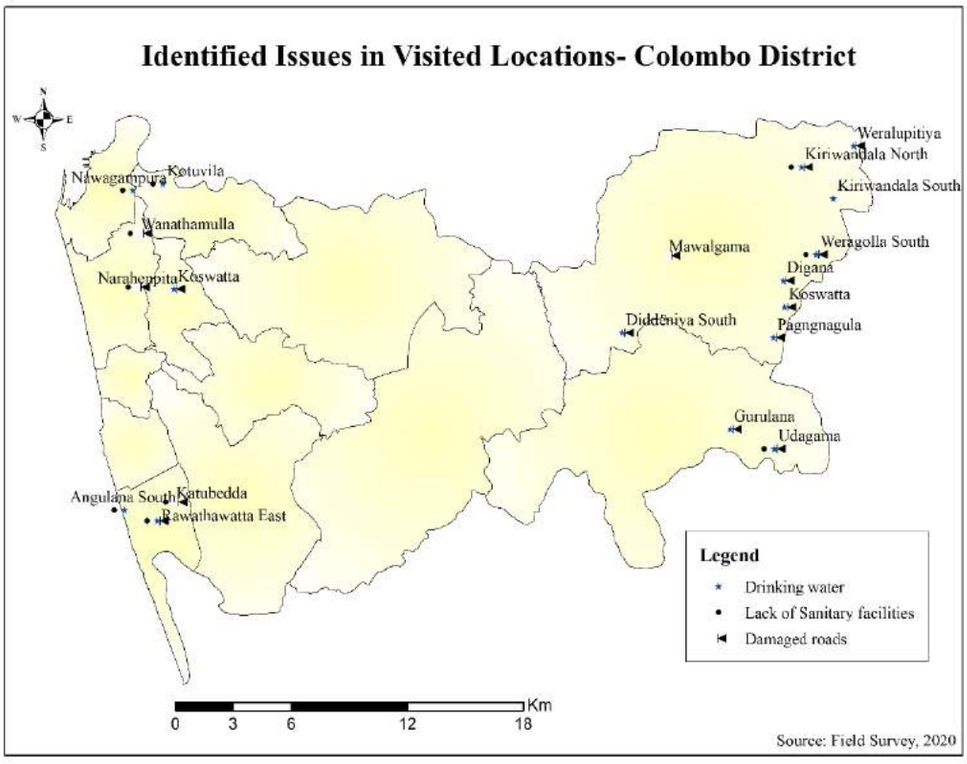
Table 3 : Summary of Responses- Colombo District




Graph 2 : Identified issues in visited locations- Colombo District

Drinking water issues, damaged roads, lack of sanitary facilities, issues in public transport, unemployment and drug addiction are the most recorded issues over the visited locations of the district. The drinking water issue is an enormously stated issue and divergent dimensions of the issue can be identified over the locations visited. Some locations such as, Pangnagula, Dideniya North, Dideniya South and Sirisada do not have a community water scheme and still they depend on personal wells. People who own wells do not face any trouble but others do. Some of the other settlements, especially estate locations in the Seethawaka area, line dwellings do not have sufficient water supply for the entire community. Ergo, part of the settlement have access to water but others do not. Another set of villages visited, have issues with the constructed community water projects. Some of them either do not function regularly or are completely out of service. In general, these locations have plenty of water sources but it needs to be coordinated to deliver its maximum benefits.

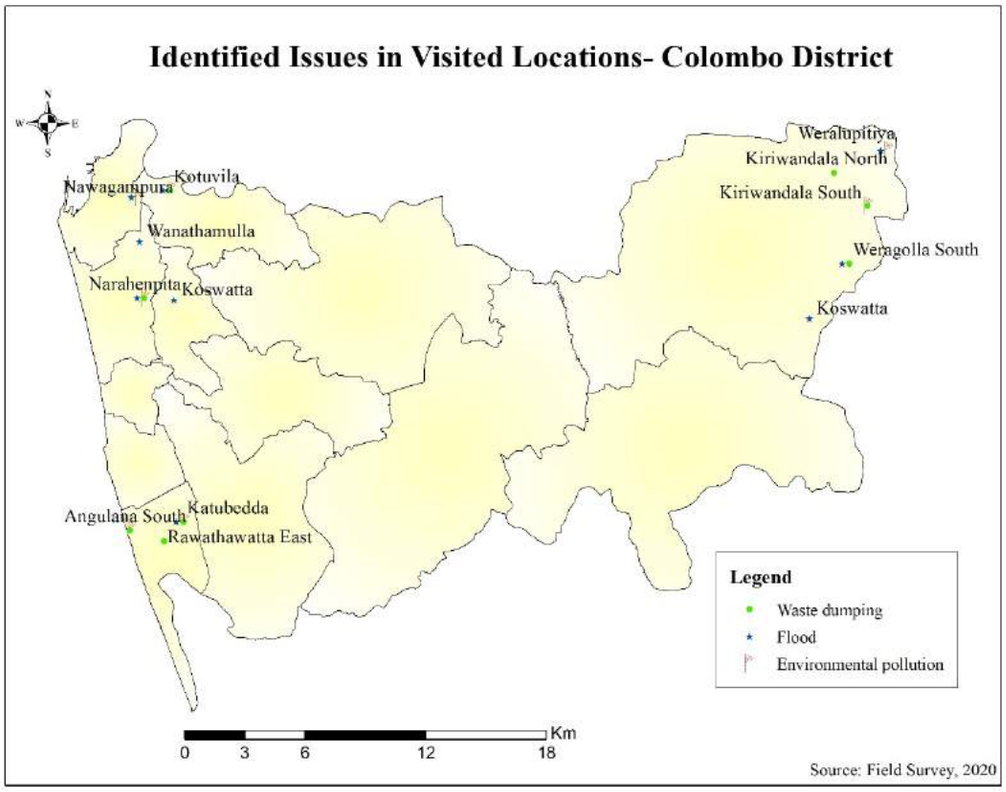
Simultaneously, damaged roads have different dimensions. Some villages, especially estates in Seethawaka area do not possess permanent roads to enter the households. Gravel roads are not well paved. During the rainy season travelling through these roads is impossible. Some villages like Mawalgama in Kandewatta, Minvisithurugama, Udagama and Gurulana village roads were damaged and not renovated for a long time. At the same time some of the village roads are not constructed to the accepted standard. Due to heavy rains and the absence of drainage systems in the road contribute to damaged roads more frequently. The following map illustrates the locations where these issues are identified.




Map 13: Identified Major Issues in Visited Locations- Colombo District

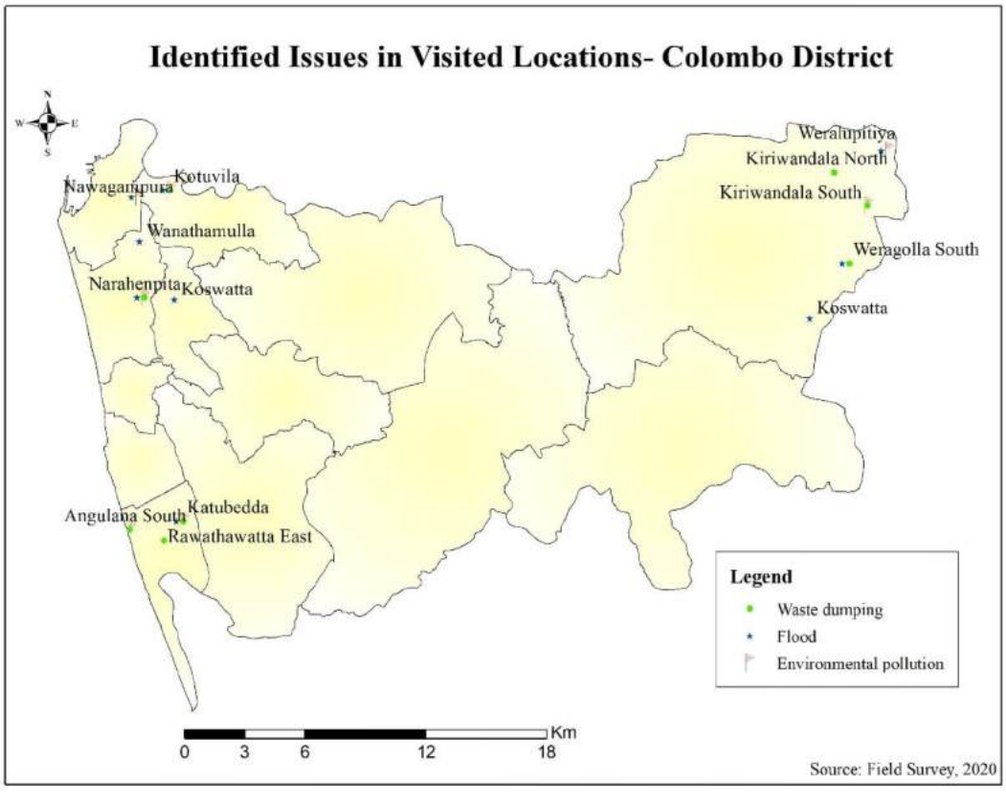
With the damaged village road network, public transport facilities do not function well. On the other hand, some villages such as Digana and Pangnagula in Seethawaka reported that only one bus is providing service in the village and it's also for once or maximum twice a day. If the bus does not function, students and other employers have to face many more troubles to reach the town.

Drug addiction is one of the other prominent issues which could be identified over 10 locations out of 14 visited villages. The following map illustrates the distribution of these issues over the visited locations.




Map 14 : Identified Issues in Visited Locations- Colombo District

Improper ways of disposing garbage along the streams/roads and the absence of well-maintained drainage systems are the main reasons for the environmental pollution of the visited locations. Generally, the extent of these village dwellings is small and they cannot or do not try to manage household garbage within their premises. Eventually this waste ends up along the roads and streams which becomes a reason for different health issues such as breeding of flies and mosquitos over the area. The following map shows the spatial distribution of these issues.




Map 15 : Identified Issues in Visited Locations- Colombo District

On the other hand, drainage systems and streams are blocked with garbage dumped into it and eventually it results in stagnant water in the streams and inundates the villages. Then it turns to increase flood vulnerability. Flood vulnerability identified over the visited locations is a natural phenomenon and it is mainly driven by the anthropogenic causes. A holistic approach is mandatory to overcome this issue.

# Gampaha District

The Gampaha district was created by the re-division of the Colombo district. The Gampaha district is located in the Western Province and is bordered on the north by Ma Oya (Kurunegala and Puttalam districts), on the east by plains and hills with a height of 100 to 200 meters (Kegalle region), to the south by the Colombo region connected to the Kelani River, and to the west by the Indian Ocean. This region is especially important because free trade zones focus on manufacturing, tourism, international airports, railways, highways, telecommunications, and other infrastructure. The administrative area of Gampaha is 1387 sq. kilometers where it is twice the size of Colombo. This region covers 38% of the total area of the Western Province while it covers 2.1% of the total area of Sri Lanka. The minimum temperature of the Gampaha district is 21.6°C and the maximum temperature recorded is 37°C. The average precipitation in the area is 1750 mm, this is a region located under the tropical monsoon climate, the main source of rain between the monsoons and the southwest monsoon. The climate in the region is generally dry from January to April. Depending on the above climate, the areas with fauna and flora in wet zones and Kolonnna in marshy lands are found in Gampaha district (http://www.moha.gov.lk/).

Total population in Gampaha is recorded as 2,304,800 and 90.5% of them are Sinhalese, 3.5% Sri Lankan Tamils, 0.4% Indian Tamils, 4.2% Sri Lankan Moors and 1.3% categorized as belonging to other ethnic groups. Compared to the Colombo district, Gampaha has relatively low cultural diversity.

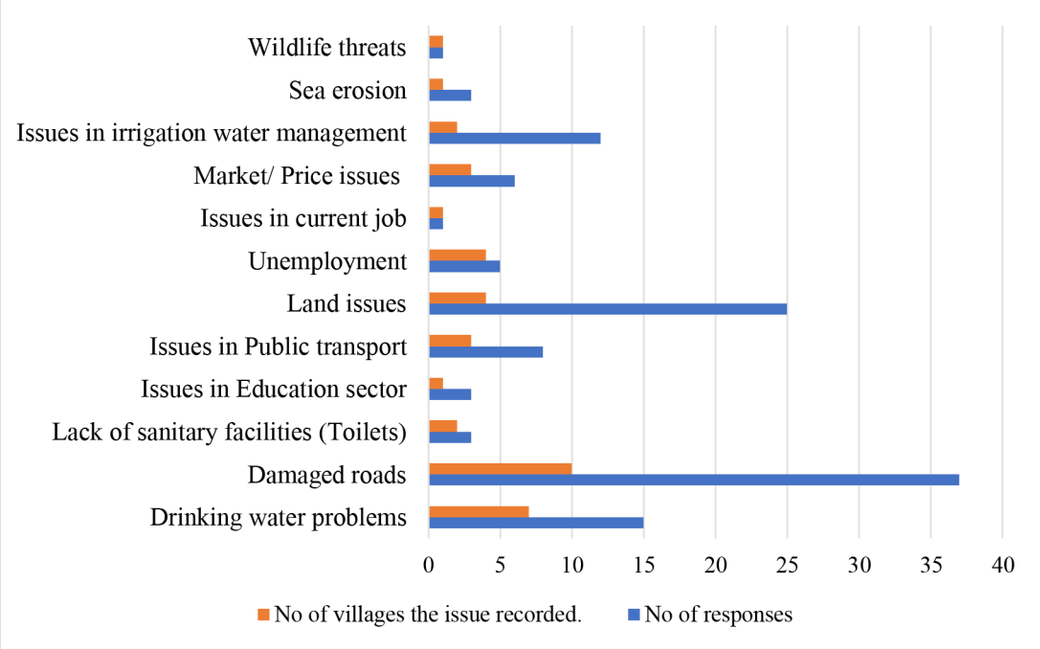
Considering the education sectorial statistics, 16,000 teachers were serving 354,000 pupils in 536 government schools in 2019. Further, 60 schools function with less than 100 students, 247 schools with 101-500 students, 117 schools with 501-1,000 students, 45 schools with 1,001-1,500 students, 22 schools with 1,501-2,000 students, 40 schools with 2001-3500 students and 8 schools with above 3,500 students (Central Bank of Sri Lanka, 2020).

The labour force participation rate of the total district population is recorded as 50.7% with 71.8% male and 32.2% female participation. Percentage distribution of the employed population in agriculture is 4.4% with 37.4% in the industry sector and 58.2% in the service sector (2019). Further, 66.4% of the employed population was recognized as employees and the rest identified as self-employees which is further divided as 3.6% employer, 26.7% Own Account Workers and 3.4% as contributing family workers. The unemployment rate in 2019 was recorded as 4.3% which is higher than the average island unemployment rate in 2019 (Department of Census and Statistics, 2020).

By evaluating the socio-economic position of the Gampaha district, it is possible to conclude that Gampaha district is in a relatively high position socio-economically. However, regional disparities are observed during the Gammadda field survey 2020. The Gammadda team visited 13 GNDs and interviewed 108 people. The following table and graph summarize the issues identified during the field visits.

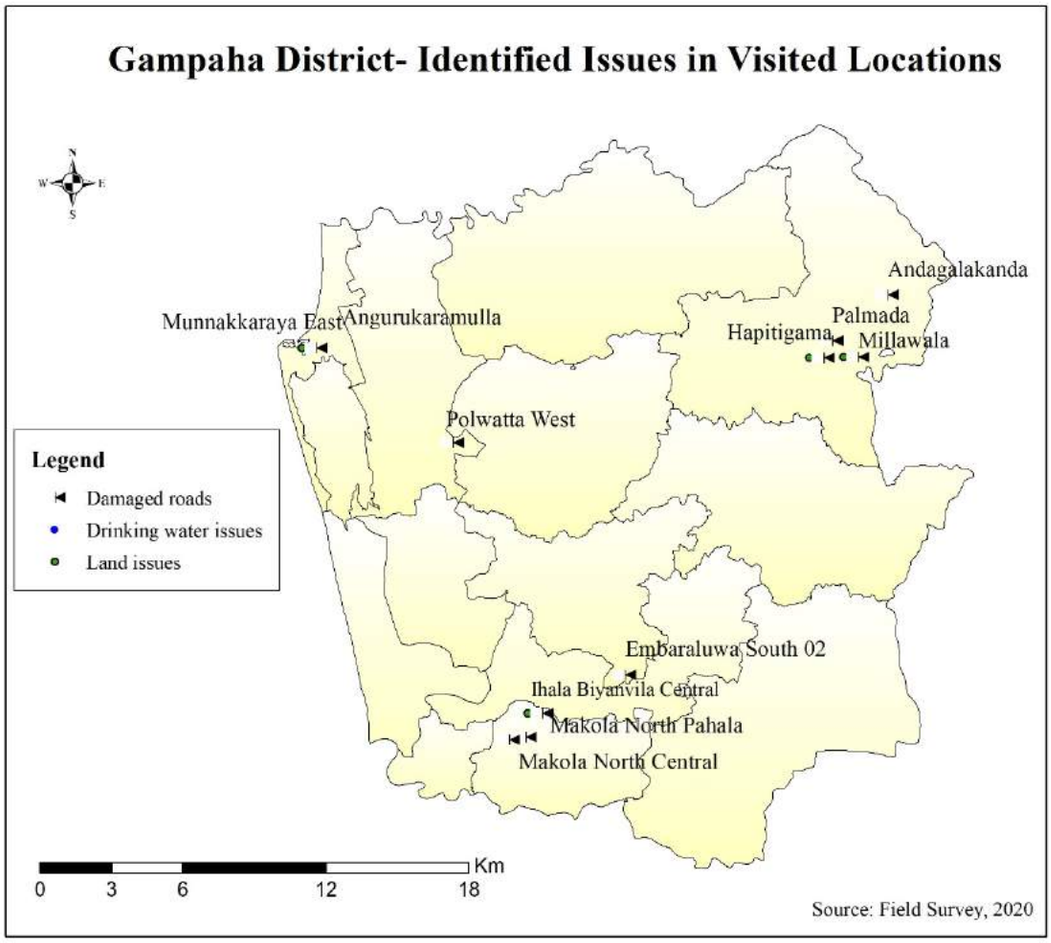
| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 15 | 7 |
| Damaged roads | 37 | 10 |
| Lack of sanitary facilities (Toilets) | 3 | 2 |
| Issues in Education sector | 3 | 1 |
| Issues in Public transport | 8 | 3 |
| Land issues | 25 | 4 |
| Unemployment | 5 | 4 |
| Issues in current job | 1 | 1 |
| Market/ Price issues | 6 | 3 |
| Issues in irrigation water management | 12 | 2 |
| Sea erosion | 3 | 1 |
| Wildlife threats | 1 | 1 |

Table 4 : Summary of Responses- Gampaha District



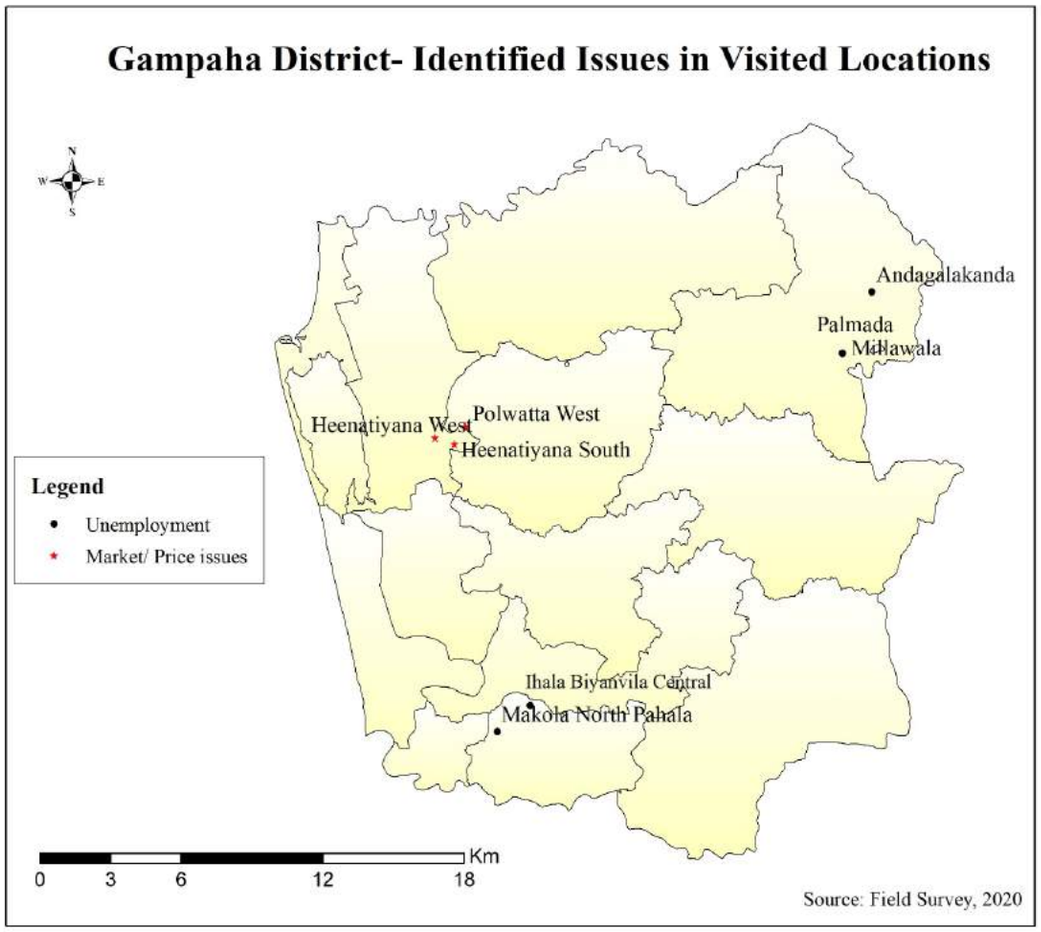

Graph 3 : Identified Issues in Gampaha District- Based on Visited Locations

Out of the total villages visited, 10 villages recorded damaged roads while 7 reported drinking water issues. Some of the rural villagers do not possess ownership of their lands even though they have been residents for a long time. The following map illustrates the locations where these issues were identified.




Map 16 : Identified Major Issues- Gampaha District

Unemployment is the other prominent economic issue recorded over the visited locations. On the other hand, farmers and entrepreneurs of small-scale industries have not received an acceptable price and a good marketplace for their agricultural and household products. The following map shows locations where these issues were identified during the Gammadda field survey.




Map 17 : Identified Economic Issues- Gampaha District

To overcome the issues identified, community based strategic plans are mandatory. Further, these plans should incorporate sustainable coordination among the community and the authorities.

# Kalutara District

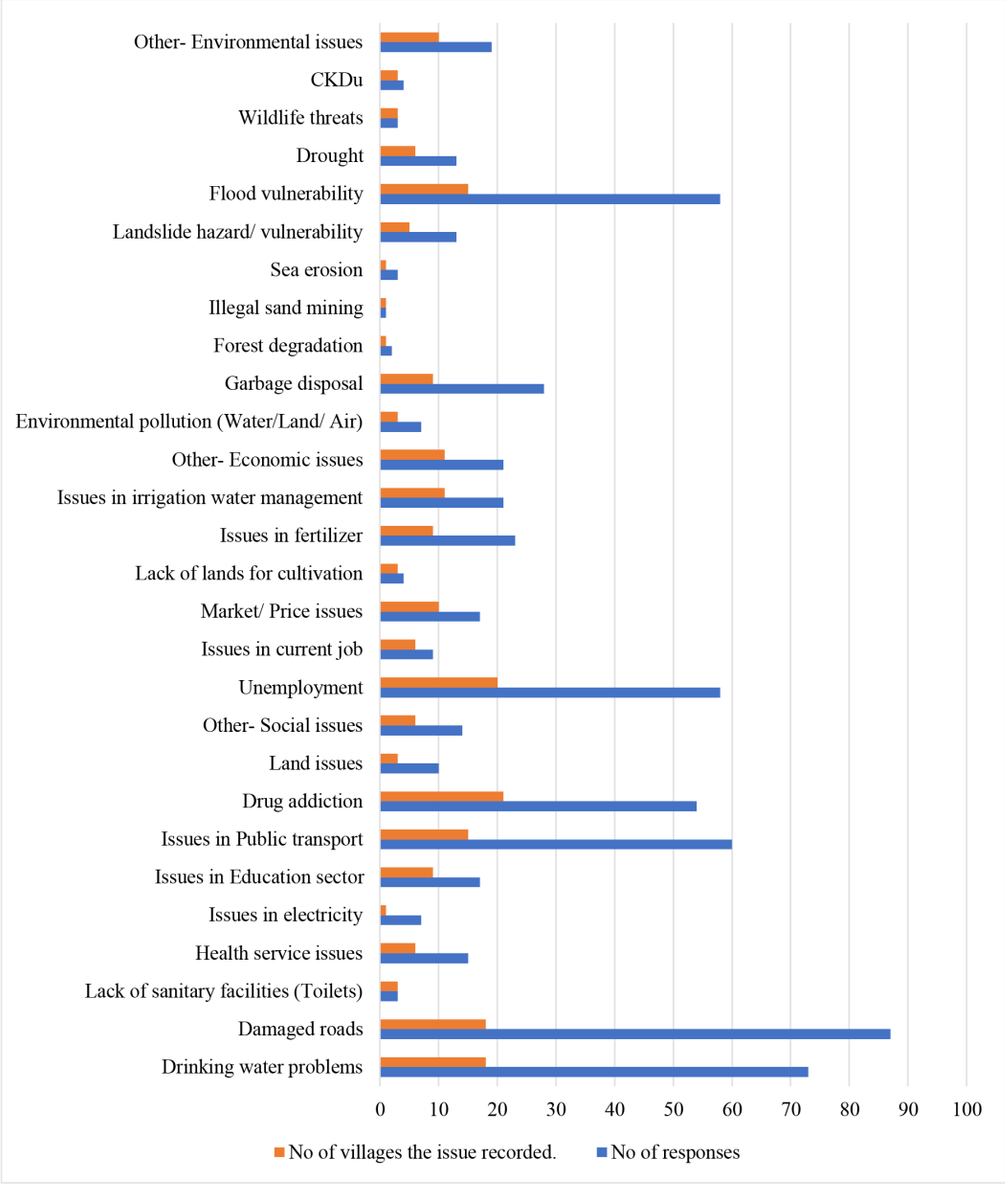
Considering the location of the Kalutara district, in Western Province, it is bounded in the North by the Colombo district, on the east by the Rathnapura district, on the south by the Galle district and to the west by the Indian Ocean. An undulating land with several hills which are the parts of the mountain ridge of the central highlands serves as the boundary. Eastern Kalutara district comprises of Two Korale, Eight Pattu and Two Thotamuna. The central part and the western area are mainly considered as plains. The district's water sources mainly consist of Kalu Ganga and Benthara Ganga starting from the eastern border and major branch rivers such as Hik Ganga, Kuda Ganga and Mawak Oya. The decline in the cultivation of rubber trees is now being replaced by tea plantations, which were previously limited to hilly areas. In addition to the above export crops, coconut, pepper and cinnamon are grown in the central part. Paddy cultivation is observed in most of the plain and lowlands; the Sinharaja forest which is located towards the south-east enriches the environment of the district. Excavations of Pahiyangala Cave located at Bulathsinghala, one of the ancient ruins in the area, have revealed historical fragments of evidence from Balangoda Man's contemporaries. Kalutara Bodhi, an ancient place of worship, where one of the 32 Bo trees planted in the Devanampiyatissa era is one of the places worshipped mainly by Buddhists as well as by followers of other religions and tourists. Thus, Kalutara is one of the important areas historically, socio- economically and environmentally.

The population of Kalutara district is 1,221,900 people. The labour force participation rate is recorded as 51.1% and sectorial engagement of employment is distributed as follows, agriculture 13.7%, industrial sector 31.1% and 55.1% in the service sector. Out of the total households, 2.3% are living under poverty and the unemployment rate of the district is recorded as 3.2% in 2019 (Department of Census and Statistics, 2020). Education sector statistics are also vital to define the socio-economic profile of a district. In Kalutara district, the total student population was recorded as 226,000 and teacher population was 11,000 in 2019. Further all these pupils and teachers are distributed among 418 government schools and majority of them, 288 schools, function with below 500 students, while 116 schools function with 501-2000 students, 16 schools with 2001-3500 students and 8 schools with more than 3500 students (Central Bank of Sri Lanka, 2020).

Gammadda team visited 24 GNDs and interviewed 160 villagers in the visited rural areas. The following table and graph summarize the identified issues and its' frequency.

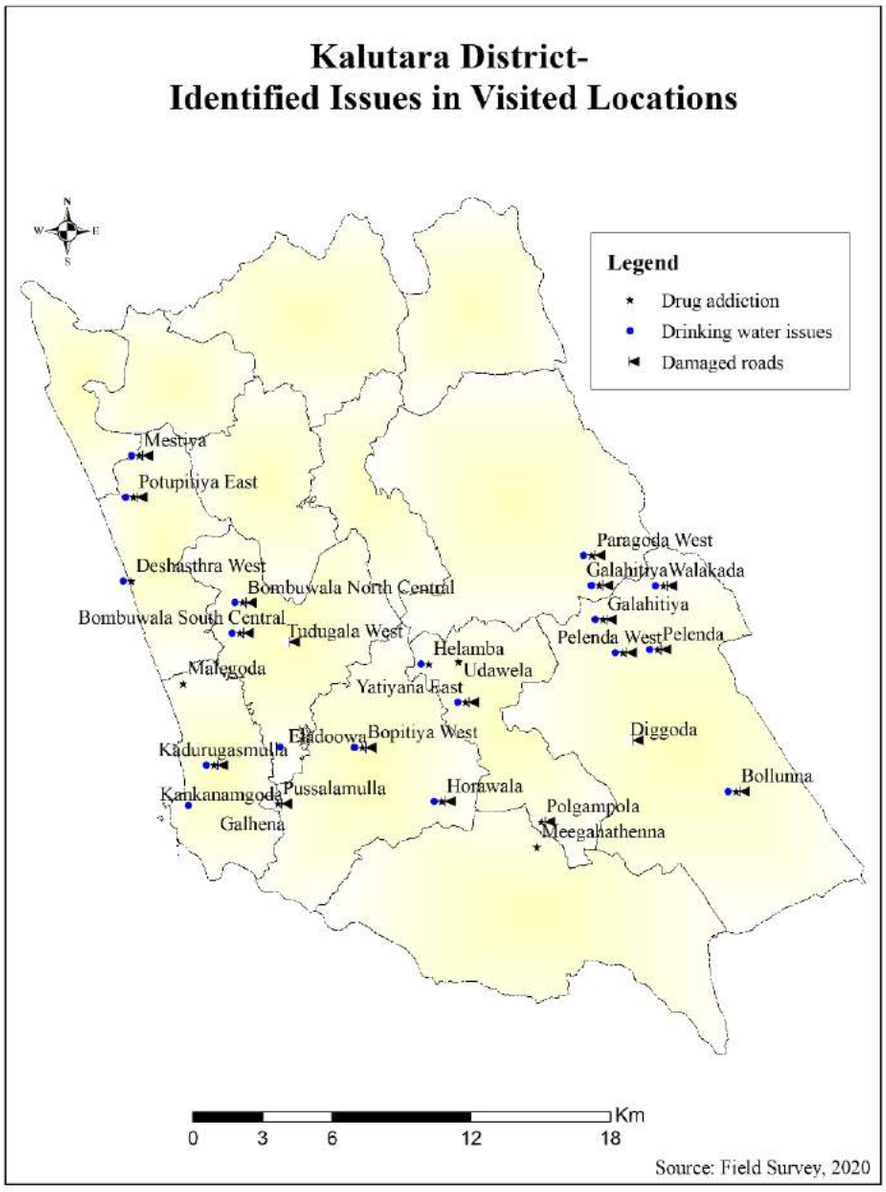
| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 73 | 18 |
| Damaged roads | 87 | 18 |
| Lack of sanitary facilities (Toilets) | 3 | 3 |
| Health service issues | 15 | 6 |
| Issues in electricity | 7 | 1 |
| Issues in Education sector | 17 | 9 |
| Issues in Public transport | 60 | 15 |
| Drug addiction | 54 | 21 |
| Land issues | 10 | 3 |
| Other- Social issues | 14 | 6 |
| Unemployment | 58 | 20 |
| Issues in current job | 9 | 6 |
| Market/ Price issues | 17 | 10 |
| Lack of lands for cultivation | 4 | 3 |
| Issues in fertilizer | 23 | 9 |
| Issues in irrigation water management | 21 | 11 |
| Other Economic issues | 21 | 11 |
| Environmental pollution (Water/Land/ Air) | 7 | 3 |
| Issues in garbage disposal | 28 | 9 |
| Forest degradation | 2 | 1 |
| Illegal sand mining | 1 | 1 |
| Sea erosion | 3 | 1 |
| Landslide hazard/ vulnerability | 13 | 5 |
| Flood vulnerability | 58 | 15 |
| Drought | 13 | 6 |
| Wildlife threats | 3 | 3 |
| CKDu | 4 | 3 |
| Other Environmental issues | 19 | 10 |

Table 5 : Summary of Responses



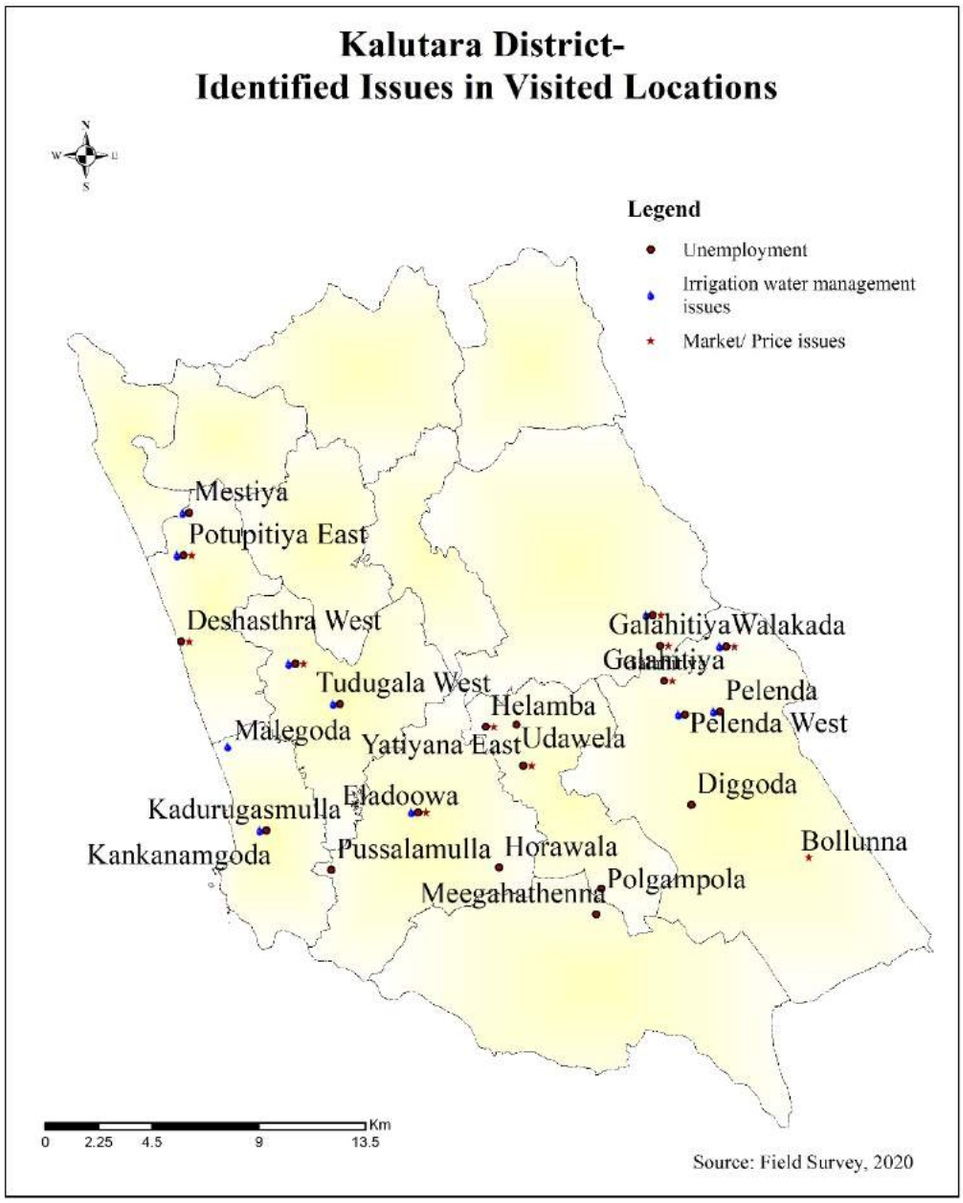

Graph 4: Identified Issues in Visited Locations- Kalutara District

Unemployment and drug addiction are highly recorded issues in the visited locations but damaged roads and drinking water issues are the highest stated issues by the villagers. Most visited locations are far from the main road and they are facilitated only by rural roads. Most of the roads to enter the village have not been renovated for a considerable period of time. Thudugoda in Dodamgoda reported about the poor condition of their existing bridge. Further they highlighted that, it poses a threat to life especially during the torrential rains.




Map 18 : Identified Issues in Kalutara District

Unemployment is the major economic issue especially among the youth in most visited locations. Farmers who depend on cultivation face issues with the absence of a fixed price for their harvest. Small scale industry owners also face the same issue when they cannot compete with the established products in the market.




Map 19 : Identified Issues in Kalutara District

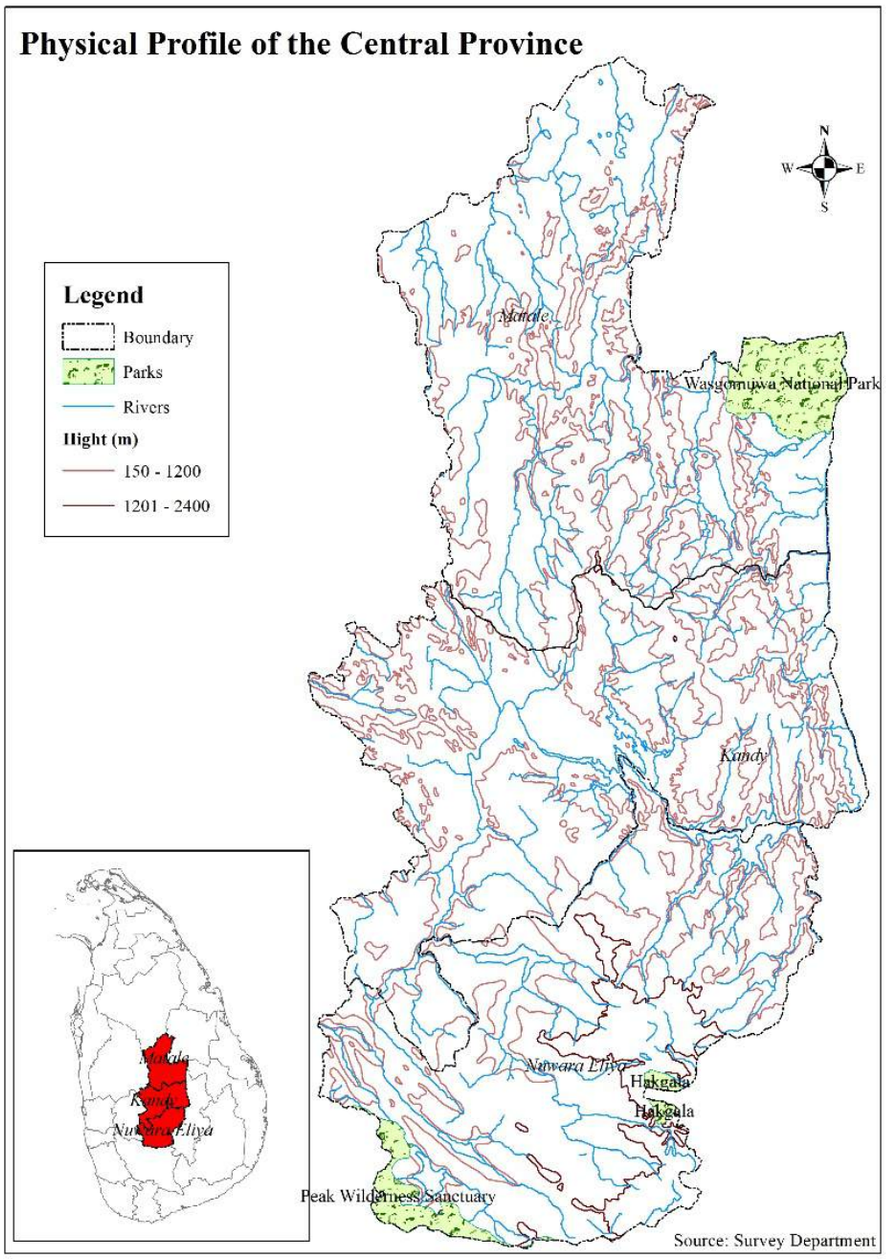
To overcome these issues, community participatory projects are mandatory, which is currently the missing link to the development of Kalutara.

# Central Province

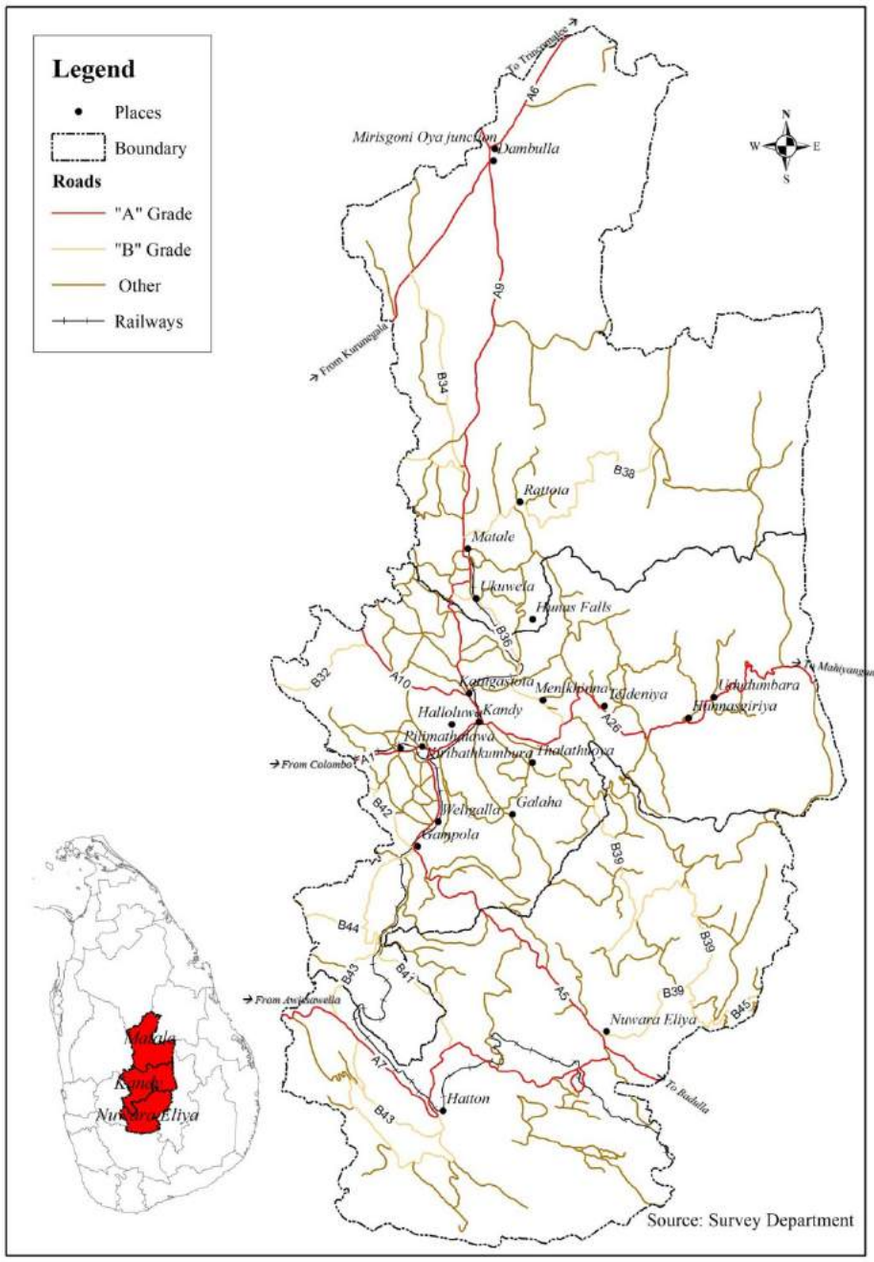
The Central Province consists of three administrative districts including Kandy, Matale and Nuwara Eliya. It is bounded to five provinces, namely North Central, Eastern, Uva, Sabaragamuwa and North Western. The province topography is dominated with mountain ranges particularly designated as central highlands, which is nominated as a world heritage site. The site comprises the Peak Wilderness (Sri Pada) Protected Area, the Horton Plains National Park and the Knuckles Conservation Forest. These are rain forests, where the elevation reaches 2,500 meters above sea level. Half of Sri Lanka's endemic flowering plants and 51% of the endemic vertebrates are restricted to this eco-region which is inhabited by five strict endemic mammals and eight near-endemics. The eco-region also entertains five strictly endemic bird species and 20 near endemics. Thus, this area is a vibrant ecological zone in the country. Due to vast climatic variation of the region, around 25 agro-ecological zones (out of 46) distributed over the low and upcountry zones were mainly laid over the Central Province. Mahaweli River feeding five major hydro electrical power plants flows over the land enriching the groundwater over the area. Thus, Central Province is one of the most ecologically sound provinces in the island. Map 20 illustrates the physical profile of the central province which is home for 2,750,000 people who are 12.7 % of the islands' total population (Registrar General's Department, 2018).

According to the illustrated Map 21, Central Province has a moderately distributed road network. In a market economy, a robust road network is one of the key infrastructure features which facilitates community access.

Considering the sectorial population of the province, 10.5% of the population lives in urban, 70.6% in rural and 18.9% in the estate sector which is recorded as the highest percentage of the estate population in the nation (Census, 2012). Economically, 31.9% of people engage in the agricultural sector, 41.5% in the service sector and 26.7% in the industrial sector for their main livelihood (Labour Force Survey, 2019). 6% of the population in the central province is recorded as unemployed in 2019. Moreover, 5.4 % (2016) of nationwide poverty incidents are reported in the province (Census and statistics, 2020).

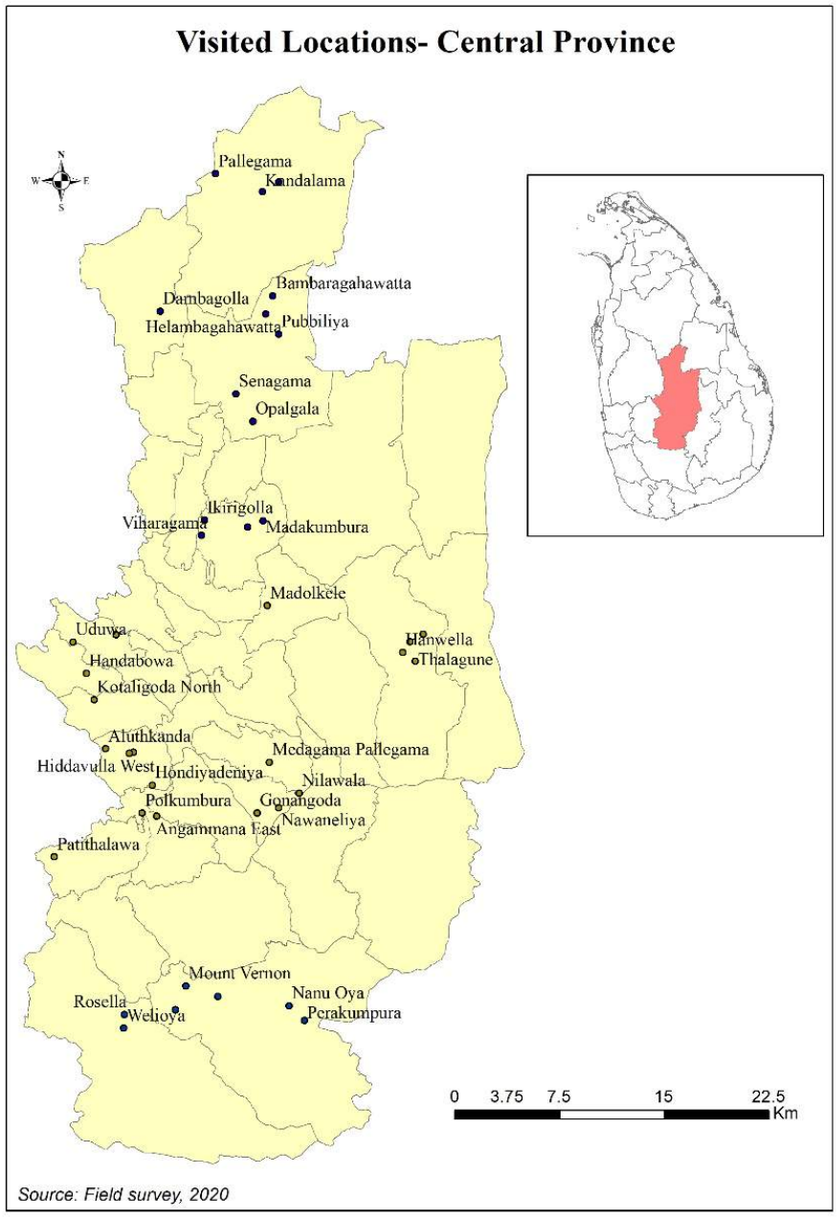



Map 20 : Physical Profile of Central Province




Map 21 : Road Network of Central Province

The Gammadda team visited 42 GN divisions and interviewed 268 people in Central Province during the field survey and these visited locations are illustrated in the following map. The next sections of the chapter will discuss the identified issues of these visited locations in detail.




Map 22 : Visited Locations of Central Province

# Kandy District

Kandy is the capital city of Central Province and Kandy district consists of 1,940 sq. kilometers of land area and it is 3% of the total island land area. Kandy district is home to 1,375,382 people and ethnic distribution of the population is as follows. Sinhalese 1,023,488, Sri Lanka Tamil 69,210, Indian Tamil 85,111, Sri Lanka Moor 191,570, Burgher 2,384, Malay 2,444, Sri Lanka Chetty 91, Bharatha 33, Other 1,051 (Department of Census and Statistics, 2012).

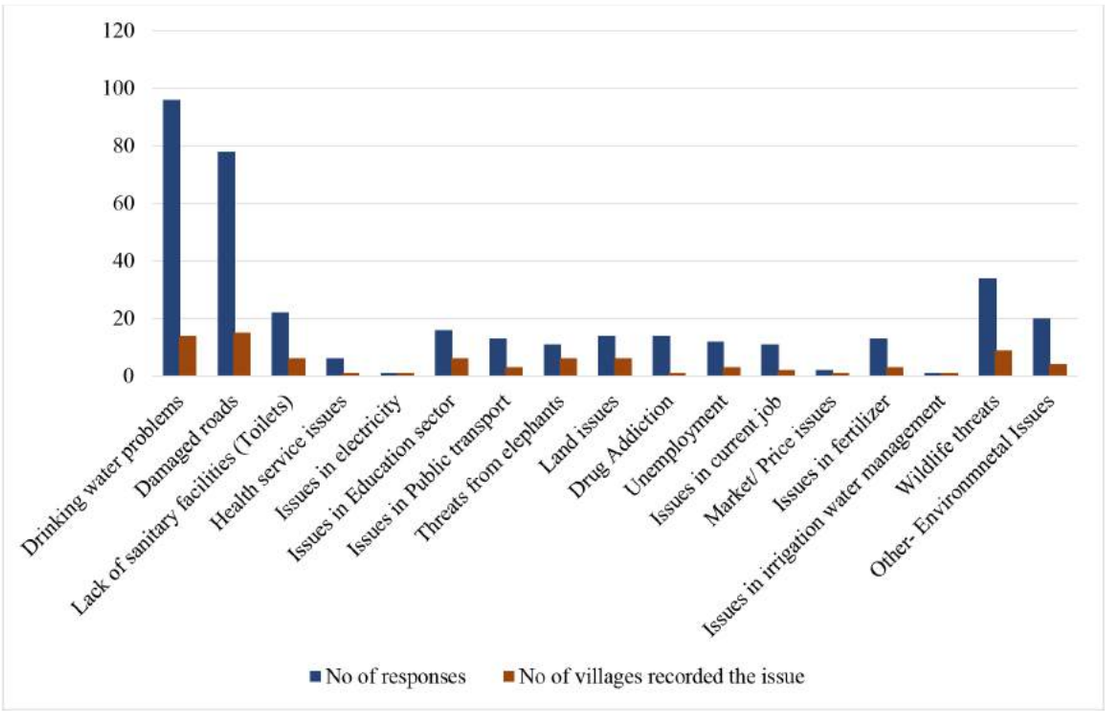
Considering the education sectorial statistics, 18,000 teachers were serving 280,000 pupils in 650 government schools in 2019. Further, 488 schools function with less than 500 students, 91 schools with 501 – 1,000 students, 34 schools with 1,001 – 1,500 students, 12 schools with 1,501 – 2,000 students, 17 schools with 2,001 – 3,500 students and 8 schools with above 3,500 students (Central Bank of Sri Lanka, 2020).

The labour force participation rate of the total district population is recorded as 50.1% with 70.2% male participation and 33.3% female participation. Percentage distribution of the employed population in agriculture is 20.1%, industry 28.4% and 51.5% in the service sector (2019). Further, 61.9% of the employed population is recognized as employees and rest identified as self-employees which is further divided as 2.5% employer, 29.2% Own Account Workers and 6.4% as contributing family workers. The unemployment rate in 2019 is recorded as 6.6% which is higher than the average islandwide unemployment rate in 2019 (Department of Census and Statistics, 2020).

By evaluating the socio-economic position of the Kandy district, it is possible to conclude that the Kandy district is in a moderate socio-economic position. However, regional disparities are observed during the Gammadda field survey 2020. Gammadda team has visited 21 GNDs of 13 DSDs and interviewed 141 people. The following table and graph summarizes the issues identified during the field visits.

| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 96 | 14 |
| Damaged roads | 78 | 15 |
| Lack of sanitary facilities (Toilets) | 22 | 6 |
| Health service issues | 6 | 1 |
| Issues in electricity | 1 | 1 |
| Issues in Education sector | 16 | 6 |
| Issues in Public transport | 13 | 3 |
| Threats from elephants | 11 | 6 |
| Land issues | 14 | 6 |
| Drug Addiction | 14 | 1 |
| Unemployment | 12 | 3 |
| Issues in current job | 11 | 2 |
| Market/ Price issues | 2 | 1 |
| Issues in fertilizer | 13 | 3 |
| Issues in irrigation water management | 1 | 1 |
| Wildlife threats | 34 | 9 |
| Other- Environmental Issues | 20 | 4 |

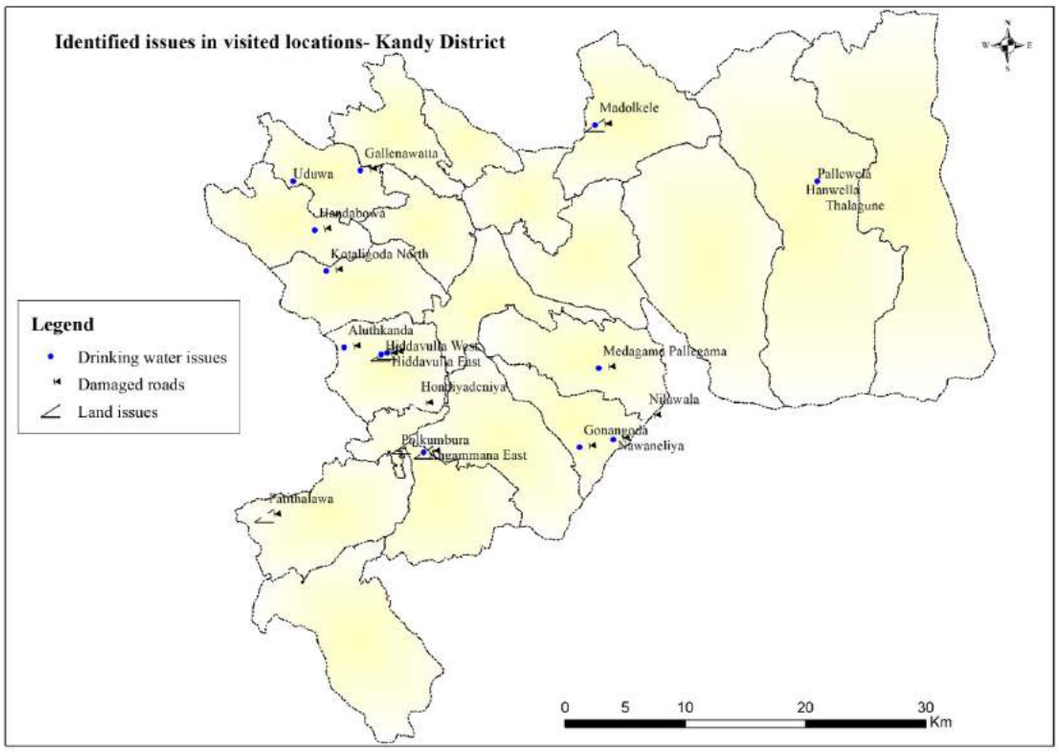
Table 6 : Summary of the Responses




Graph 5 : Issues in Visited Locations - Kandy District

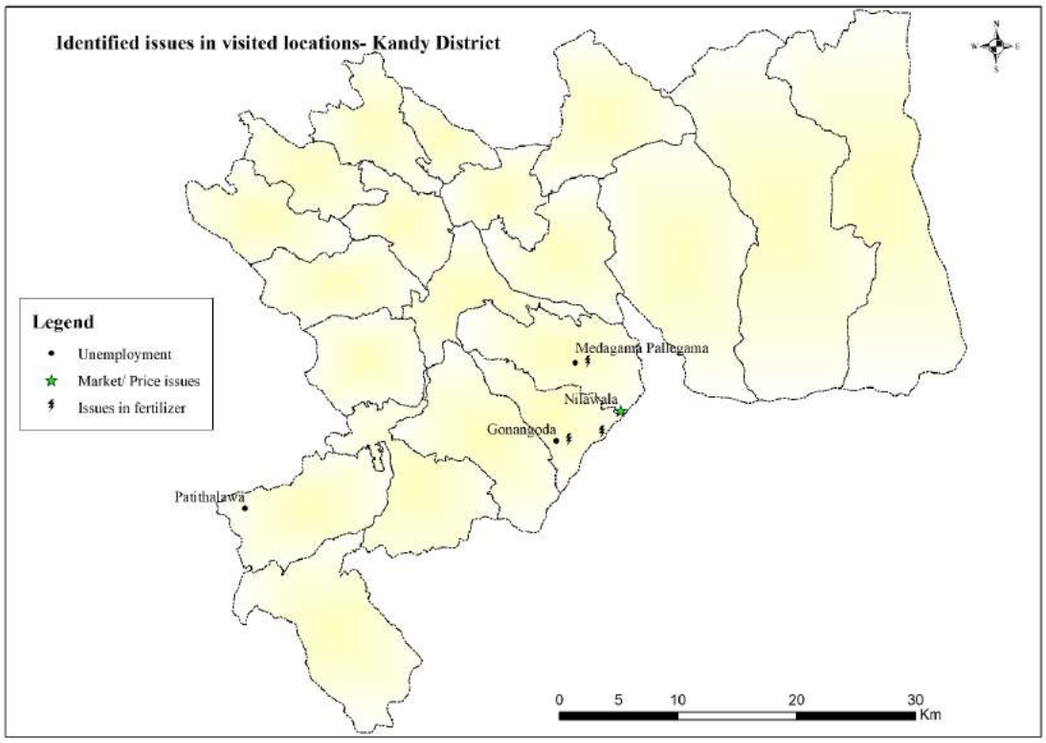
According to the responses, drinking water and damaged roads are the most recorded issues in the visited locations. A well-established natural drainage system can be observed over the Kandy district (Map 20). However, poor water management strategies and lack of coordination were identified as major contributors to the drinking water issues in the district. On the other hand, damaged village access roads are a common sight in most of the visited villages. Most of the roads were constructed through different rural development or community development programs but, it has not been maintained accordingly and eventually resulted with poor conditioned roads.

A deed is the primary legal document which assures the ownership of the land but villagers of Hiddaula and Polkumbura have not received their land ownership documents yet, even though they have been living in these lands for a considerable period of time. The following map illustrates the spatial distribution of these issues over the Kandy district.



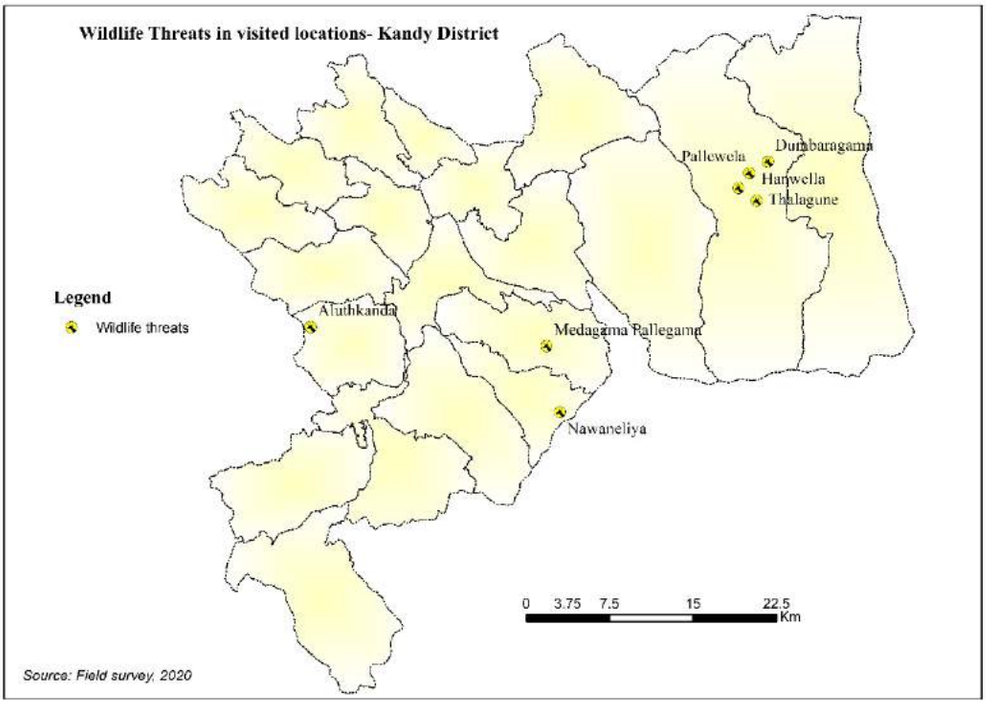

Map 23 : Identified Issues in Kandy District

Unemployment is another issue which has been recorded in some locations during the field survey in the Kandy district. Small scale tea plantations are prominent income sources in the rural areas that were visited. Furthermore, Medagama and Gonnagoda villagers have stated that they cannot get fertilizer for tea cultivation during the season. The following map illustrates the locations where these issues are reported.




Map 24 : Identified Economic Issues in Kandy District

Generally, Kandyan home gardens deliver dense tree types which directly support household consumption and even the domestic economy. These functions of the home gardens are in danger in most of the visited locations because of wildlife threats. According to the responses received, home gardens and even crop lands have been damaged by wild animals such as monkeys and wild boar. The following map highlights the locations in which these issues were recorded.




Map 25 : Wildlife Issues over Visited Locations

## Matale District

Land area of the district is recorded as 1,993 sq. kilometers which is 3% of the total land area of the island and it is similar to Kandy district in size. The mineral resources in Matale consist of gneiss, granite, crystalline limestone, and dolerite, and the forest cover of the area is rather complex. The central and southwestern regions consist of wetland forests. Meanwhile, the northern regions, Laggala and Wilgamuwa consist of the dry region forests of the Low Country. Although the area receives rain from two major seasons, it receives more rain from the northeast monsoon. The Knuckles Mountain Range area has wide biodiversity and is considered a national heritage. A great plain, very similar to the Horton Plains, is located in the Petawila region, and there is a cliff called the Mini Worlds End at the end of the plain. Considering the land use pattern of the district, total extent of cultivated lands is 1016.68 sq. kilometers (52.87%), the total extent of barren lands is 36 sq. kilometers (1.8%) and the total extent of forest is 766.01 sq. kilometers (37.7%) (http://www.matale.dist.gov.lk/).

The Matale district is home for 484,531 people and the majority of them are Sinhalese (391,305), 24,279 of the district population are Sri Lankan Tamils, 23,238 are Indian Tamils and 44,786 are Sri Lankan Moors (Department of Census and Statistics, 2012). Matale has the lowest population density in the Central Province.

Within the district, 317 government schools function and 7000 teachers are serving 105,000 students. Out of total schools, 262 schools function with below 500 students and 32 schools

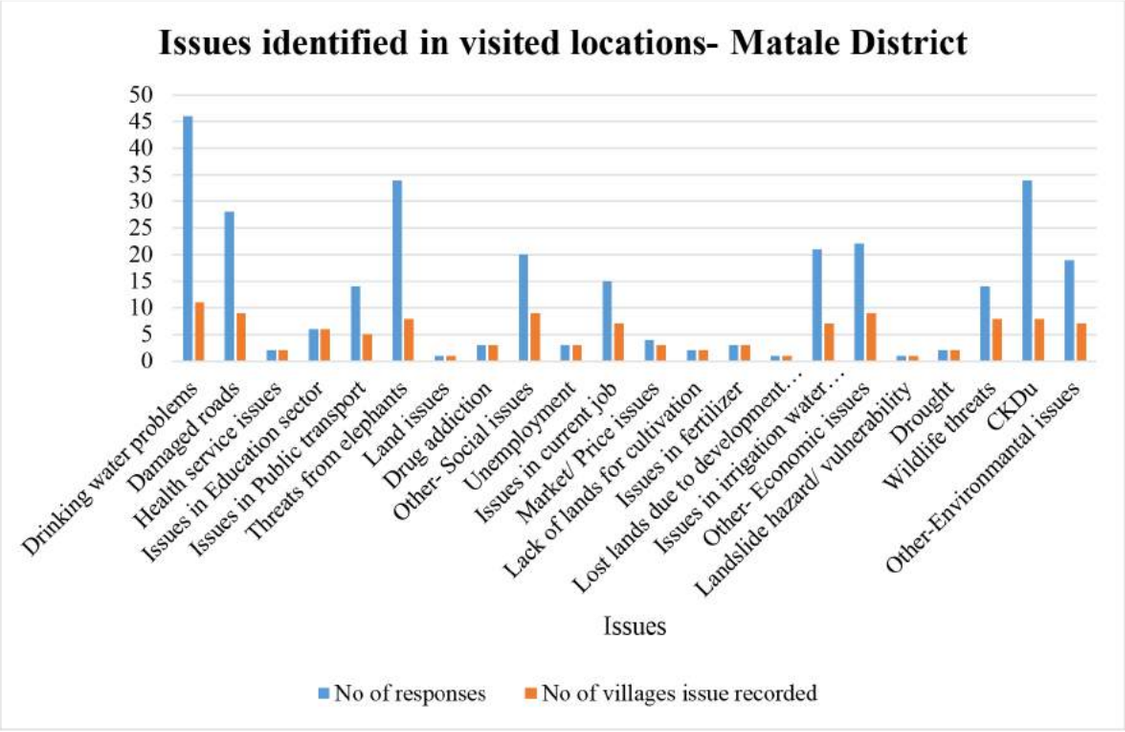
have 501- 1000 pupils. Only 604 students entered universities from the Matale district in 2019 (Central Bank, 2020).

Compared to the Kandy district, Matale district's labour force participation rate is slightly higher and recorded as 54.9% in 2019. Labour force participation in the agricultural sector is 30.3%, industrial sector is 25.2% and the service sector is recorded as 44.4%. Employment status of the employed population can be divided as follows in Matale district. 49.7% as employees, 2.0% employer, 36.0% Own Account Workers and 12.3% contributing as family workers. The unemployment rate of the Matale district is recorded as 7.4% which is the second highest rate in the island in 2019 (Department of Census and Statistics, 2019).

The field survey of Gammadda 2020 visited 13 GN divisions of 5 DS divisions and interviewed 85 villagers from Matale. The following table summarizes the identified issues during the field visit and the graph illustrates it further.

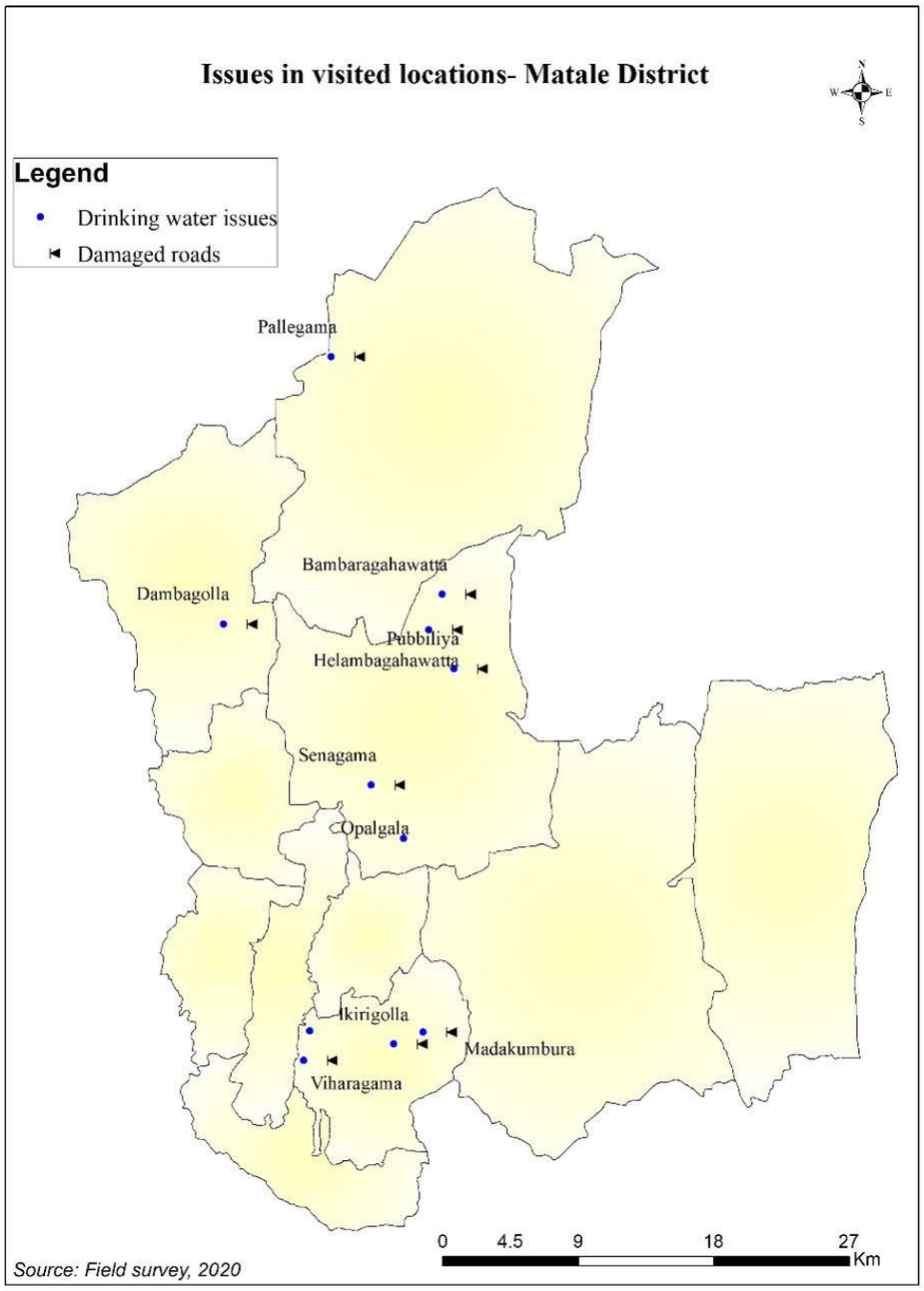
| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 46 | 11 |
| Damaged roads | 28 | 9 |
| Health service issues | 2 | 2 |
| Issues in Education sector | 6 | 6 |
| Issues in Public transport | 14 | 5 |
| Threats from elephants | 34 | 8 |
| Land issues | 1 | 1 |
| Drug addiction | 3 | 3 |
| Other Social issues | 20 | 9 |
| Unemployment | 3 | 3 |
| Issues in current job | 15 | 7 |
| Market/ Price issues | 4 | 3 |
| Lack of lands for cultivation | 2 | 2 |
| Issues in fertilizer | 3 | 3 |
| Lost lands due to development programs | 1 | 1 |
| Issues in irrigation water management | 21 | 7 |
| Other Economic issues | 22 | 9 |
| Landslide hazard/ vulnerability | 1 | 1 |
| Drought | 2 | 2 |
| Wildlife threats | 14 | 8 |
| CKDu | 34 | 8 |
| Other Environmental issues | 19 | 7 |

Table 7 : Summary of Responses



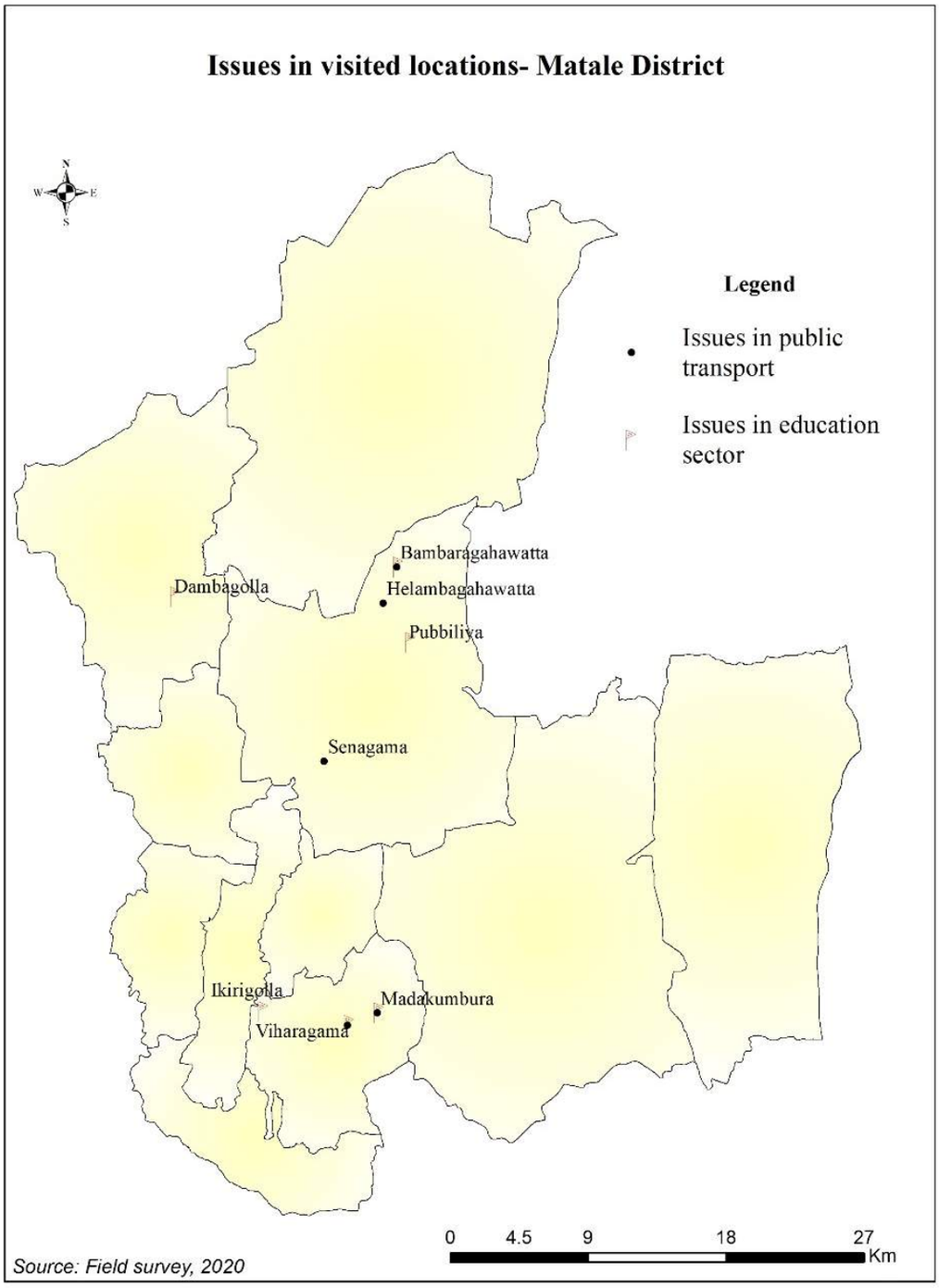

Graph 6: Identified Issues in Matale District

Lack of access to clean drinking water is the most recorded issue in Matale. Traditional water sources such as wells, streams and tanks no longer exist or the water they collect is not safe for consumption. Thus, access to safe drinking water is the most critical issue which is faced by the rural villages that were visited. Not only traditional villages, newly established villages such as Viharagama village also suffer from drinking water issues due to the absence of a well-planned water scheme for the village. Kidney disease could be a result of the absence of safe drinking water sources in villages. Apart from that absence/ poor condition of bridges and poor road conditions are the other prominent issues which can be identified across the visited locations of the Matale district. Spatial distribution of these issues is illustrated in the following map.



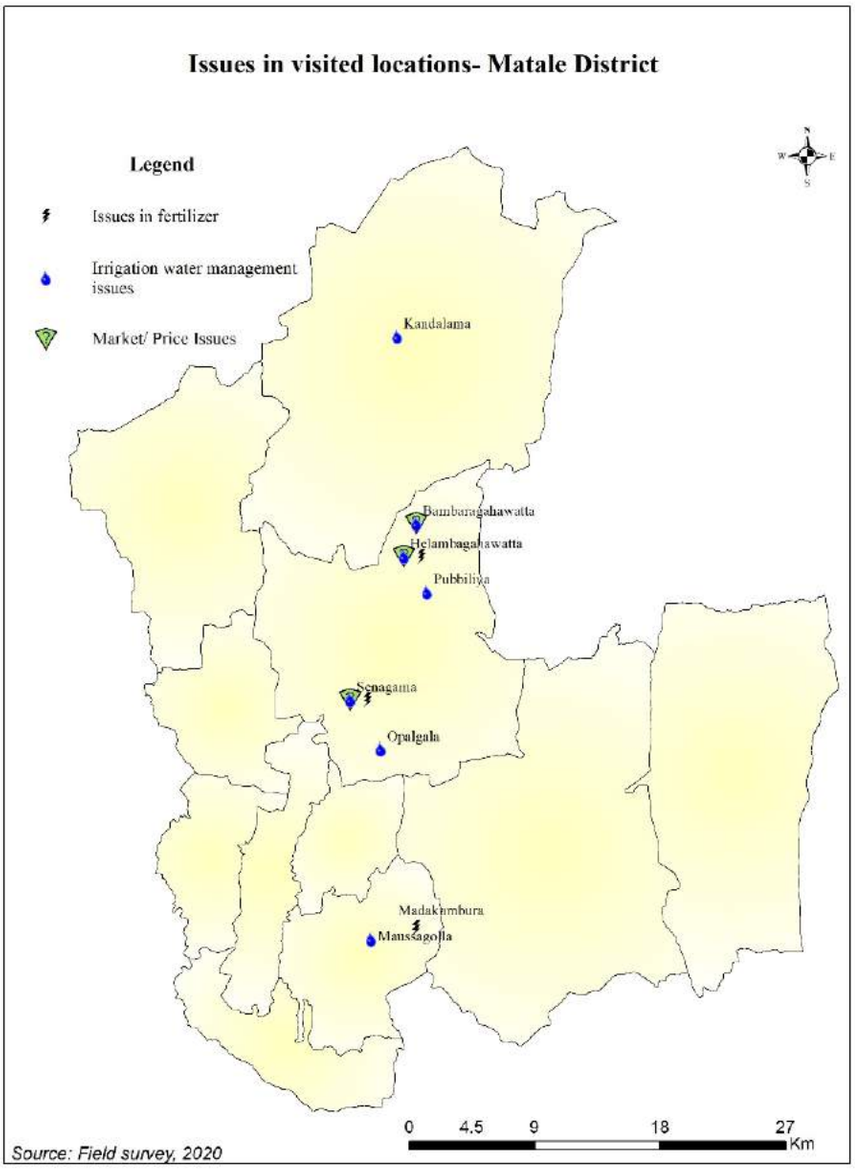

Map 26: Identified Issues in Matale District

Lack of transportation facilities limit access to town/ market, schools and other services. Issues in schools are reported in most of the villages that were visited. Lack of facilities and teachers are the main problem they face. The following map illustrates the spatial dimension of the issues.



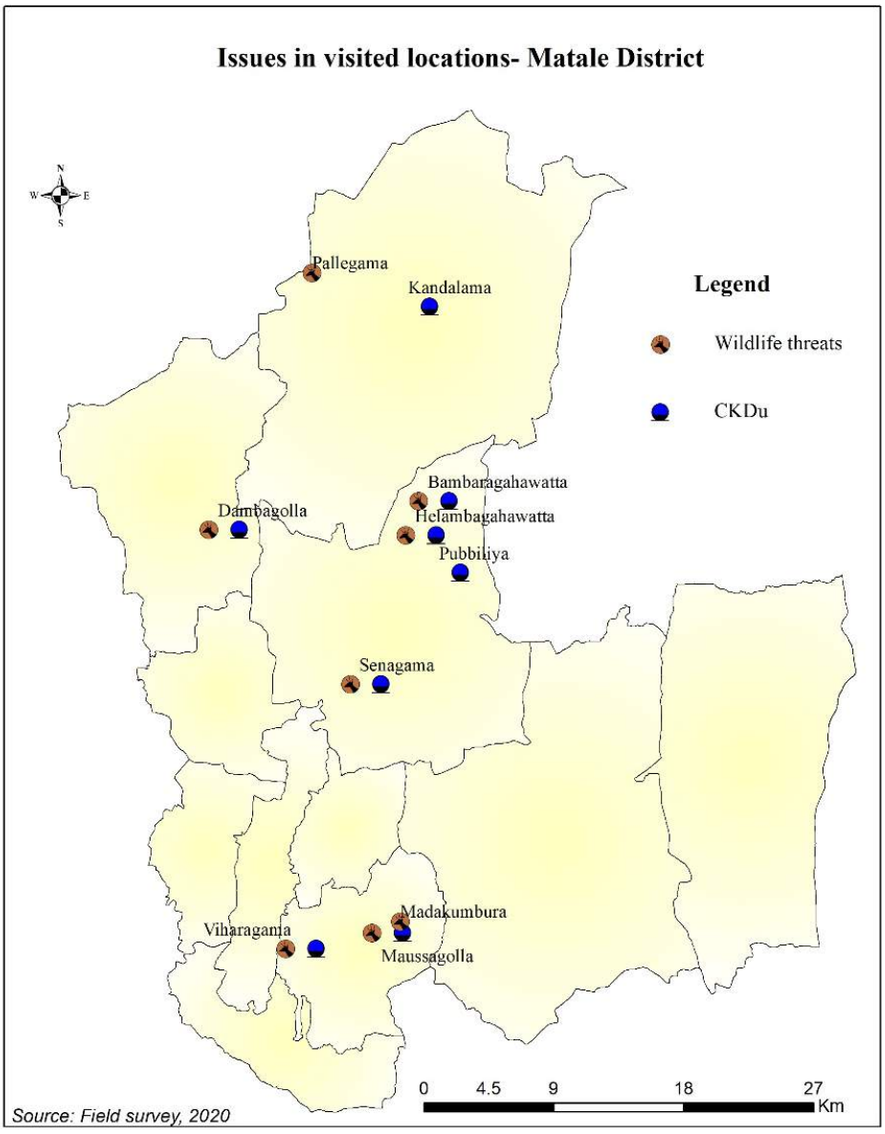

Map 27: Identified Issues in Matale District

Most of the visited villages have reported different agro-economic related issues. As mentioned above agriculture is one of the main livelihoods in the Matale district. Thus, issues related to fertilizer distribution, irrigation water management and absence of fair or fixed prices for their products directly impact on the income and standard of life. Irrigation water related issues arise due to poor maintenance and rehabilitation of the village tanks. The following figure illustrates the spatial distribution of the economic issues recorded in visited locations of Matale.




Map 28: Identified Issues in Matale District

Elephant threats and threats from other wild animals such as peacocks, monkeys and wild boars are another prominent issue which is identified over the visited locations. Primarily these areas are surrounded with woody lands. Elephants are stuck in these lands and time to time they enter villages and cause huge damages to the crop lands, properties and even lives. Other wild animals like peacocks and monkeys damage the crop lands leading to a reduced harvest and eventually adversely affecting the rural villagers' income. The following map illustrates the locations where this issue was identified in the visited locations of the Matale district.




Map 29: Identified Issues in Matale District

# Nuwara Eliya District

The Nuwara Eliya district that is glorified as the pinnacle of Sri Lanka, lies within the Central Province that borders Kandy, Badulla, Kegalle and the Rathnapura districts. Pidurutalagala, the highest mountain in the country and mountains such as Kirigalpotta, Totapola Kanda, Kikiliyamana Kanda, Great Western, Hagala, and Sripada's most sacred hill ranging from 900 feet to 8000 feet from sea level, are within the region. Additionally, waterfalls such as Elgin, St. Clare, Ramboda, Baker's fall, Kurundu Ella and Gerandi Ella, and more from the Horton Plains and Haggala Botanical Gardens serve as area attractions. Meanwhile, the main sources of the Kelani and Mahaweli rivers are also in the Nuwara Eliya district. Reservoirs such as Maussakele, Castlereigh, Canyon, Norton Bridge, Kothmale and Upper Kotmale, which are the main sources of hydroelectric power generation in the country, are located within the Nuwara Eliya district.

Areas like Hanguaranketha, Kothmale, and Walapane served as safe places for the kings of the country. The temples built at that time are still preserved. According to folklore, the history of the area dates back to the Ravana era. There is some historical evidence in this regard.

The climatic conditions in the area are very favorable for agriculture and the region is popular for growing vegetables. The average rainfall in Nuwara Eliya is about 2000mm. Nuwara Eliya district consists of 5 divisional secretarial divisions, such as Ambagamuwa, Nuwara Eliya, Hanguranketha, Kothmale, and Walapane.

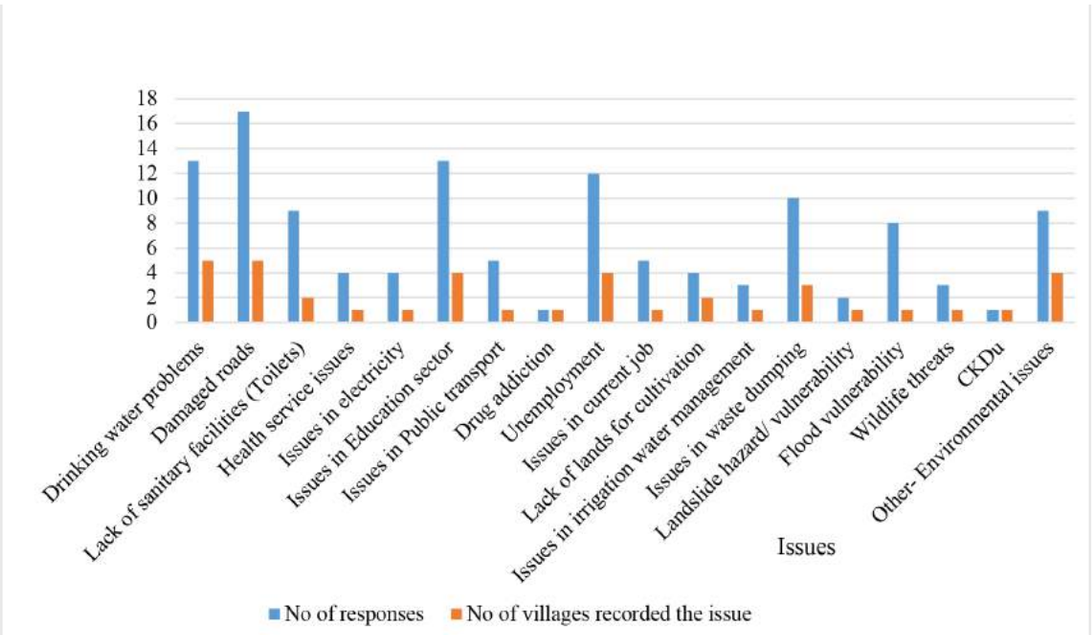
The total district population recorded is as 768,000 and population density is recorded as 450 people per sq. kilometer in 2019. Sectorial population of the district is distributed as follows, 5.6% urban, 40.9% rural and 53.5% in the estate sector, which is the highest estate population recorded in Sri Lanka. In view of ethnicity, 53.1% are Indian Tamils, 39.6% Sinhalese, 4.6% Sri Lankan Tamils, 2.5% Sri Lankan Moors and 0.2% from other ethnic groups population can be identified. 4.6% of the population in the Nuwara Eliya district was recorded as living under the poverty line, which was LKR 4,070 in 2016. Considering the percentage distribution of the employed population by major industry group, 51.2% engage in the agriculture sector, mainly plantations and vegetable cultivation, 24.9% in the industry sector and 23.9% in the service sector. On the other hand, the unemployment rate of the district is recorded as 4.2 in 2019, which is an average amount compared to the other districts' unemployment rate during 2019.

Considering the infrastructure development and service sector improvements, the Nuwara Eliya district gained relatively poor development. Total length of the roads in the district is 1,097 km and 120 km belongs to Class A, 492 km in Class B, 436 km in Class C and 49 km in Class D. In the education service sectorial statistics of the district government schools, 163,000 pupils study with 10,000 teachers serving them in 550 government schools. Student population of the schools can be divided as follows, 247 schools function with below 500 students, 77 schools with 501-1000 students, 14 schools with 1001-1500 students, 8 schools with 1501-2000 students, 2 schools with 2001-2500 students and 2 schools with 2500-3500 students. The majority of the teachers who are serving in government schools are appointed as trained teachers which is 6,931; 3,045 teachers as graduates, 341 as untrained and 370 as trainees. Considering the 2018 new admissions to the grade 1, 5,096 students entered Sinhala medium classes and the highest number of students enrolled to the Tamil medium which was 8,720 (Central Bank of Sri Lanka, 2020).

With this socio-economic background of the Nuwara Eliya district, the next pages of the chapter will discuss the issues identified during the Gammadda door to door survey in 2020. The field survey research team visited 7 selected rural GN divisions in two DSDs of Nuwara Eliya and interviewed 42 villagers. According to the reported responses following issues were identified in these visited locations.

| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 13 | 5 |
| Damaged roads | 17 | 5 |
| Lack of sanitary facilities (Toilets) | 9 | 2 |
| Health service issues | 4 | 1 |
| Issues in electricity | 4 | 1 |
| Issues in Education sector | 13 | 4 |
| Issues in Public transport | 5 | 1 |
| Drug addiction | 1 | 1 |
| Unemployment | 12 | 4 |
| Issues in current job | 5 | 1 |
| Lack of lands for cultivation | 4 | 2 |
| Issues in irrigation water management | 3 | 1 |
| Issues in garbage disposal | 10 | 3 |
| Landslide hazard/ vulnerability | 2 | 1 |
| Flood vulnerability | 8 | 1 |
| Wildlife threats | 3 | 1 |
| CKDu | 1 | 1 |
| Other- Environmental issues | 9 | 4 |

Table 8: Summary of Responses

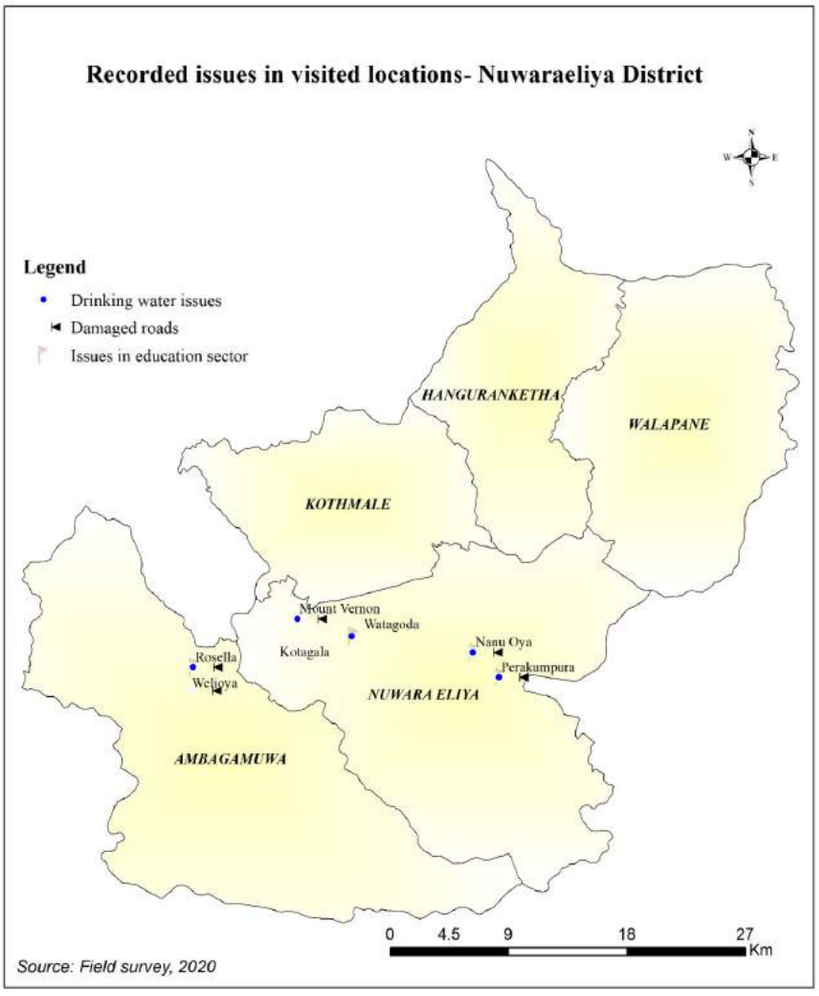



Graph 7: Identified Issues in Nuwara Eliya District

As mentioned in the above graph and table, damaged roads and drinking water issues are the most reported issues of the rural areas which were visited. Spatial distribution of these issues is given in Map 30. Estate settlements in the Agarapathana area, especially, the Nanu oya and Perakumpura GNDs, are suffering from poor conditions of the estate line rooms. According to the respondents their settlements have not been repaired for a long time and they do not have proper toilet facilities either.

Even though Nuwara Eliya has numerous waterfalls and streams all around the land, safe drinking water is a problem in most visited locations. Although streams are prominent in the area, they have dried up during the dry season or are not safe enough to drink because of the contamination through waste, fertilizer, and pesticides.

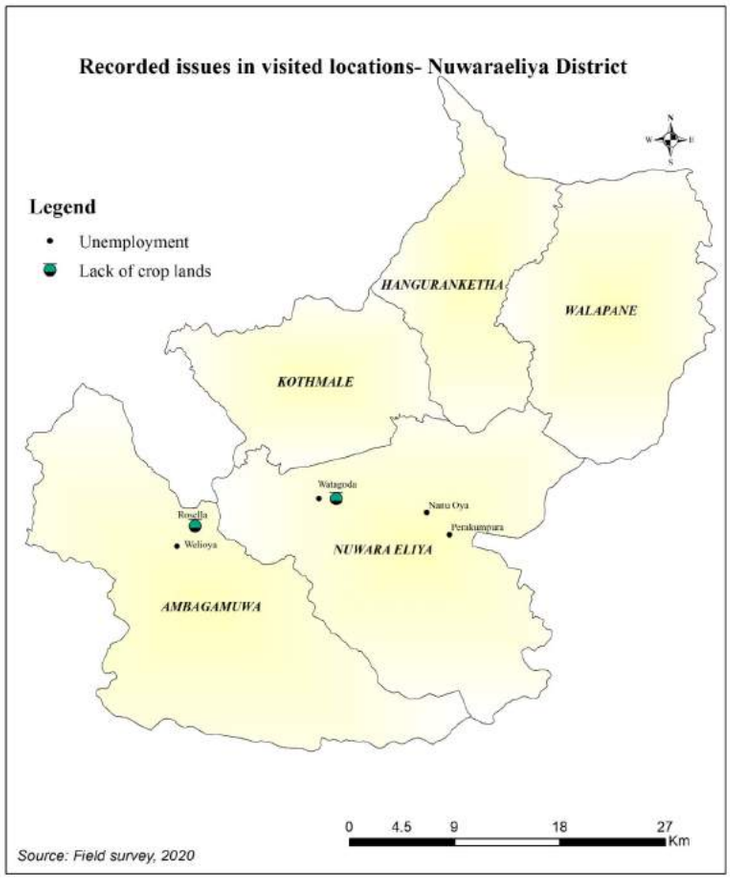
Damaged roads and lack of public transport facilities are other major issues recorded in almost all villages visited. Watawala and Welioya GNDs suffer from floods during heavy showers because of the overflowing streams. Absence of school teachers and proper facilities in the schools are also issues that were recorded. These rural and estate schools lack even the most basic facilities, which are readily available in urban schools.




Map 30: Identified Major Issues in Nuwara Eliya District

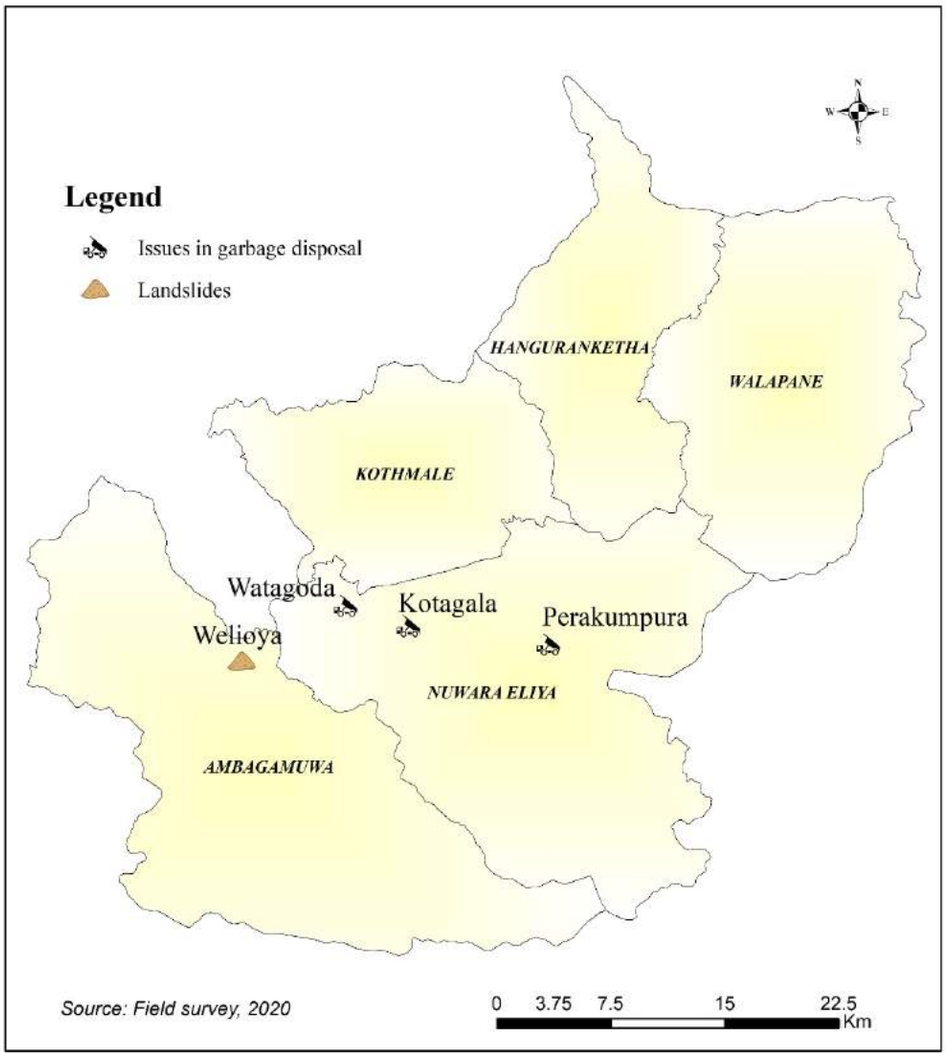
As mentioned above majority of the population in Nuwara Eliya district is engaged in the agriculture sector. There is a decrease in the need for labour in agriculture either due to machinery or the low income and profit the farmers received. Low income communities mainly settle down on the edge of the town and they definitely experience the worst living conditions. Unemployment is quite highly recorded among this community. Some other rural areas which were visited also recorded unemployment as a major issue.

Vegetable farming is a quite pronounced agricultural activity in and around Nuwara Eliya but low-income people do not own enough land for cultivation or even to build a proper shelter for themselves. Eventually all these social and economic issues prevent social mobility. Map 31 illustrates where these issues were identified during the field visits.




Map 31: Main Economic Issues in Nuwara Eliya District

As a result of the absence of proper garbage disposal and waste managing systems in Watagoda, Kotagala and Perakumpura areas, villagers face different health issues caused by water contamination and mosquito breeding. The Nuwara Eliya district is one of the high hazardous districts for landslides (NBRO). Cutting Failures are more frequent over the district and small to large scale landslides are not rare over the district. Welioya GN division is such an area where small scale landslides have happened some time back and affected people and highly vulnerable people were resettled. Yet, the rest of the village area is still vulnerable to experience another landslide if the relevant precautions are not taken into account. Improper land use management and politicization of the environment are identified as major causes for landslides in the Sri Lankan context (Jayathilaka & Hennayake 2019, Maddumabandara, 1994). Map 32 shows the distribution of these identified issues over the visited locations.

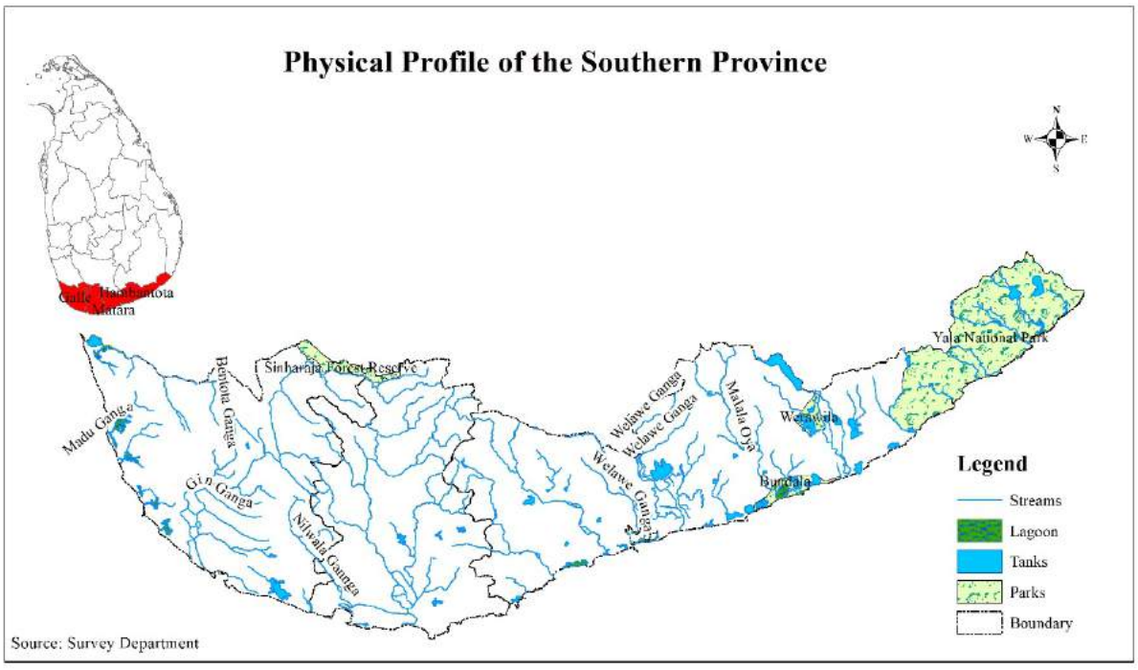



Map 32: Environmental Issues in Nuwara Eliya District

## Southern Province

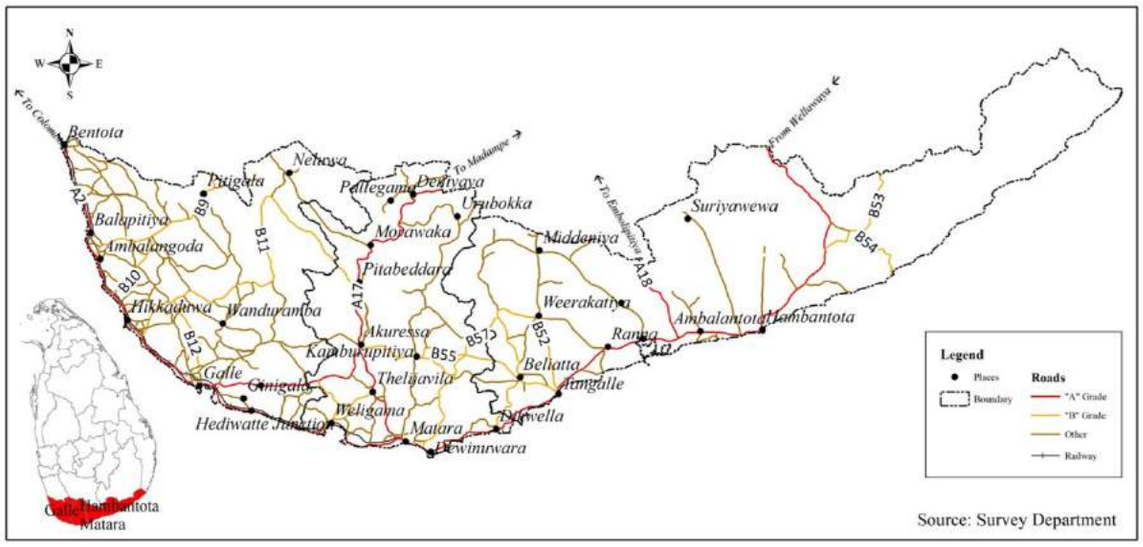
The Southern Province is a geographic area consisting of the districts of Galle, Matara and Hambantota. Subsistence farming and fishing is the main source of income for the vast majority of the people of this region. The province is bordered by the Sabaragamuwa Province and Uva Province to the north, Eastern Province to the northeast, Western Province to the northwest and the Indian Ocean to the south, west and east. The province's capital is Galle. The Southern Province's highlights include the wildlife reserves of Yala and Udawalawe National parks. Ussangoda in Ambalantota offers panoramic views of the beach and sea, the sacred city of Kataragama, and the ancient towns of Tissamaharama, Kirinda, and Galle are other landmarks of the province. Although Galle is an ancient city, almost nothing remains before the time of the Portuguese conquest.

Geographically, the Southern Province consists of a number of river valleys and southern slopes of the Sabaragamuwa ridge, in north end of the province, including the Galle and Matara districts. Sinharaja and Kanneliya forests are bounded to the north-western side of the province. Climatologically Southern Province has all three major climatic zones; wet zone, intermediate zone and dry done. Galle and Matara regions have wet and intermediate climates while Hambantota has a dry climate. Around eight agro-ecological zones can be identified over the province. The following map shows the river basin distribution and the national park distribution over the province.



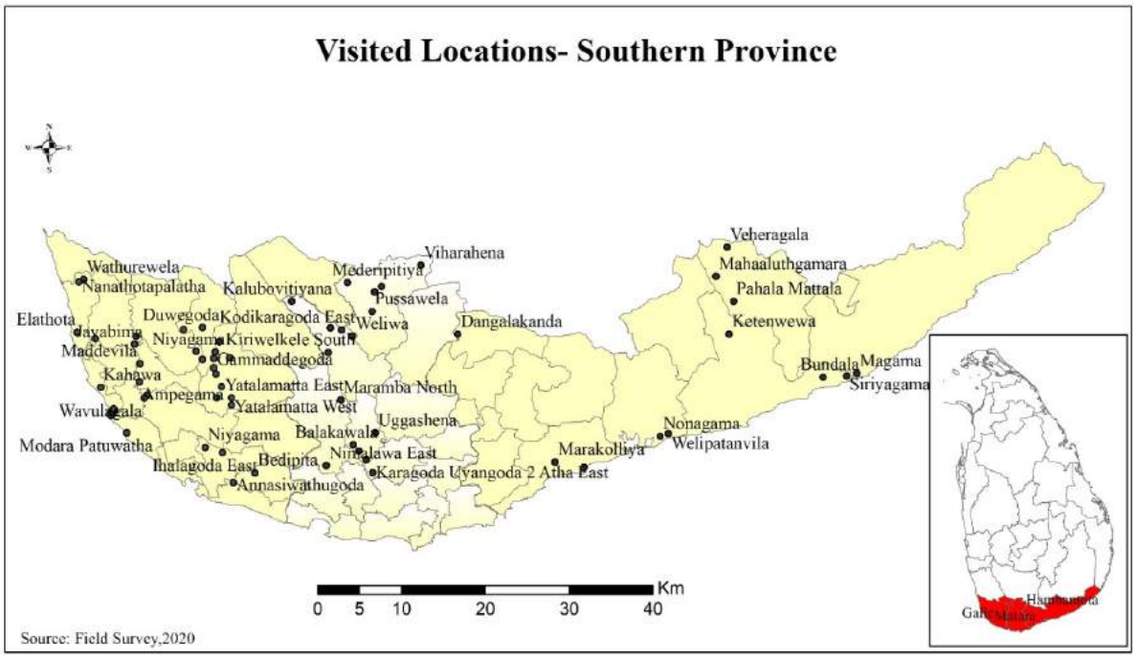

Map 33: Physical Profile- Southern Province

As indicated in the map, Walawe, Nilwala, Bentota, Gin and Malala are the prominent river basins of the province which flows over the province while enriching the ecology. Map 34 shows the road network of the province. According to 2019 data, total length of the constructed roads is 3,240 km and out of the total roads 347 km of A class roads, 1,154 km of B class roads, 915 km of C class roads, 715 km of D class roads and 108 km of expressways provide the connectivity of the province (Central Bank of Sri Lanka, 2020).




Map 34: Road Network- Southern Province

Gammadda team visited 663 selected villages of all three districts and interviewed 434 rural villagers. The following map shows the visited locations of the Southern Province and subsequently, the chapter will discuss the identified issues in detail.




Map 35: Visited Locations- Southern Province

# Galle District

Galle, which is the main city of the Southern Province, is a city which witnessed rapid development whilst recording a high population density – it is also quickly gaining fame as a modern city. The administrative district of Galle covers an area of 1,651.6 sq. kilometers and is bordered by the Kalutara and Rathnapura districts to the north, the Matara district to the east and the Indian Ocean to the west, including a belt of 73 km coastline. The territory covers 1,635.6 sq. kilometers, while 16 sq. kilometers of the area is made up of internal water reservoirs.

The physical features of the Galle region are formed with many flat lands and hilly inland lands. Hiniduma kanda, Thibbotuwawa kanda, Kabaragala kanda, Kondagala Kakirihena and Wadiyahena Balagala kanda are some of the main hills among these mountainous regions of the Galle district. The lands of Galle were formed from ancient Cambrian rock. The Reddish Yellow Podzolic soil can be seen throughout the Galle region. Moonstones, a variety of very rare gems, were also found in the Meetiyagoda area within the Ambalangoda divisional secretariat. Coral reefs, wetlands and lakes filled with mangroves can be seen as a geographic formation along the coastal area. The extraordinary formation of natural coral reefs as a gift of nature in Hikkaduwa is very famous locally and internationally and considered a tourist paradise which contributes to the vast development of the country.

Sufficient amounts of rain are received in this region by the southwest monsoon and torrential rains can be observed between May and September each year. Additionally, precipitation is available due to traditional cyclones. Annual rainfall is recorded between 2000- 4000 mm while the annual temperature of 240C is generally prevalent. “Gin Ganga” is the main river in the region and starts from the hills of Kabaragala and descends into the sea from Gintota. The river provides drinking water to Galle and is fed by the pristine “Sinharaja” rainforests. Additionally, there are few smaller rivers like Bentota Ganga, Madu Ganga, and Kogala Oya that can be seen in the area. There are huge forests that flourish due to the high temperatures, in addition to the heavy rains that prevail in the region. Part of the Sinharaja forest which has been internationally recognized as a world heritage site that belongs to the humid tropical terrain is situated in Galle.

The district contributes significantly to the national income through industries based on the agriculture and tourism industries. Rice, tea, rubber, coconut, and cinnamon are the main crops, while the areas of Bentota, Unawatuna, Hikkaduwa and Koggala along the coastal belt are very popular in the tourism industry. In addition, the Koggala free trade zone is located 10 km from Galle and facilitates the employment of a large number of employees.

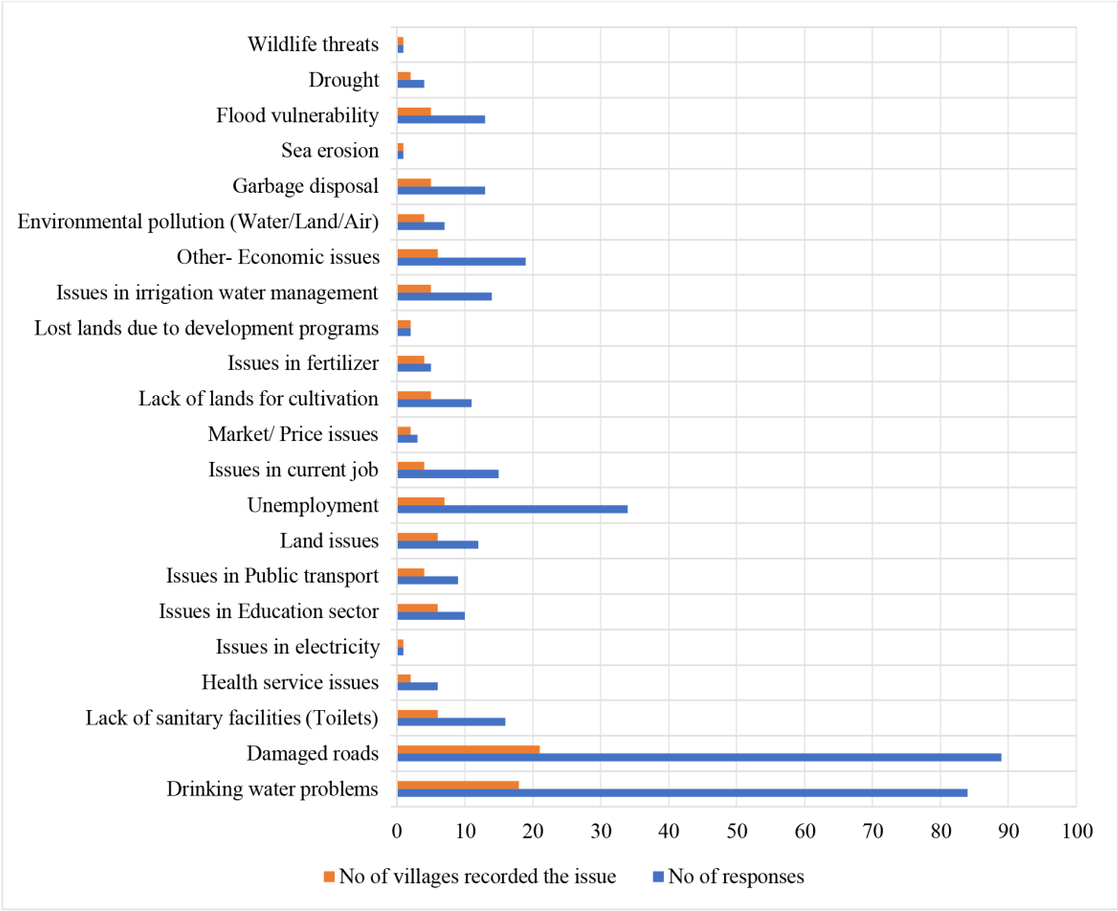
Total population of Galle is recorded as 1,063,300 and 12.5% reside in urban areas while 85.7% of the population live in rural areas and 1.8% in the estate sector. According to the 2012 census, ethnic distribution is as follows, 94.4% Sinhalese, 1.3% Sri Lankan Tamils, 0.6 Indian Tamils, 3.6% Sri Lankan Moors and 0.1% from other ethnic groups (Department of Census and Statistics, 2012). Population density of the area was recorded as 699 people per sq. kilometer in 2019 and 2% of the households are under the official poverty line in 2016 (Central Bank of Sri Lanka, 2020).

According to the sectorial employment over the district, 42.9% engage in the service sector, 31.5% in the industrial sector and 25.6% engage in the agricultural sector. Total unemployment rate of the district population was recorded as 5.7% in 2019. Considering the educational infrastructure of the district, 12,000 teachers were serving 222,000 students in 430 government schools in 2019. Out of the total government schools in the district, 104 schools function with below 100 students, 209 schools with 101-500 students, 57 schools with 501-1000 students, 22 schools with 1001-1500 students, 14 schools with 1501-2000 students, 18 schools with 2001-3500 students and 6 schools function with above 3500 students (ibid).

The Gammadda team visited selected locations over the district in order to identify the issues in the community. The team visited 33 selected GNDs and interviewed 179 people over the locations. Some of the visited locations are resettlements while the others are traditional villages. The following table and graph indicate the identified issues and responses of the Galle district.

| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 84 | 18 |
| Damaged roads | 89 | 21 |
| Lack of sanitary facilities (toilets) | 16 | 6 |
| Health service issues | 6 | 2 |
| Issues in electricity | 1 | 1 |
| Issues in education sector | 10 | 6 |
| Issues in public transport | 9 | 4 |
| Land issues | 12 | 6 |
| Unemployment | 34 | 7 |
| Issues in current job | 15 | 4 |
| Market/ price issues | 3 | 2 |
| Lack of lands for cultivation | 11 | 5 |
| Issues in fertilizer | 5 | 4 |
| Lost lands due to development programs | 2 | 2 |
| Issues in irrigation water management | 14 | 5 |
| Other Economic issues | 19 | 6 |
| Environmental pollution (water/land/air) | 7 | 4 |
| Issues in garbage disposal | 13 | 5 |
| Sea erosion | 1 | 1 |
| Flood vulnerability | 13 | 5 |
| Drought | 4 | 2 |
| Wildlife threats | 1 | 1 |

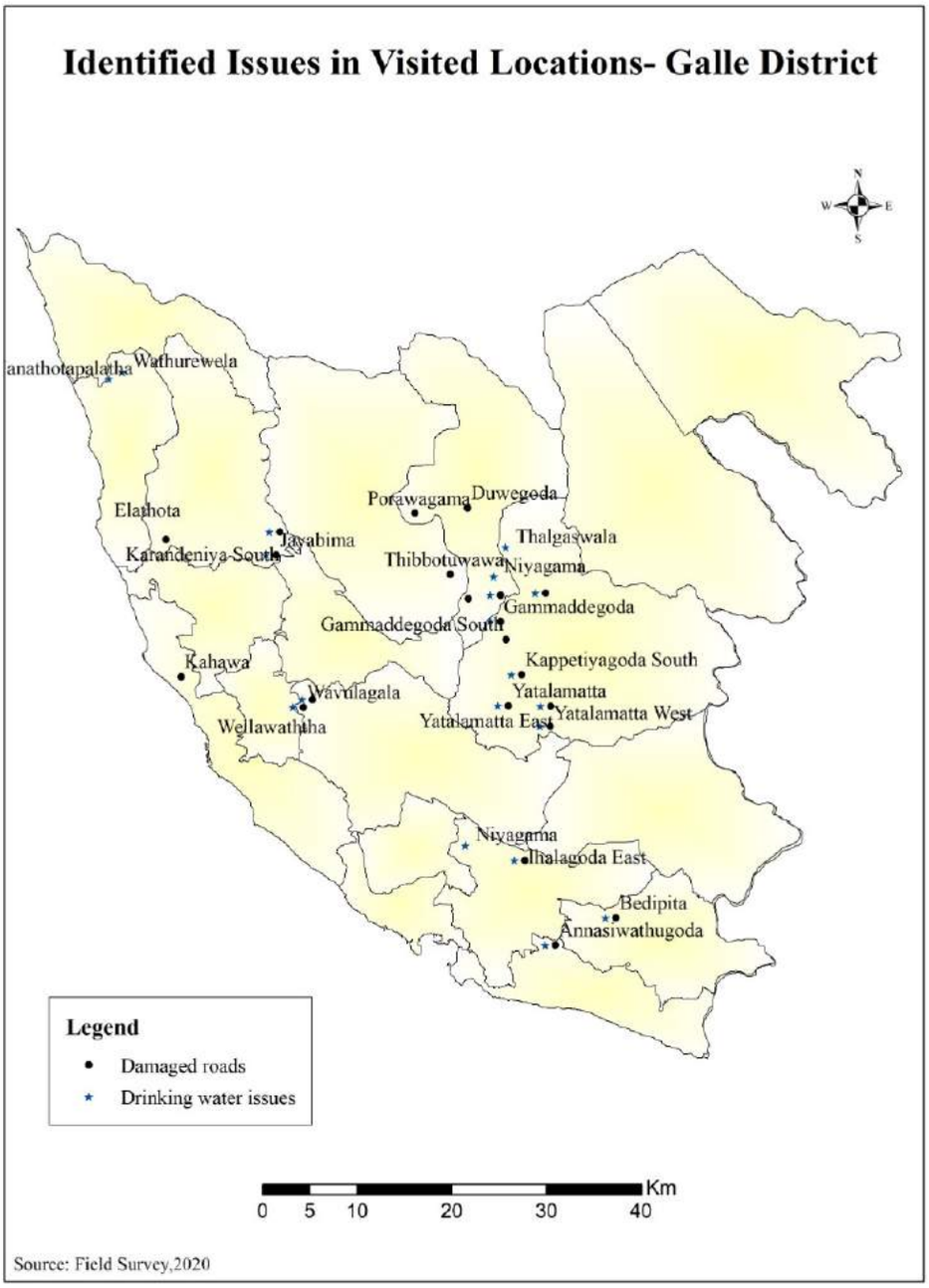
Table 9: Summary of Responses Received- Galle District




Graph 8: Identified Issues in Galle District

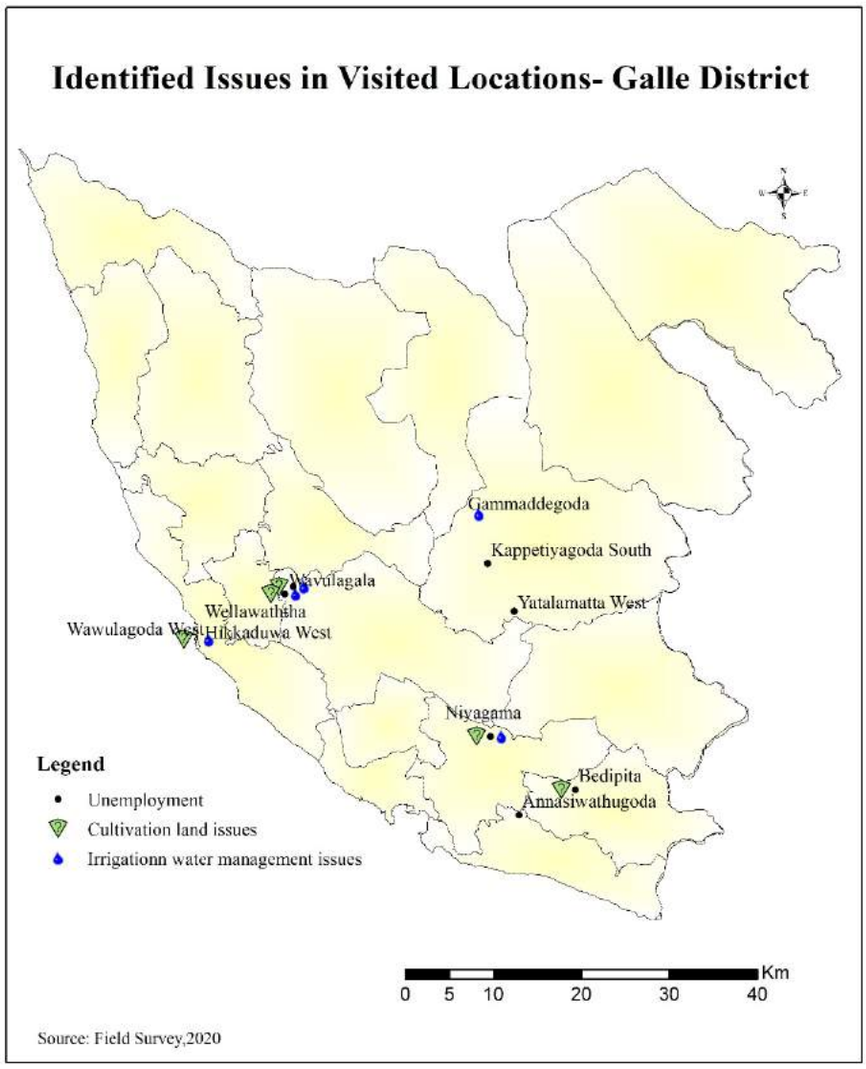
As labeled in the graph, damaged roads and drinking water problems are the most mentioned and recorded issues over the visited locations. Different dimensions of the drinking water problem can be identified over the district. Even though visited locations are in the wet zone, Swarnapura villagers explained the issue of decreasing water levels of the wells. This is a result of a decrease in the ground water table of the area. This is not an isolated incident but connected to forest degradation, river bed excavation and changes of regional geological structures. Karandeniya, Jayabima villagers stated that even though they have enough water, the quality is not good enough to consume. Thus, they are suffering with a drinking water problem.

Road damage is mainly caused by the poor standard of construction and unpaved rural roads. Most of the visited locations are inundated with torrential rains and roads are easily damaged because of their poor condition. In some locations constructed roads are not sturdy enough to bear the capacity of the vehicles that are driven on the road and it also causes damage to the road easily. The following map indicates the distribution of these issues over the district.



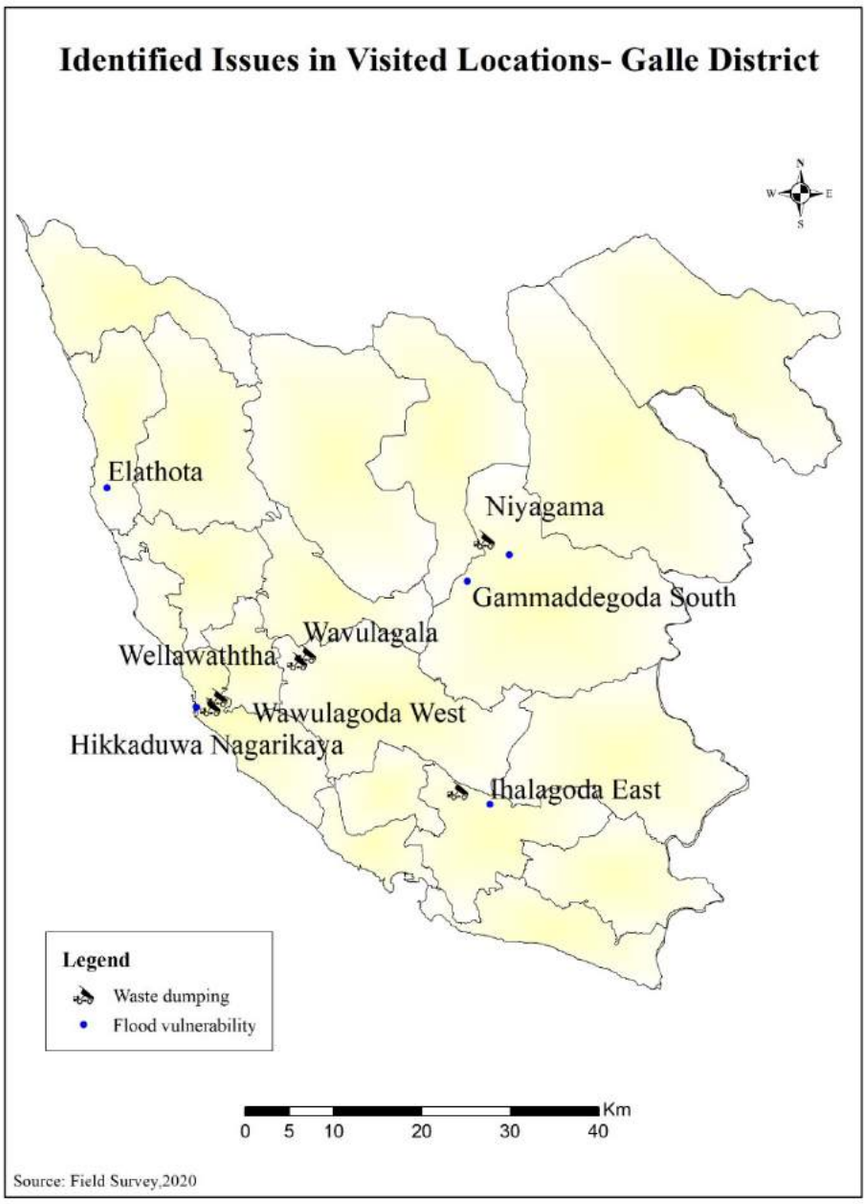

Map 36: Identified Main Issues in Visited Locations- Galle District

Unemployment and cultivation related issues are highly recorded economic issues over the district during the field survey. Excess water drainage is poor in most cultivation areas and farmers face severe problems due to this for a long time. The following map shows the distribution of these issues over the visited locations.




Map 37: Identified Economic Issues in Visited Locations- Galle District

The absence of proper waste management systems in the village has led to the dumping of garbage into streams and rivers that flow across the village. This has been the cause for different health issues and environmental issues. For instance, garbage blocks the streams and creates water stagnant environments in and around the village eventually creating breeding places for mosquitos and flies. On the other hand, disposing garbage into the streams results in blocking the heavy water flow and inundates the adjacent area; causing flooding. Apart from this reason heavy water flow over the streams in the area during the rainy season causes floods because of the low elevation over the area. The following map shows the locations of the issues identified.




Map 38: Identified Issues in Visited Locations- Galle District

# Matara District

The Matara District, which is located on the Nilwala River basin, is bordered by the Indian Ocean and is located between the Galle and Hambantota districts. Matara is a district with a humid climate. The average temperature in the region is 26.7°C and the average rainfall is 2553.2 mm. Matara comprises of 1.93% of the total territory of the country and 23.14% of the territory of the Southern Province. The Matara district consists of an area that stretches from the coastal belt to altitudes of 3880 feet. The northern region of the district is decorated with the Sinharaja Forest, which has been declared a World Heritage Site, and enchanting waterfalls. Further, Matara is a tourist destination because of its fabulous beaches. Matara is bounded on the south by a scenic coastal belt, on the north by the Rathnapura district, on the west by the Galle district and on the east by Hambantota district.

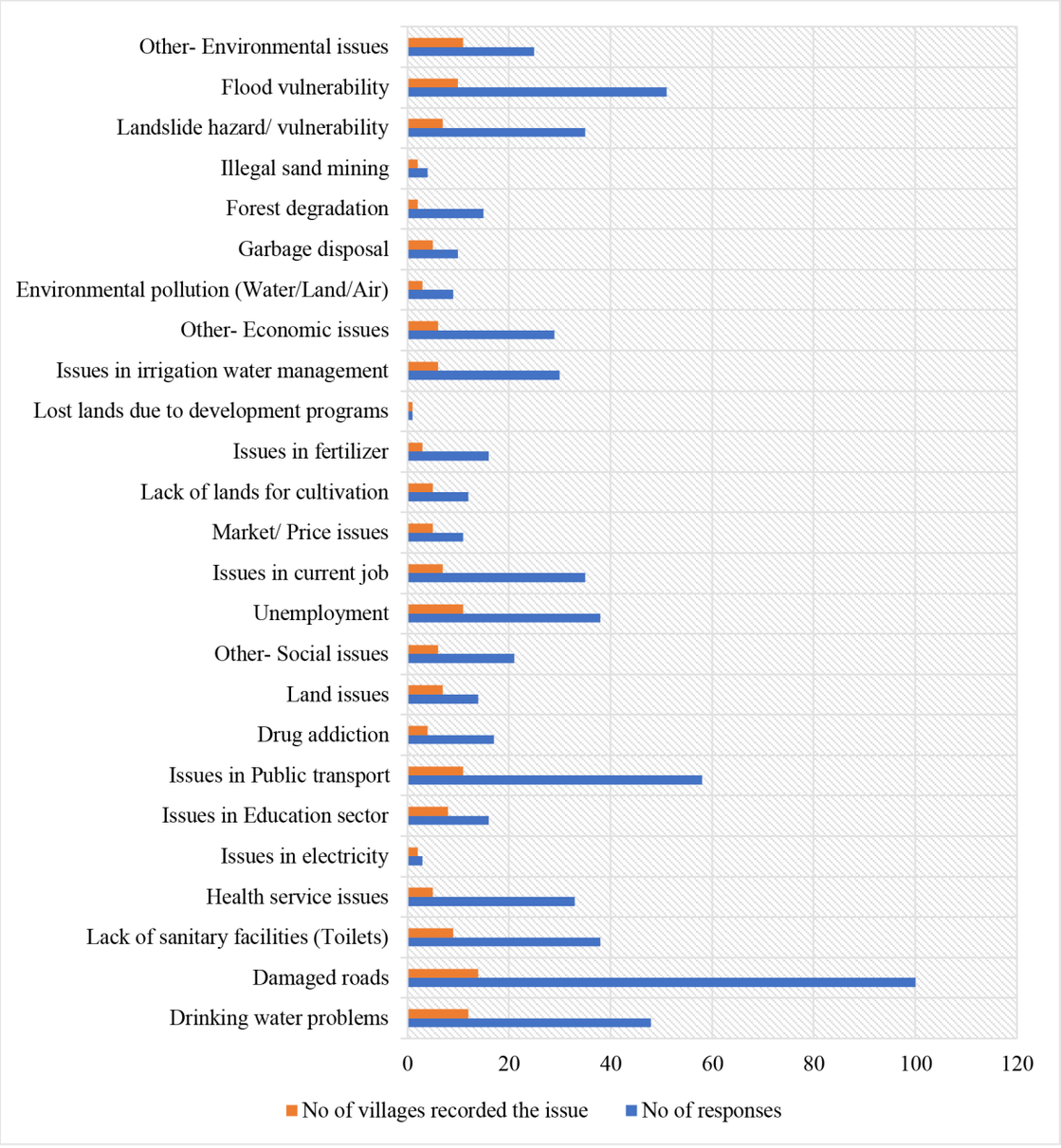
Current extent of the district is 1,282.5 sq. kilometers. The population of the district is 814,000 and population density of the area is recorded as 680 persons per sq. kilometer. Considering the sectorial population of the district 11.9% live in the urban sector, 85.4% in the rural sector and 2.8% live in the estate sector. Out of the total district population 94.3% are Sinhalese, 1.1% Sri Lankan Tamils, 1.5% Indian Tamils and 3.1% are Sri Lankan Moors (Department of Census and Statistics, 2012).

According to the sectorial employment over the district, 43.3% engage in the service sector, 25% in the industrial sector and 31.6% engage in the agricultural sector. Total unemployment rate of the district was recorded as 7.5% which is the highest unemployment rate recorded in the country for the year 2019 (Department of Census and Statistics, 2019). Considering the educational infrastructure of the district, 10,000 teachers were serving 166,000 students in 358 government schools in 2019. Out of the total government schools in the district, 96 schools function with below 100 students, 165 schools with 101-500 students, 56 schools with 501-1000 students, 15 schools with 1001-1500 students, 8 schools with 1501-2000 students, 16 schools with 2001-3500 students and 2 schools function with above 3500 students (Central Bank of Sri Lanka, 2020).

The Gammadda team visited selected locations over the district in order to identify the socio-economic and environmental issues in the community. The team visited 18 selected GNDs and interviewed 151 people over the locations. The following table and graph illustrate the identified issues and responses of the Matara district.

| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 48 | 12 |
| Damaged roads | 100 | 14 |
| Lack of sanitary facilities (Toilets) | 38 | 9 |
| Health service issues | 33 | 5 |
| Issues in electricity | 3 | 2 |
| Issues in Education sector | 16 | 8 |
| Issues in Public transport | 58 | 11 |
| Drug addiction | 17 | 4 |
| Land issues | 14 | 7 |
| Other Social issues | 21 | 6 |
| Unemployment | 38 | 11 |
| Issues in current job | 35 | 7 |
| Market/ Price issues | 11 | 5 |
| Lack of lands for cultivation | 12 | 5 |
| Issues in fertilizer | 16 | 3 |
| Lost lands due to development programs | 1 | 1 |
| Issues in irrigation water management | 30 | 6 |
| Other Economic issues | 29 | 6 |
| Environmental pollution (Water/ Land/Air) | 9 | 3 |
| Issues in garbage disposal | 10 | 5 |
| Forest degradation | 15 | 2 |
| Illegal sand mining | 4 | 2 |
| Landslide hazard/ vulnerability | 35 | 7 |
| Flood vulnerability | 51 | 10 |
| Other Environmental issues | 25 | 11 |

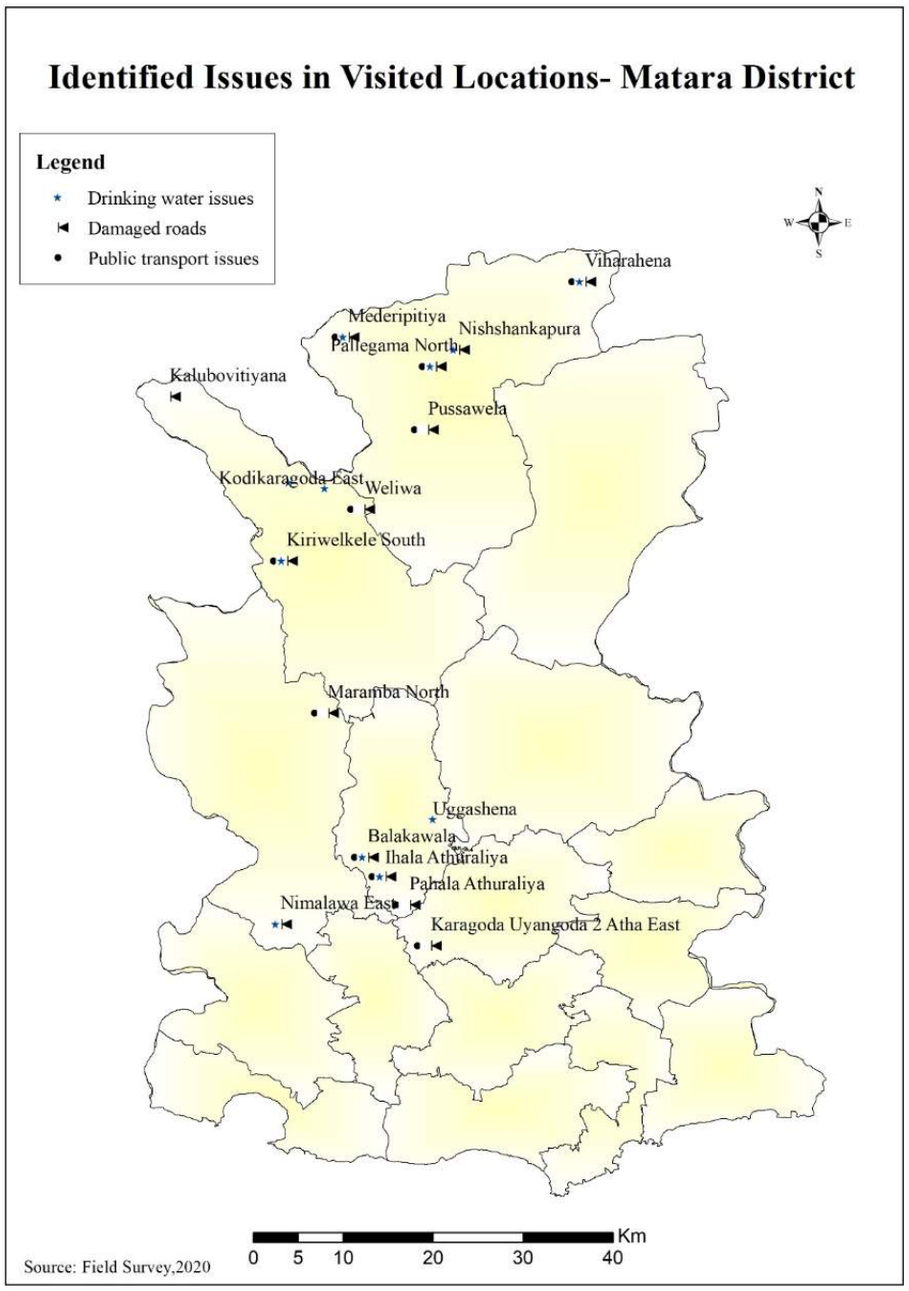
Table 10: Summary of Responses Received




Graph 9: Identified Issues in Visited Locations- Matara District

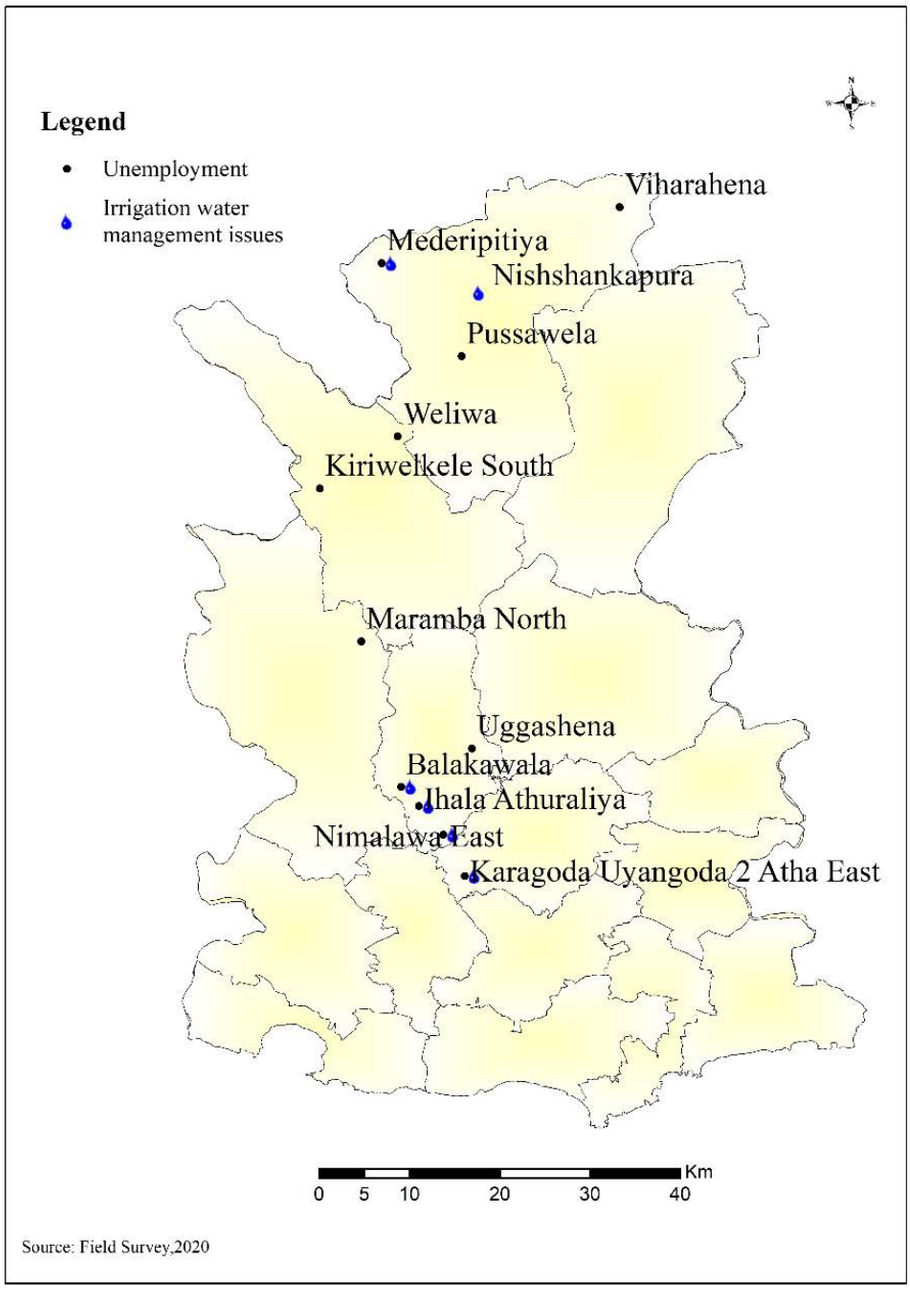
The most reported issue over the visited locations is damaged roads. Deliyankadura villagers and some other visited locations reported that these rural areas do not have a bridge to enter the village when crossing the Nilwala River. Still, they have to depend on boats to cross the river, but even this is impossible during the rainy season. Villages like Kalubovitiyana, Meddepitiya and other most visited villages recorded damages to the existing village roads. Insufficiency or absence of public transport is another transport related issue. Lack of access to clean drinking water is also a problem recorded in most of the villages.

The following map shows the identified issues over the Matara district.



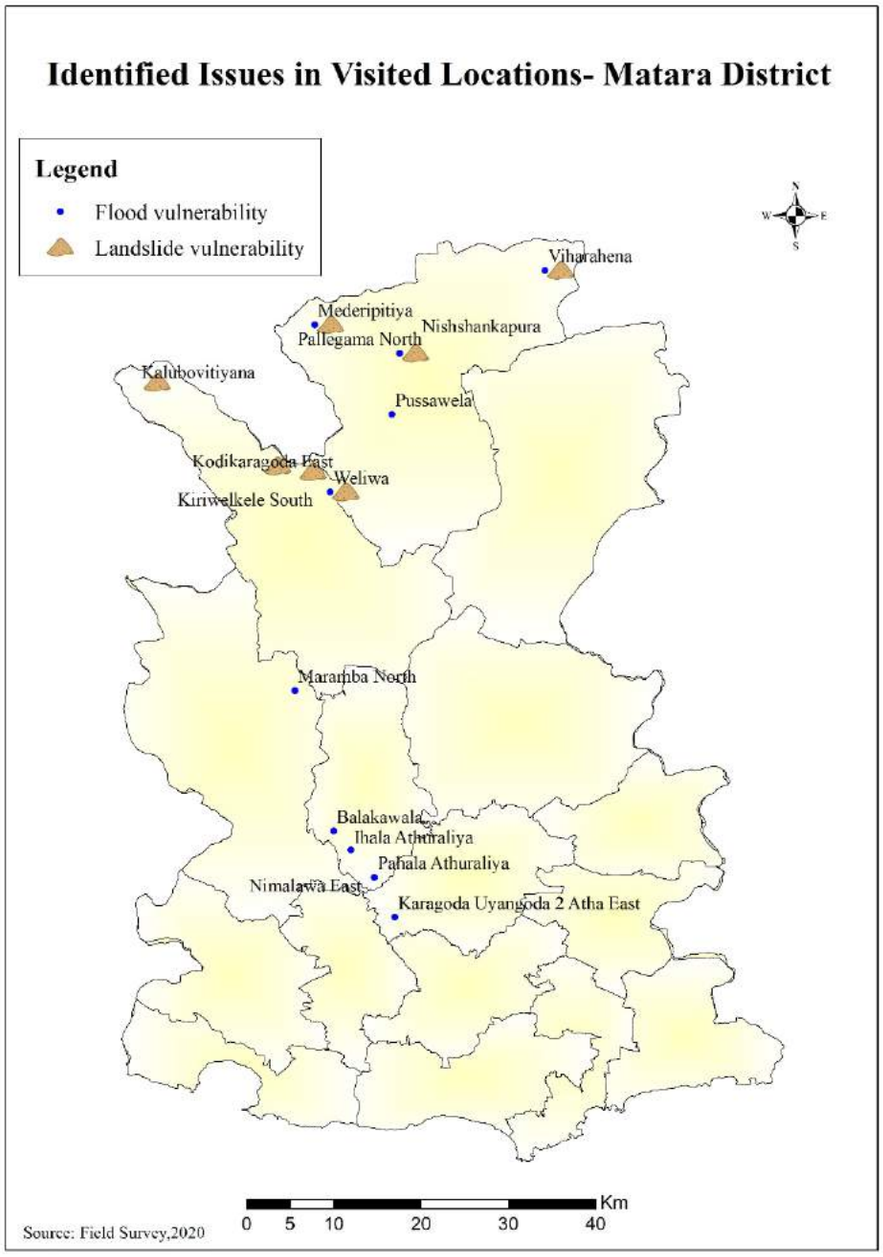

Map 39: Highly Recorded Issues- Matara District

Unemployment is the prominent economic issue in visited locations in Matara. Especially paddy farmers, they have adapted to rain fed cultivation system over the district as no irrigation schemes have been established. Due to rain delays and insufficient amount of water from the rain, the cultivations experience failure in some seasons. The following map shows the distribution of these issues over the visited villages.




Map 40: Identified Economic Issues in Visited Locations

Flooding and landslides are the prominent disaster vulnerabilities faced by residents in the visited locations. As discussed in the introduction, the northern part of the district is a hilly area. These hill slopes are reserved for tea cultivations and settlements. Due to improper land use practices in the villages some visited locations are vulnerable for landslides (Refer to Map 41 below).




Map 41: Hazard Vulnerability- Matara District

Due to the concentration of river basins and low elevation of the district, Matara is exposed to floods. However, human influences such as garbage disposal and improper constructions over the natural streams cause blocks to the natural drainage systems in the area, eventually causing flood events.

# Hambantota District

The Hambantota district, located in the South-Eastern part of Sri Lanka, covers 2,609 sq. kilometers and accounts for 1/25th of the total land area of the country. It has a maximum length of 106 km and a width of 39 km, and the length of the coastal belt of the Hambantota district is 151 km. The inland reservoirs cover approximately 11.5 sq. kilometers of the total area of the Hambantota district. The district is bounded on the north by the districts of Monaragala and Rathnapura, on the west by the district of Matara, on the south by the Indian Ocean, and the east by the district of Ampara.

Very rare geological resources such as Hummanaya in Tangalle, the hot springs in Sooriyawewa and Ussangoda plain in the Ambalanthota DSD, are priceless natural treasures in the Hambantota district. These hot springs are located near the famous Madunagala Aranya Senasana behind Ambalanthota. Hambantota's water resources network consists of large natural rivers and streams. The main sources of water in the district are the Walawe River, Kirindi Oya, Menik Ganga, Uruboku Oya, Kachchigalara and Kumbukkan Oya on the eastern border of the district. The water levels of these rivers reach flood level during northeast monsoons or southwest season of Maha (November-March). However, the water level of these rivers decreases during the southwest monsoon. Lake Ridiyagama is the largest reservoir among the 13 major inland lakes and reservoirs in the district. The Muruthawela and Lunugamwehera reservoirs contain the largest volume of water. Most of the lakes are located in the Tissamaharama area. Numerous irrigation development plans have been implemented in the district during the recent past. Udawalawe development scheme, Kirama Oya scheme, Uruboku Oya scheme, Liyangasthota scheme, Ridiyagama scheme, Lunugamwehera scheme, Mauara scheme, Kekiriobada scheme. Mahagalwewa, Bandagiriya, Beragama and Muruthawela schemes are the major schemes which contribute to colonize the dry and arid landscapes into green cultivated lands.

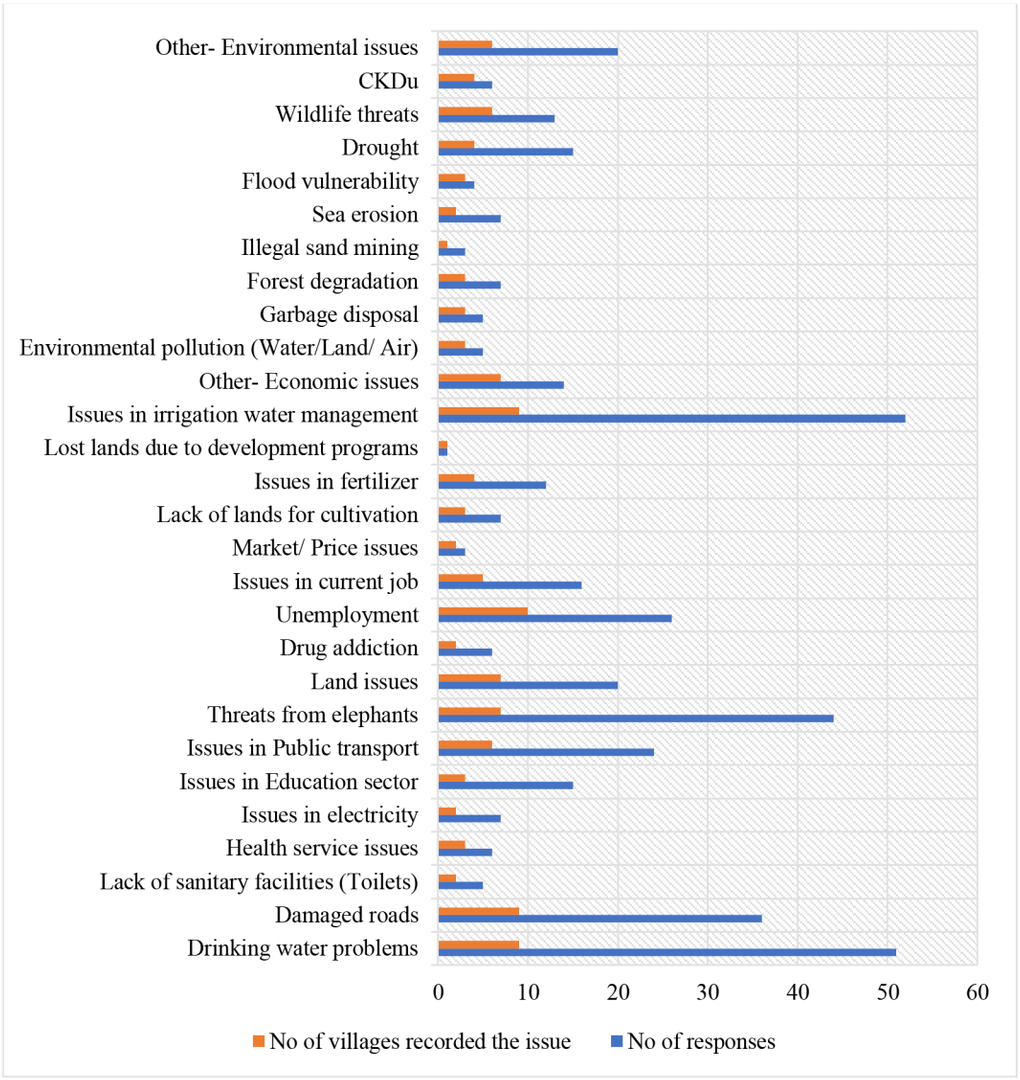
The population of Hambantota district is 599,900 and population density of the area is recorded as 265 persons per sq. kilometer. Considering the sectorial population of the district, 5.3% live in the urban sector and 94.7% in the rural sector. Out of the total district population 97.1% of them are Sinhalese, 0.4% Sri Lankan Tamils, 0.02% Indian Tamils, 1.1% Sri Lankan Moors and 1.38% belong to other ethnic groups (Department of Census and Statistics, 2012).

According to the sectorial employment over the district, 42.7% engage in the service sector, 28.3% in industrial sector and 29% engage in agricultural sector. The total unemployment rate of the district population was recorded as 7.3% in 2019 (Department of Census and Statistics, 2019). Considering the educational infrastructure of the district, 8,000 teachers were serving 141,000 students in 321 government schools in 2019. Out of the total government schools in the district, 70 schools function with below 100 students, 176 schools with 101-500 students, 38 schools with 501-1000 students, 22 schools with 1001-1500 students, 5 schools with 1501-2000 students, 7 schools with 2001-3500 students and 3 schools function with above 3500 students (Central Bank of Sri Lanka, 2020).

The Gammadda team visited selected locations covering the district in order to identify the socio- economic and environmental issues in the community. The team visited 12 selected GNDs and interviewed 104 people over the locations. The following table and graph illustrate the identified issues and responses of the district.

| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 51 | 9 |
| Damaged roads | 36 | 9 |
| Lack of sanitary facilities (Toilets) | 5 | 2 |
| Health service issues | 6 | 3 |
| Issues in electricity | 7 | 2 |
| Issues in Education sector | 15 | 3 |
| Issues in Public transport | 24 | 6 |
| Threats from elephants | 44 | 7 |
| Land issues | 20 | 7 |
| Drug addiction | 6 | 2 |
| Unemployment | 26 | 10 |
| Issues in current job | 16 | 5 |
| Market/ Price issues | 3 | 2 |
| Lack of lands for cultivation | 7 | 3 |
| Issues in fertilizer | 12 | 4 |
| Lost lands due to development programs | 1 | 1 |
| Issues in irrigation water management | 52 | 9 |
| Other Economic issues | 14 | 7 |
| Environmental pollution (Water/Land/ Air) | 5 | 3 |
| Issues in garbage disposal | 5 | 3 |
| Forest degradation | 7 | 3 |
| Illegal sand mining | 3 | 1 |
| Sea erosion | 7 | 2 |
| Flood vulnerability | 4 | 3 |
| Drought | 15 | 4 |
| Wildlife threats | 13 | 6 |
| CKDu | 6 | 4 |
| Other Environmental issues | 20 | 6 |

Table 11: Summary of the Responses

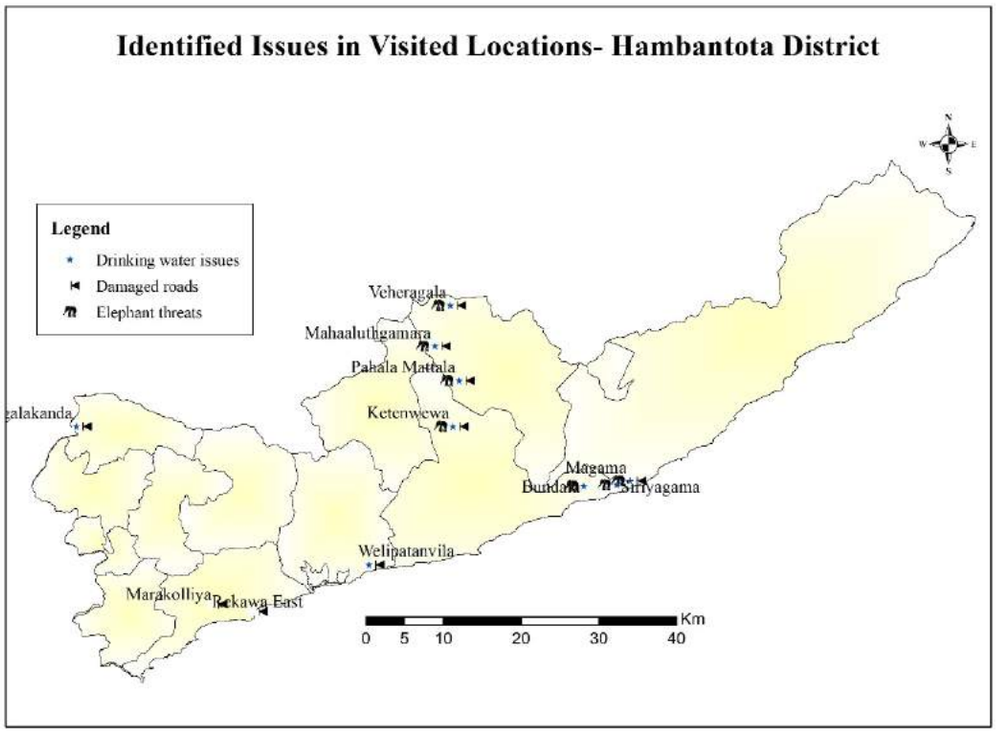



Graph 10: Identified Issues in Visited Locations- Hambantota District

Drinking water problems, damaged roads, unemployment, elephant threats and irrigation water issues are the highlighted issues in the visited locations of Hambantota. Several community water schemes function over the district but are unable to provide drinking water for all villages over the district. Villagers from some visited locations mentioned that the ongoing water project is unable to supply water regularly. Thus, villagers have to store water for few days and during the dry season it becomes a severe issue. Mahaaluthgamara in Lunugamwehera reported that the new water scheme is incapable of supplying pure drinking water. In such instances, villagers have to depend on local wells or personal water filters. If they cannot afford it, they have to use the impure water since there is no other option.

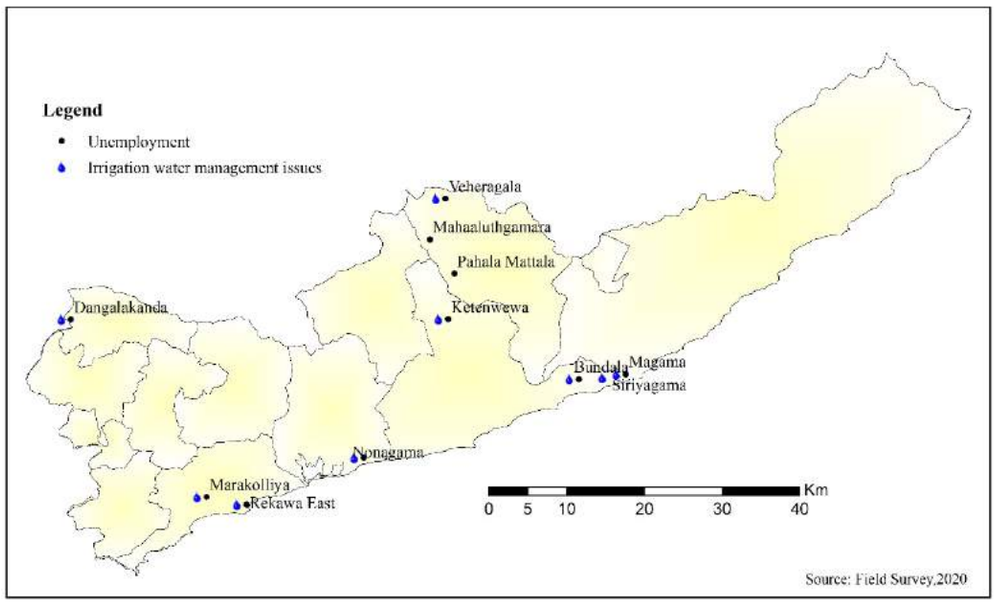
Villagers in and around the Lunugamwehera and Sooriyawewa face severe elephant threats and their lives, property and cultivation are at high exposure to the elephant threats. Elephant fences do not function well and improper development activities and illegal farming practices in the forests also cause severe issues in the visited locations.

Most of the village roads are not paved so during heavy rains it becomes a water way restricting travel. The following figure expresses the spatiality of these issues.

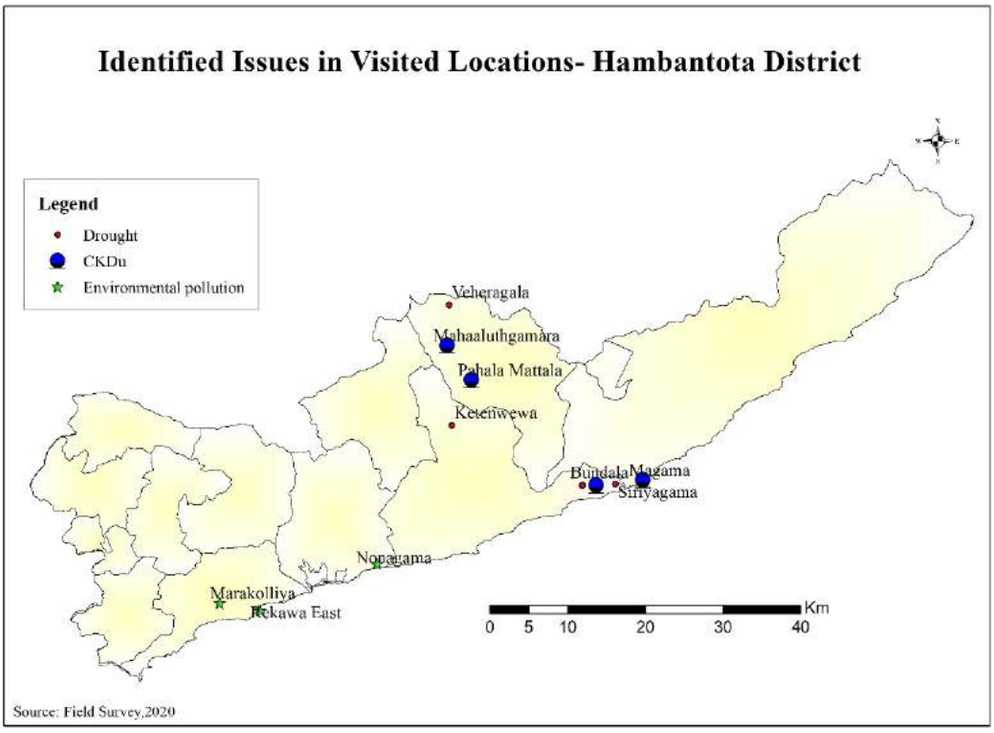



Map 42: Highly Recorded Issues in Hambantota District

Most of the visited locations had cultivation lands which solely depended on irrigation water. Even though the entire area has been developed with different irrigation schemes, these projects are unable to maintain the water supply to keep up with the demand. Thus, farmers have to either abandon the lands or cultivate in rotation. The following map shows the distribution of these issues in Hambantota.




Map 43: Identified Issues in Visited Locations - Hambantota District




Map 44: Identified Issues in Hambantota District

Map 44 above illustrates the highlighted environmental issues over the visited locations. CKDu is one of the main threats faced by the villagers and absence of pure drinking water makes it more severe. Environmental pollution is prominent especially along the coastal belt where the number of local and foreign tourist attractions is high.

# Northern Province

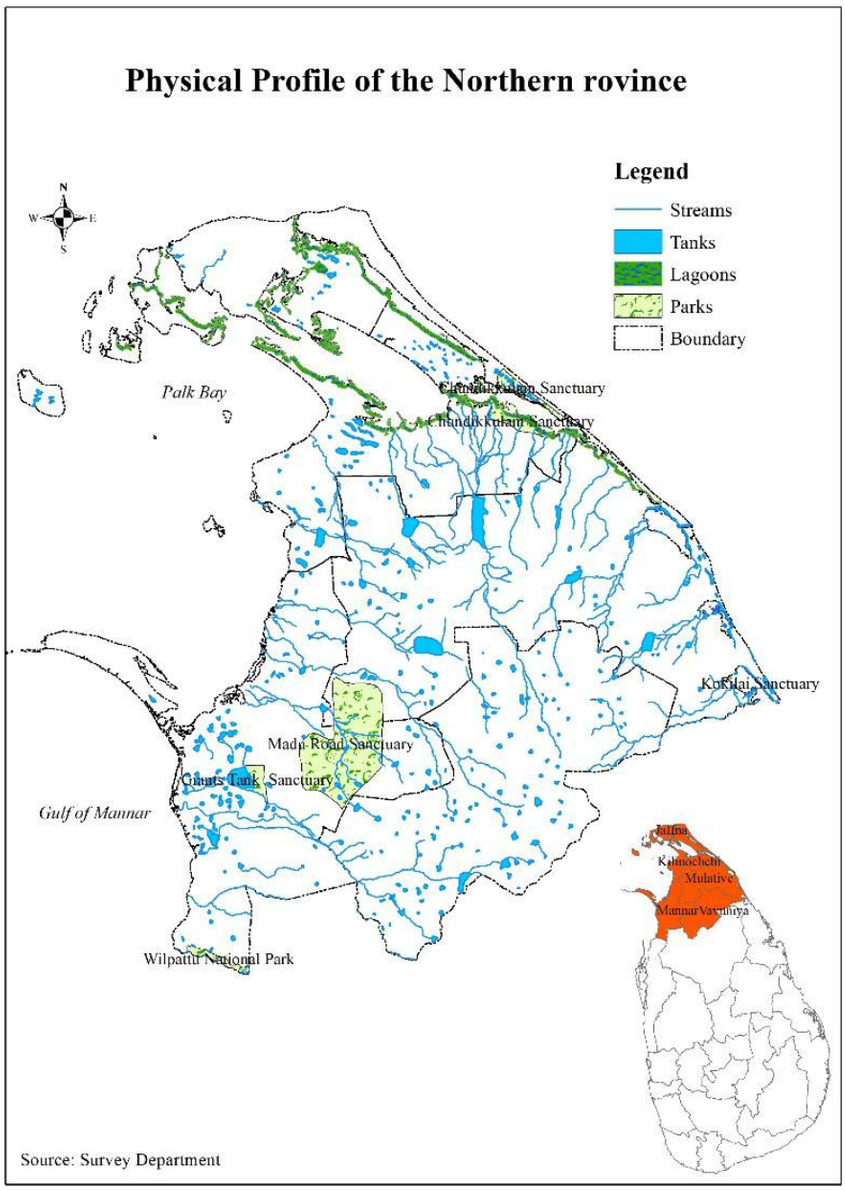
Historically, parts of present-day Northern Province were part of the pre-colonial Kingdom of Jaffna. The other parts were ruled by the Vaniar chieftains who paid tribute to the Kingdom of Jaffna. Later, the province came under Portuguese, Dutch and British control. After gaining control of the whole island in 1815, the British divided the island into three administrative structures based on ethnicity: the Low-country Sinhalese, the Kandyan Sinhalese, and the Tamils. The Northern Province was part of the Tamil administration. In 1833, in accordance with the recommendations of the Colebrooke-Cameron Commission, ethnic-based administrative structures were consolidated into a single administration divided into five geographic provinces. The provinces of Jaffna, Mannar, Nuwarakalaviya (present day Anuradhapura province) and Vanni formed the New Northern District. Nuwarakalaviya moved to the newly created North Central Province in 1873.

Even though, the provinces have existed since the 19th century, they had no legal standing until 1987, when the 13th Amendment to the Sri Lankan Constitution established provincial councils. Between 1988 and 2006, the region temporarily merged with the Eastern Province to form the North Eastern Province. The provincial capital is Jaffna. Most of Sri Lanka's civil war took place in this province.

The Northern Province is located in the north of the island, just 35 km away from India. It is connected to the Indian mainland by Adam's Bridge (also known as Sethu Paalam or Rama Bridge). It covers an area of 8,884 km2 and is surrounded by Mannar Bay and Balak to the west, the Palk Strait to the northwest and the Bay of Bengal to the north and east, and to the east, north-central and northwest, and southern provinces. The province is divided into two distinct geographical regions: the Jaffna Peninsula and Vanni. The Jaffna Peninsula is irrigated by aquifers fed by wells, while Vanni has irrigation tanks fed by permanent rivers.

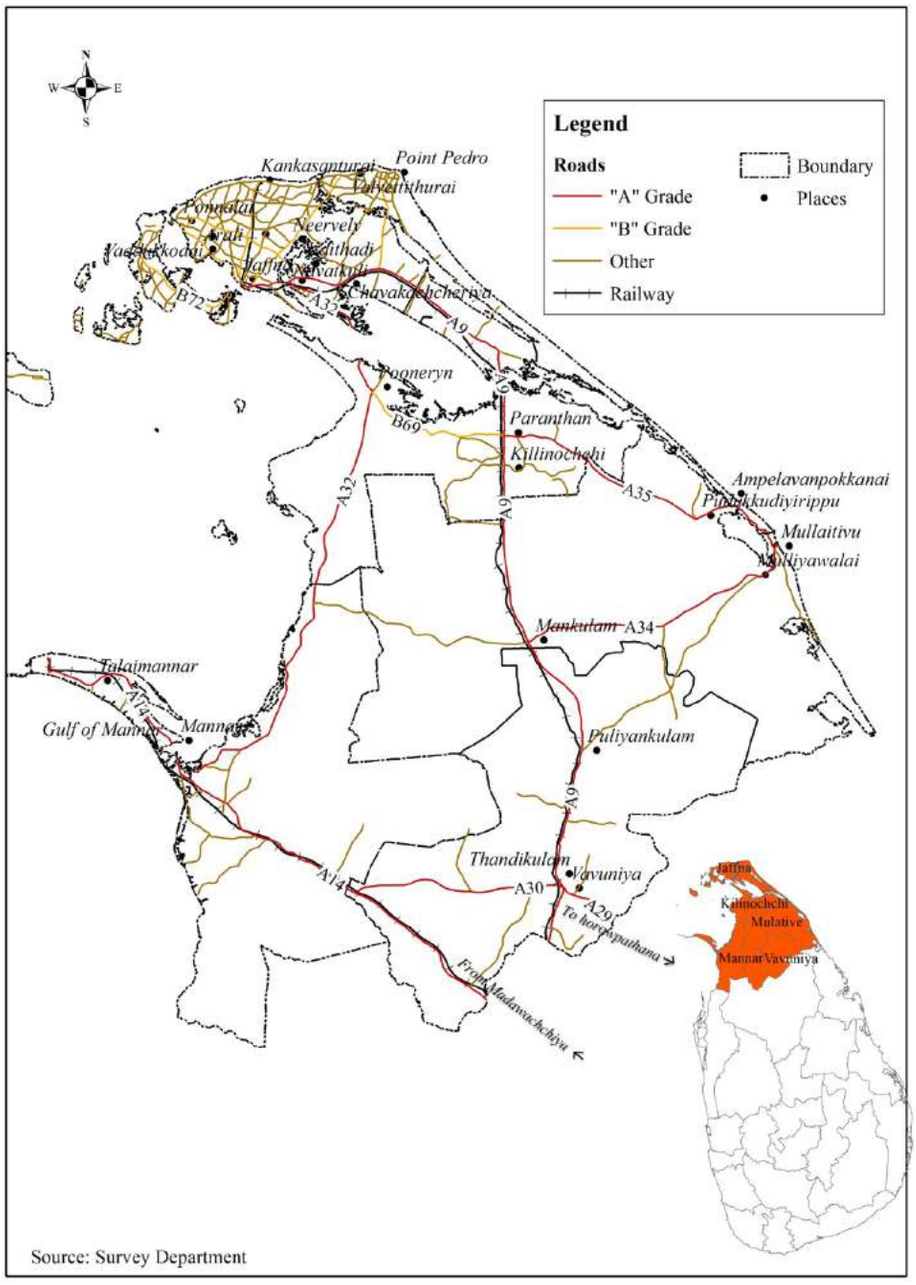
Climatologically, the Northern Province tends to be hot and dry in the dry season (February to September) and moderately cold and humid in the wet season (October to January). The country has a tropical climate, so there is always the possibility of flooding during monsoons. In the lowlands, the climate is usually tropical with an average temperature of 28-30 degrees Celsius. However, in general, January is the coldest month and May is the warmest month. Relative humidity ranges from 70% during the day to 90% at night. The dry region of Sri Lanka is the north and east of the island, and this region is influenced by the northeast monsoon (December to March) and the southwest monsoon (June to October). It is believed to be dry because most of the rain falls during the northeast monsoon.

The Northern Province is divided into five administrative districts, Jaffna, Mannar, Mullaitivu, Kilinochchi and Vavuniya, 33 Divisional Secretariat Divisions and 912 Grama Niladhari Divisions. This province is home for 1,143,000 people and population density is recorded as 138 people per sq. kilometer in 2019. The following map shows the physical arrangement of the province. As illustrated in the map several small and medium scale tanks are distributed over the mainland area and only few streams can be observed over the Jaffa peninsula. The Madu Sanctuary is the major conservation area that can be found in the province. However, still most of the areas consist of forests and shrubs over the province. Lagoon ecosystems can be observed over the Jaffna lagoon and Palk bay area.



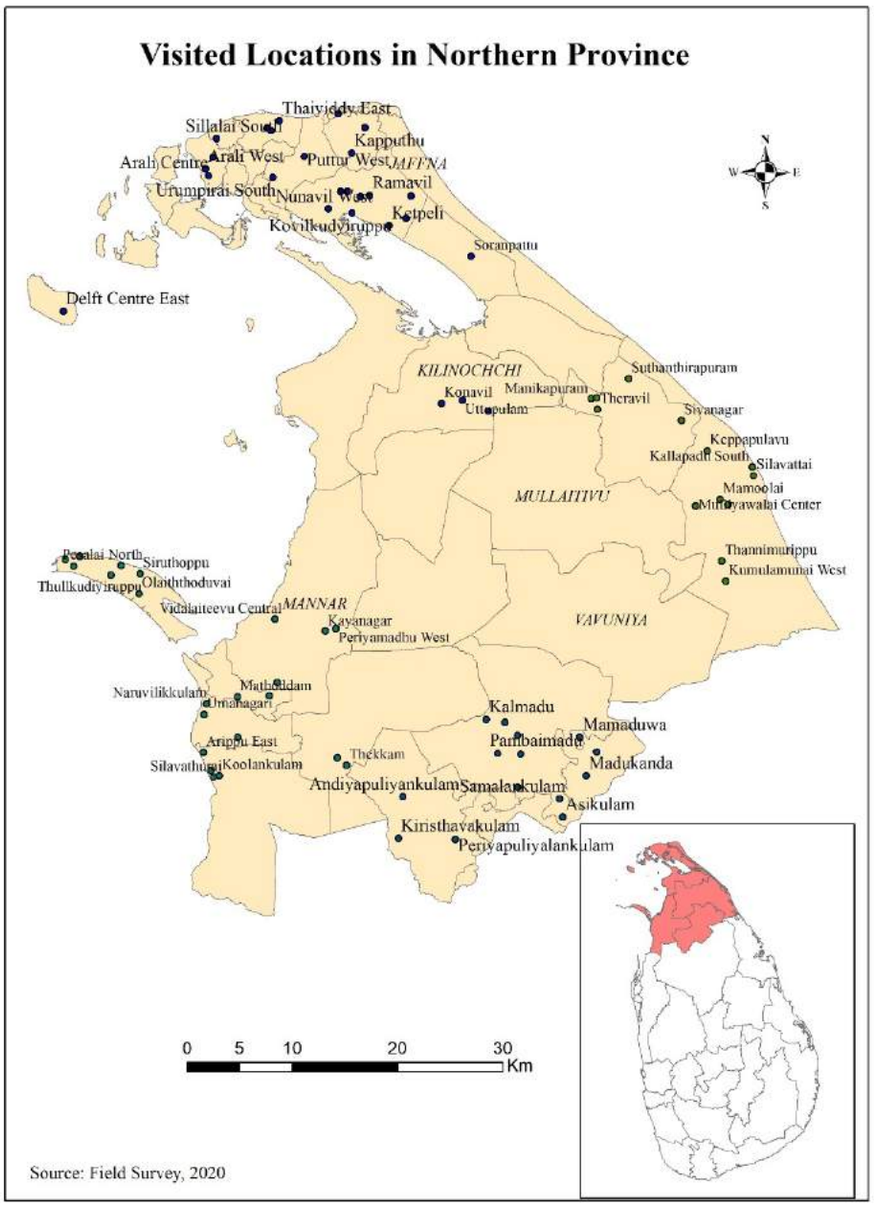

Map 45: Physical Resources of Northern Province

Map 46 illustrates the road network of the area. Total length of the road network of the province is 3,379 km and out of it, 734 km are A class roads, 525 km are B class roads, 1959 km are C class roads and 161 km are D class roads. However, the highest road density is concentrated in the Jaffna district rather than the other districts of the province (Central Bank of Sri Lanka, 2020).




Map 46: Road Network- Northern Province

The Gammadda research team visited 76 GNDs and interviewed 378 villagers in the Northern Province. Most importantly, the Gammadda team was able to visit a few islands where a few of the main issues were recorded. The following map illustrates the visited locations of the province.




Map 47: Visited Locations- Northern Province

# Jaffna District

The Jaffna district which is 410 km away from Colombo is situated in the Northern corner of the country. It consists of a peninsula and seven islands which are populated with people. The district is bound north, east and west by the Indian Ocean and bound south by Jaffna Lagoon and the Kilinochchi district. The total extent of the district including islands is 1012.01 sq. kilometers and the district has been divided up to four parts such as the islands, Walikamam, Thenmarachchi and Wadamarachchi. 1084 ponds and 2433 canals are scattered within the district and they serve to preserve rain water. The additional water flows very easily to the sea or lagoon. The height above sea level of the district is as follows; Point Pedro 15.24 m, Mailadi 10.8 m, Chankanei 3.04 m, and Kokuwil 6.09 m (http://www.moha.gov.lk/).

Both soil and water resources of the Jaffna Peninsula are related to the geology of the earth's limestone. Soil is formed on sediments and marine sediments under the influence of ocean waves and winds on limestone. Limestone tiles being porous rock is the source of underground water for the peninsula. In the central regions (60,000 ha) there are well-drained red-yellow and red-yellow Latosol soil with high productivity. Alkaline salt and Regasol soil are found in coastal areas (26,000 ha) and alluvial soil in Valukaiaru (10,000 ha). In certain areas, coral limestone is available. These different types of soil provide space for growing both exotic and local crops. The depth of the tiles varies from 90 cm to 150 cm. Jaffna peninsula has a source of ground water stored in the sub terrain layer of limestone. The limestone is the main aquifer. This aquifer has several isolated caves and caverns capable of storing ground water without evaporation losses. It is an excellent aquifer. The entire ground water is generated from percolated rainfall and it forms a freshwater lens beneath the peninsula (http://www.jaffna.dist.gov.lk/).

Jaffna was established as a trading city by European merchants. Although there was a historic port that the original Kingdom of Jaffna used when the Portuguese arrived, it was European commercial activity that made it prominent. In the colonial era, the production of clothing, gold and silver, processing tobacco and rice, and other related activities were an important part of the economic activities. In the modern era, the port was their main source of income, but it has declined dramatically. It currently lives on as a fishing port. The city had a wide range of industries, including food processing, packaging, manufacturing of household goods, and salt processing, but most of them ceased after 1995. Since then, most industrialists, entrepreneurs and businessmen have moved to the rest of Sri Lanka and beyond. After 2009, foreign governments from the European Union, the United States, India and investors from the south of the island and the Sri Lankan Tamil diaspora showed interest in investing in the Jaffna region in general and in the city of Jaffna in particular. Shopping malls like Cargills Square and hotels like Gateway to Jaffna and Telco Jaffna City Hotel were built to boost the city's tourism industry.

The Jaffna District consists of a population of 5,899,000 and the population density was recorded as 664 people per sq. kilometer, which is the highest population density recorded in the Northern Province. According to the sectorial population 20.1% live in the urban sector while 79.9% live in rural areas. Considering the ethnic diversity of the district, the vast majority of the population are Sri Lankan Tamils accounting for 98.9%, Sinhalese 0.4%, Indian Tamils 0.3% and Sri Lankan Moors 0.4% make up the remainder of the population. (Department of Census and Statistics, 2012).

Compared to the other districts in the Northern Province, the highest student population is concentrated in Jaffna, which is 112,000, who were served by 9,000 teachers in government

schools in 2019. There are a total of 448 government schools in the district and out of it, 203 schools function below 100 students, 187 schools with 101-500 students, 33 schools with 501-1000 students, 15 schools with 1001- 1500 students, 5 schools with 1501- 2000 students and 5 schools with 2001- 2500 students (Central Bank of Sri Lanka, 2020).

According to the percentage distribution of employed population by major industry group, 53.8% were in the service sector, 24.1% in the agricultural sector and 22.2% are in the industry sector. Out of the total employed population 63.5% were employed as employees and the rest were classified as self-employed. Total unemployment rate of the district is recorded as 6% which is the highest percentage compared to other districts of the province.

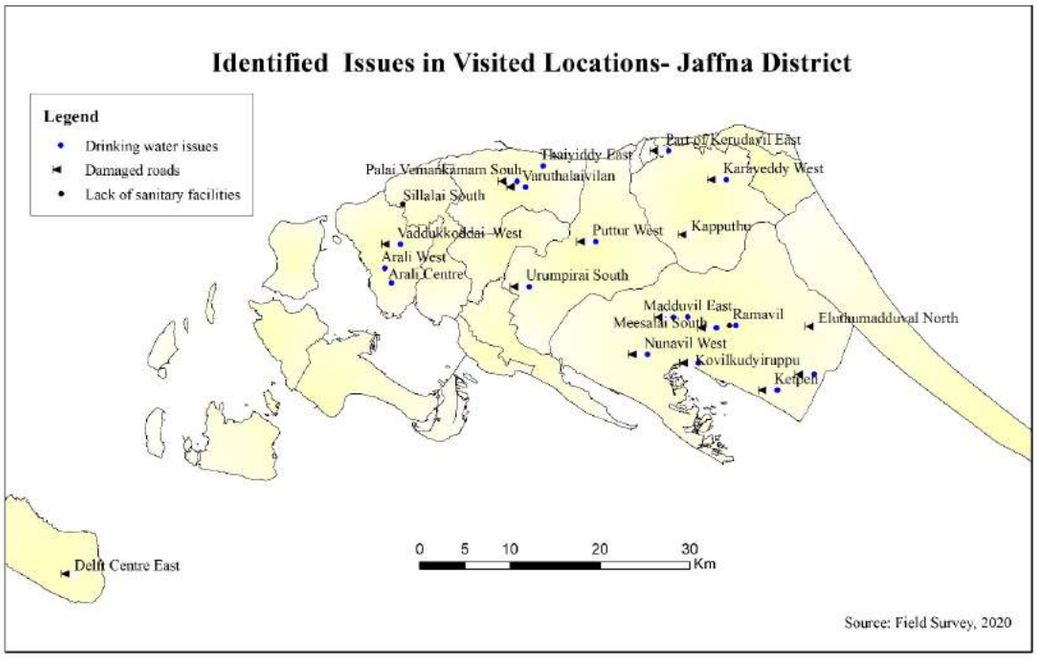
The Gammadda team visited 22 selected GNDs and interviewed 85 rural villagers. The following table and graph summarize the respondent's summary of Jaffna district.

| Issues | No. of responses | No. of villages the issue was trecorded in. |
|---|---|---|
| Drinking water problems | 49 | 18 |
| Damaged roads | 40 | 16 |
| Lack of sanitary facilities (Toilets) | 32 | 13 |
| Health service issues | 9 | 6 |
| Issues in electricity | 10 | 6 |
| Issues in Education sector | 21 | 8 |
| Issues in Public transport | 19 | 8 |
| Threats from elephants | 2 | 1 |
| Land issues | 8 | 6 |
| Drug Addiction | 11 | 7 |
| Other Social issues | 3 | 2 |
| Unemployment | 32 | 16 |
| Issues in current job | 10 | 5 |
| Market/ Price issues | 2 | 1 |
| Lack of lands for cultivation | 3 | 2 |
| Issues in fertilizer | 2 | 1 |
| Lost lands due to development programs | 2 | 1 |
| Issues in irrigation water management | 12 | 6 |
| Other Economic issues | 5 | 4 |
| Environmental pollution (Water/Land/ Air) | 3 | 2 |
| Issues in garbage disposal | 4 | 3 |
| Forest degradation | 2 | 1 |
| Illegal sand mining | 2 | 1 |
| Sea erosion | 2 | 1 |
| Landslide hazard/ vulnerability | 2 | 1 |
| Flood vulnerability | 13 | 8 |
| Drought | 13 | 7 |
| Wildlife threats | 2 | 1 |
| CKDu | 2 | 1 |
| Other Environmental issues | 2 | 1 |

Table 12: Summary of the Results- Jaffna


Graph 11: Reported Issues- Jaffna District

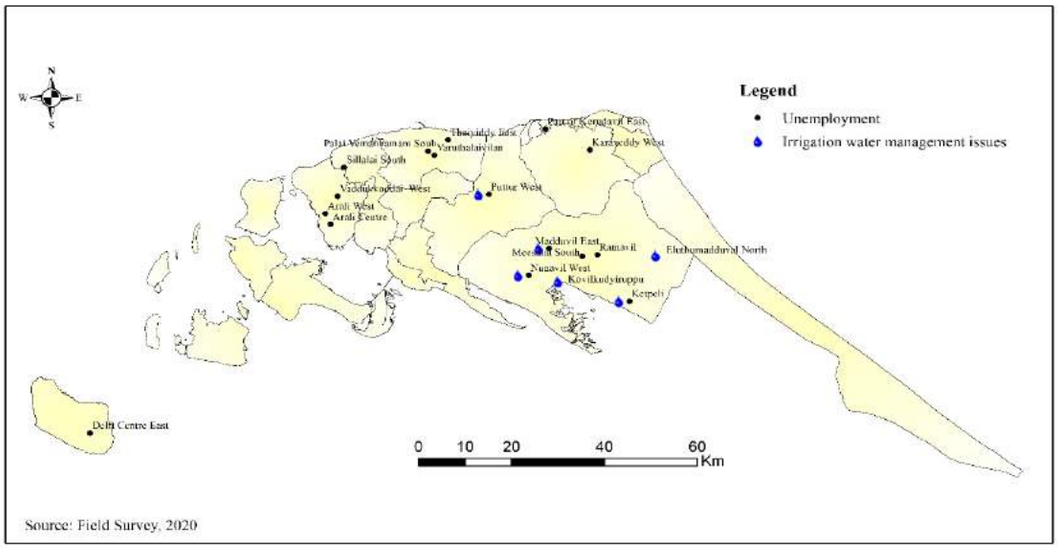
The most commonly reported issues over the visited locations were the lack of drinking water, damaged roads and poor condition of sanitary facilities, especially toilets. Due to contamination of the drinking water and salt water intrusion into the ground water during the dry season, most rural people do not have clean drinking water for parts of the year. The following map shows the distribution of these issues over the visited locations.




Map 48: Highly Recorded Issues in Jaffna District

Unemployment is one of the major economic issues identified over the visited locations. This is a common issue identified over the visited locations of Northern Province. Generally, unemployment is higher among the youth rather than the elder population. Thus, job oriented vocational training opportunities and expanding the industries over the area is a must to overcome this issue.

Some of the rural areas which were visited mainly depended on agriculture, especially vegetable and fruit cultivations. These farmers suffer with lack of irrigation water for cultivation, especially during the dry months. The following map illustrates the distribution of these issues over the visited locations.




Map 50: Distribution of Selected Issues, Jaffna

The above mentioned Map 50 shows the areas that are vulnerable for floods and droughts. As it shows, the same locations can be seen as vulnerable for both. This is caused by the improper surface water management. During the rainy season areas are flooded due to the absence of flood levies and streams/channels over the villages. Since the community does not have proper water storage systems during the dry season, the same area suffers with drying out.

## Mannar District

The Mannar district is to the northwest of the island and is affiliated with the Northern Province. The region is bordered to the south by the Puttalam district, to the southeast by Anuradhapura, to the east by Vavuniya, to the northeast by the district of Mullaitivu and to the north by Kilinochchi. Thirukedeeshvaram, Madu Church, Dutch Castle, Aripppu Fort, Arukku Allirani, Rama Bridge (Adam's Bridge), Wel palama, Biobab Tree and Lighthouse can be seen as distinguished attractions within the area.

Between the 5th century BC and 13th century AD, what is now the Mannar district was part of Rajarata. Later, parts of the Mannar region became part of the pre-colonial Kingdom of Jaffna, and the region came under Portuguese, Dutch, and British control. In 1815, British took control of the entire island of Ceylon. They divided the island into three administrative structures based on ethnicity: the low country Sinhalese, the Kandyan Sinhalese, and the Tamils. The district was part of the Tamil administration. In 1833, in accordance with the recommendations of the Colebrooke-Cameron Commission, ethnic based administrative structures were consolidated into a single administration which was divided into five geographic provinces. The Mannar region, together with the Jaffna region and the Vanni region, formed the New Northern Province.

At the time Ceylon gained independence, Mannar was one of three districts located in the Northern Province. The Manthai East section was transferred to the newly established Mullaitivu district in September 1978. Now Mannar district consists of 1996 sq. kilometers of total land area.

The population of Mannar district is 99,600, and the population density is recorded as 59 people per sq. kilometer, which is the second lowest population density recorded in the Northern Province. According to the sectorial population 24.5 % live in the urban sector while 75.5% live in rural areas. Considering the ethnic diversity of the district, the vast majority of the population are Sri Lankan Tamils at 80.4%, Sinhalese compose 2.3% of the population, Indian Tamils 0.7% and Sri Lankan Moors make up the remaining 16.5 % (Central Bank of Sri Lanka, 2020).

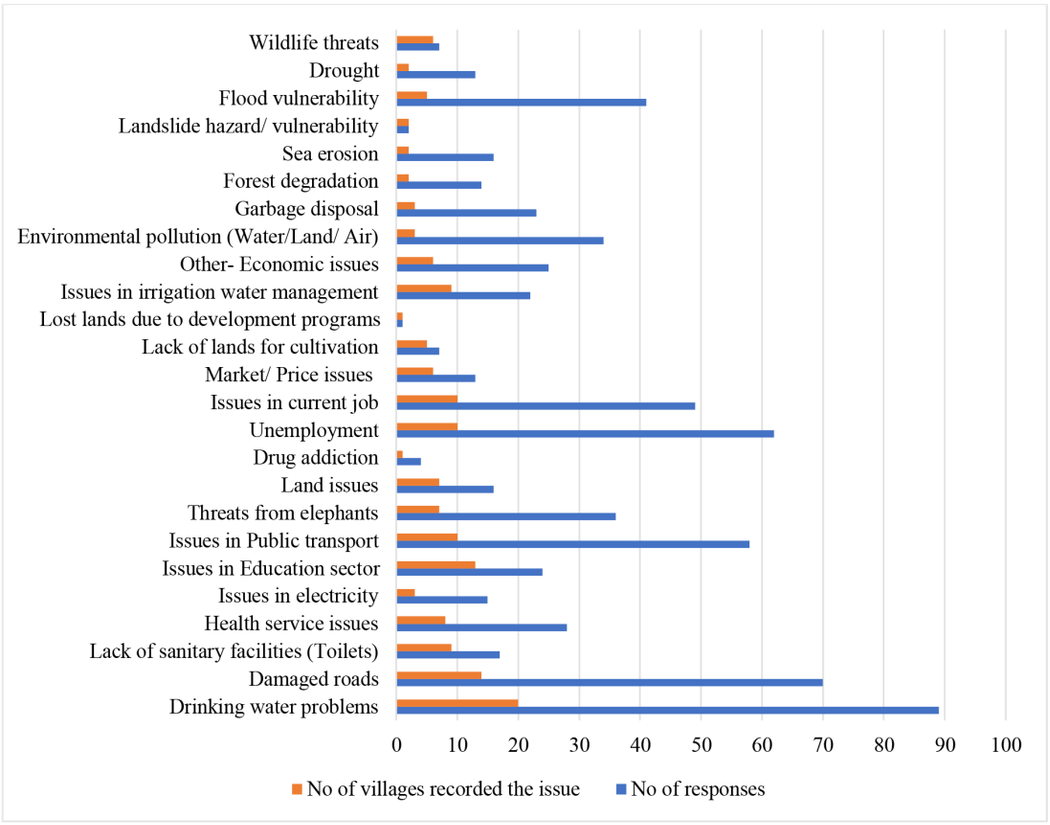
Considering the student population in Mannar, 37,000 students were studying in 135 government schools and teacher population was recorded as 2000 in 2019. Out of total government schools of the district, 62 schools function below 100 students, 61 schools with 101-500 students, 9 schools with 501-1000 students, 1 school with 1001-1500 students and 2 schools with 1501-2000 students (Central Bank of Sri Lanka, 2020).

According to the percentage distribution of the employed population by major industry group, 43.9% are in the agricultural sector, 37.8% in the service sector and 18.3 % are occupied in the industry sector. Out of the total employed population 57.8 % were employed as employee and rest as self-employed. The total unemployment rate of the district was recorded as 5.4% in 2019.

The Gammadda team visited 22 selected GNDs and interviewed 193 rural villagers. The following table and graph summarize the respondents' summary of the Mannar district.

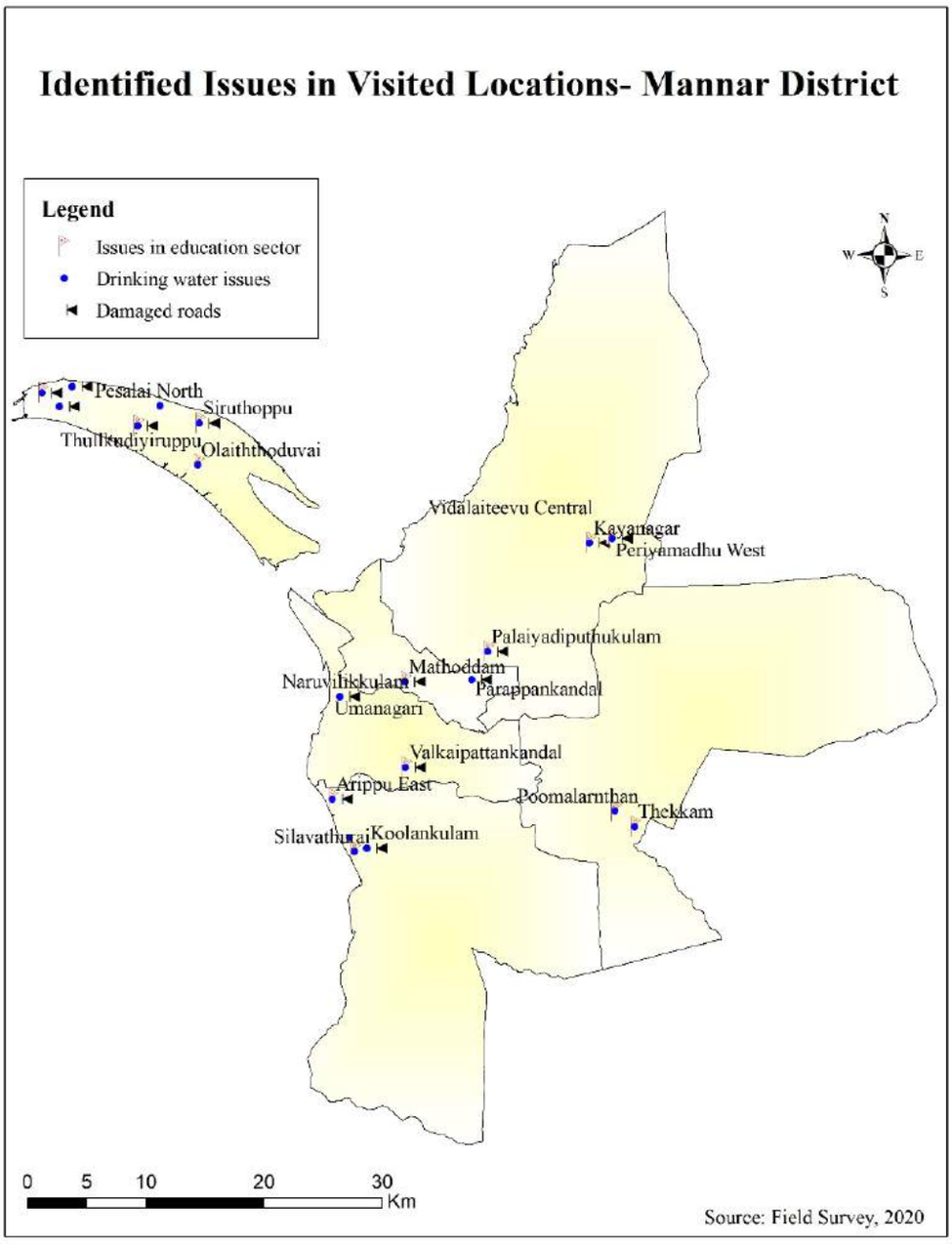
| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 89 | 20 |
| Damaged roads | 70 | 14 |
| Lack of sanitary facilities (Toilets) | 17 | 9 |
| Health service issues | 28 | 8 |
| Issues in electricity | 15 | 3 |
| Issues in Education sector | 24 | 13 |
| Issues in Public transport | 58 | 10 |
| Threats from elephants | 36 | 7 |
| Land issues | 16 | 7 |
| Drug addiction | 4 | 1 |
| Unemployment | 62 | 10 |
| Issues in current job | 49 | 10 |
| Market/ Price issues | 13 | 6 |
| Lack of lands for cultivation | 7 | 5 |
| Lost lands due to development programs | 1 | 1 |
| Issues in irrigation water management | 22 | 9 |
| Other Economic issues | 25 | 6 |
| Environmental pollution (Water/Land/ Air) | 34 | 3 |
| Issues in garbage disposal | 23 | 3 |
| Forest degradation | 14 | 2 |
| Sea erosion | 16 | 2 |
| Landslide hazard/ vulnerability | 2 | 2 |
| Flood vulnerability | 41 | 5 |
| Drought | 13 | 2 |
| Wildlife threats | 7 | 6 |

Table 13: Summary of the Results- Mannar District



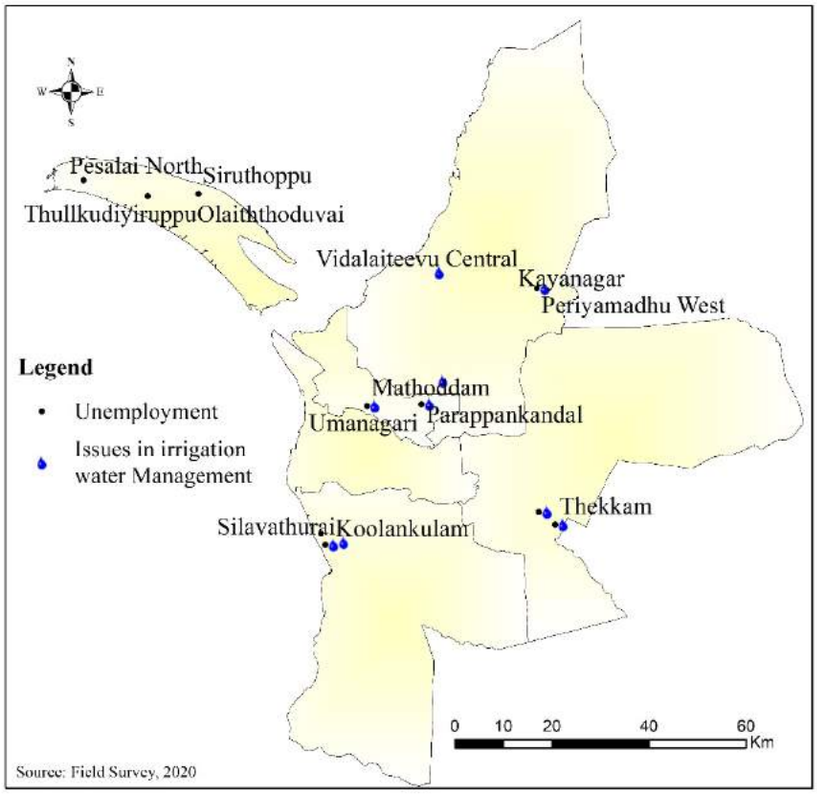

Graph 12: Identified Issues- Mannar District

Drinking water issue is the most stated and reported issue over the visited locations in Mannar. Damaged roads, issues in public transport, health and education service sector issues were also recorded over the district. Damaged roads mean limited access to the city and other services such as education and health facilities. Farmers especially face issues when they have to transport their agro products to the market. Villagers of Parappuarandan reported that they have to bear a large cost for transporting their agricultural products to the market and eventually they cannot get a profit out of their cultivation. The following map illustrates the distribution of major issues over the visited locations.



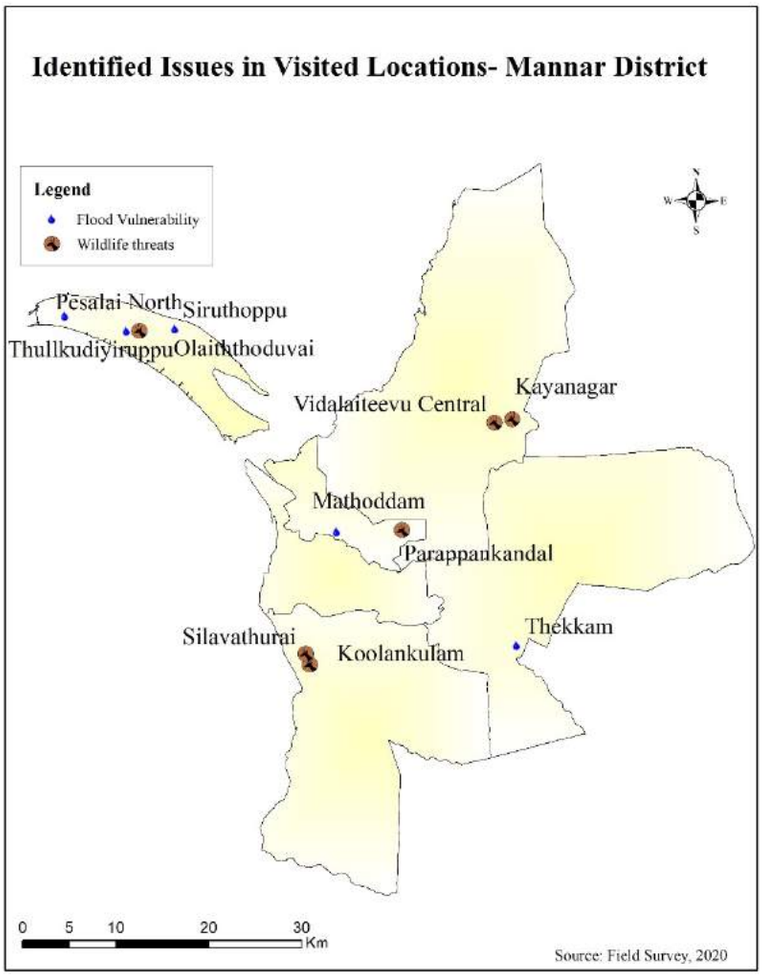

Map 51: Highly Recorded Issues- Mannar District

As discussed in the introduction, the majority of the employed population of the district are engaged in the agricultural sector. Both cultivation and fishery sectors are prominent in the area and Vilavathura villagers reported that they cannot get a reasonable price for their fishery products due to the poor market conditions in the nearest city. Further, the Musali area is located near the Wilpattu National Park and the nearest forest areas where the elephant threat is common during the dry season as elephants enter villages and crop lands. As a result, agricultural activities fail to provide enough income for the farmers.




Map 52: Major Economic Issues- Mannar District

On the other hand, there is a huge impact on the farmers due to the absence of a proper irrigation water management mechanism. Owing to the poor conditions of social and economic infrastructure, issues with unemployment is indicated in most of the visited locations. The distribution of major economic issues is illustrated in the above map.




Map 53: Issues in Visited Locations- Mannar District

Elephants and other wild animals such as peacocks and wild boars are pests that cause damage to the crops cultivated by the farmers in some of the visited villages. As shown in the above map, flood vulnerability during the rainy season is also identified in some of the visited locations.

Illegal garbage disposal over the roadsides and forest edges cause both land and air pollution and cause damage to the mangrove ecosystems in villages such as Vidathalativu. The relevant authorities have been unable to solve this issue for a long period of time.

In general, visited locations over the Mannar district deliver a picture of poor conditions of socio-economic infrastructure and negative impacts of short-sighted development projects.

# Mullaitivu District

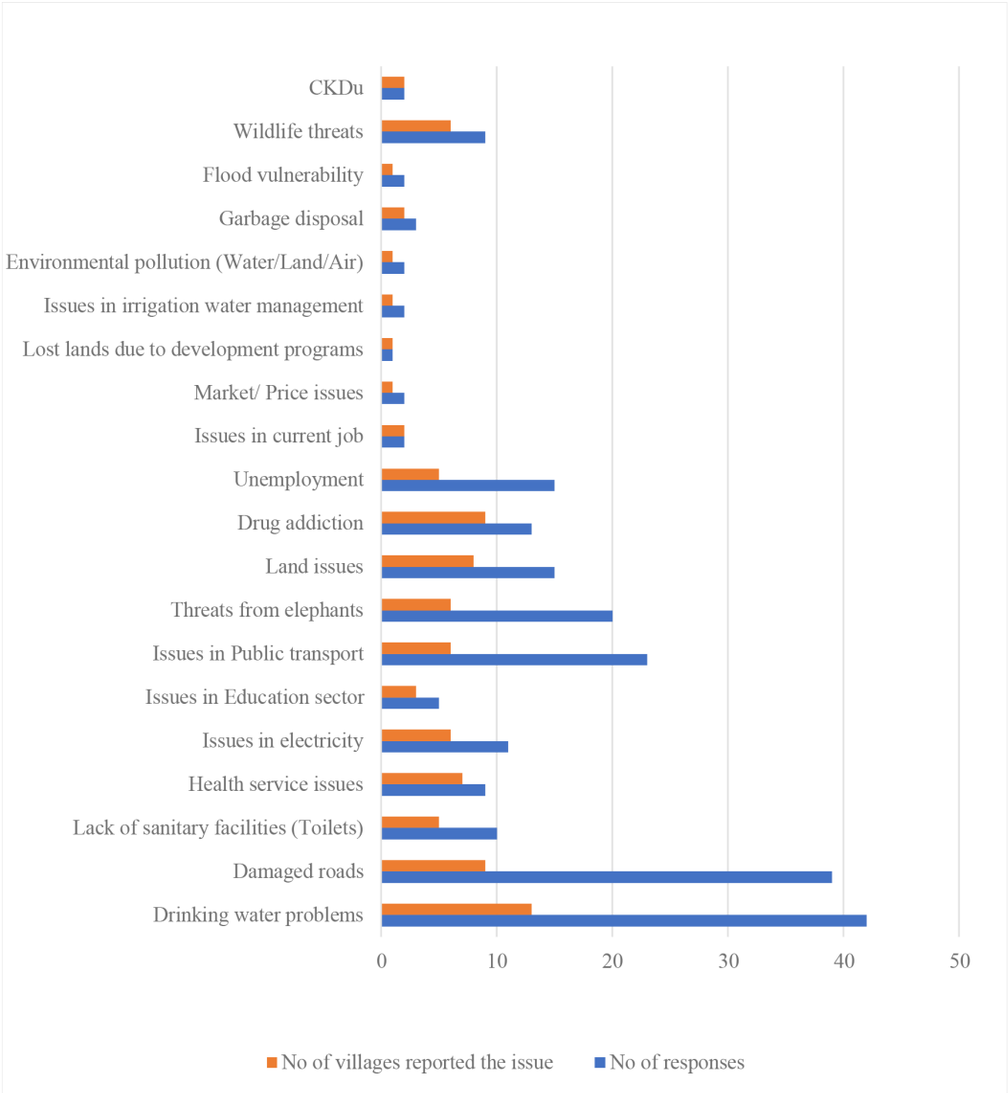
Mullaitivu is one of the districts newly created in 1979. The Mullaitivu district, which includes parts of the Mannar, Trincomalee and Vavuniya districts, is treated as the district containing the eastern portion of the Northern Province. The Mullaitivu district is bounded on the north by Kilinochchi district, on the south by Trincomalee district, Vanni region and part of the Mannar district, on the west by Mannar district and on the east by the Indian Ocean. The total land extent is approximately 2,415 sq. kilometer (including forest areas and excluding large internal reservoirs). The area covers 3.8% of the total area of the island. This region, which is a plain, descends to the north and east and again to the southwest. The coastal belt of the region is about 70 km long, and the district area consists of four lakes such as Kokilai, Nayaru, Nendikkadal and Matalan- all enriched with shrimp. The average elevation of the district is 36.5 meters above sea level, and the Latosol soil of red, brown and yellow mixed with red is well suited for cultivation. The land in the area is used as agricultural land and also used to grow coconuts, settlements and other buildings. The area consists of 251,690 ha and 167,850 ha (64.1% of the above) is covered with forests and shrubs. Agriculture covers 44,040 ha (16.9%), range or grazing land accounts for 13,650 ha (5.2%), 26,150 ha is water homestead and built up lands for settlements and other buildings accounts for 5.1%. In addition, three large-scale irrigation projects, 16 medium-scale, and 198 small-scale irrigations were found in the area (http://www.moha.gov.lk/).

Mullaitivu district is divided into 6 DSDs and 136 GNDs where the population is 92,200 and 85.8% of them are Sri Lankan Tamils, 2.5% Indian Tamils, 9.7% of them are Sinhalese and 2% Sri Lankan Moors. In considering the labour force sectorial contribution, the majority of the population engage in agriculture which is 47.4 % and 34.4% engage in the service sector and 18.2% in the industrial sector. Total unemployment rate of the district was recorded as 2.8% in 2019. Focusing on the educational infrastructure of the district, 2000 teachers were serving 29,000 students in 126 government schools in 2019. Out of the total government schools 56 were functioning with less than 100 students, 54 of schools had 101-500 students, 13 schools had 501- 1000 students, 2 schools had 1001- 1500 students and 1 school had 1501-2000 students.

The Gammadda research team visited 13 GNDs over the district and 93 rural villagers were interviewed. The following table and graph illustrate the summary of the results.

| Issues | No. of responses | No. of villages the issue was reported in. |
|---|---|---|
| Drinking water problems | 42 | 13 |
| Damaged roads | 39 | 9 |
| Lack of sanitary facilities (Toilets) | 10 | 5 |
| Health service issues | 9 | 7 |
| Issues in electricity | 11 | 6 |
| Issues in Education sector | 5 | 3 |
| Issues in Public transport | 23 | 6 |
| Threats from elephants | 20 | 6 |
| Land issues | 15 | 8 |
| Drug addiction | 13 | 9 |
| Unemployment | 15 | 5 |
| Issues in current job | 2 | 2 |
| Market/ Price issues | 2 | 1 |
| Lost lands due to development programs | 1 | 1 |
| Issues in irrigation water management | 2 | 1 |
| Environmental pollution (Water/Land/ /Air) | 2 | 1 |
| Issues in garbage disposal | 3 | 2 |
| Flood vulnerability | 2 | 1 |
| Wildlife threats | 9 | 6 |
| CKDu | 2 | 2 |

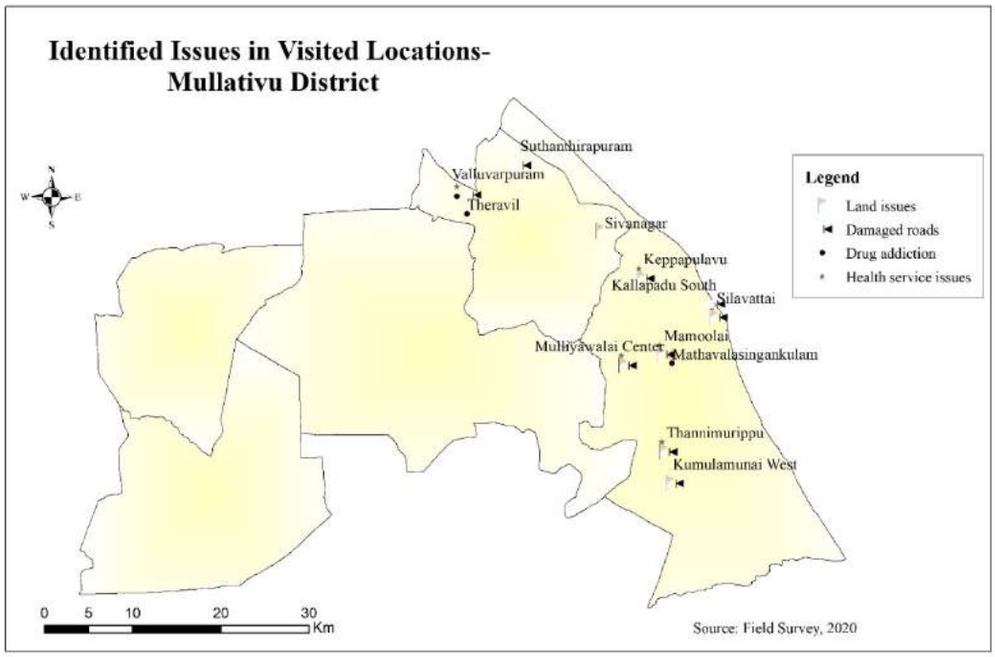
Table 14: Summary of the Responses



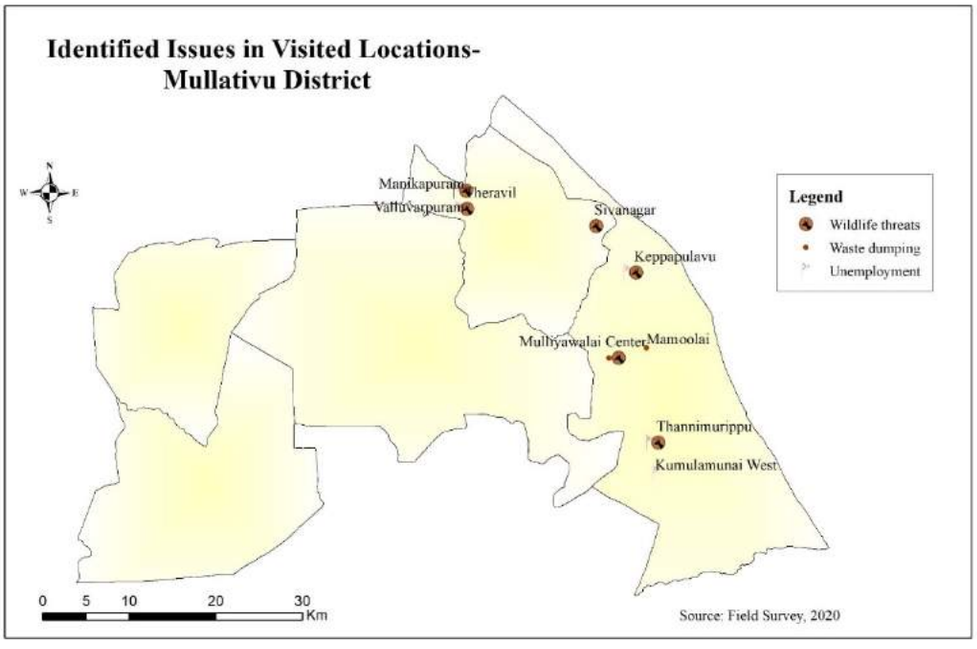

Graph 13: Issues in Visited Locations- Mullaitivu District

Lack of access to clean drinking water is the most prominent issue over the visited locations of Mullaitivu. Most of the villages, such as Sivanagar, Thannimurippu and Theravil, depend on village wells for their drinking water. Reduction of ground water levels is a natural phenomenon and forces villagers to walk to get drinking water during this period. Thus, a proper water scheme for the rural areas is mandatory.

Damaged roads and land issues are also reported in the visited villages of the district. According to the villagers of visited locations, their lands are not officially released by the government after the war. So, they do not have official deeds for the lands which they have owned for decades. The following map shows the prominent social issues over the district.




Map 54: Highly Recorded Issues in Visited Locations- Mullaitivu District




Map 55: Environmental Issues in Visited Locations- Mullaitivu District

Wild animal threats, especially from elephants, are prominent over the visited locations of Mullaitivu district. On the other hand, fishermen in Thannimurippu complained that they have to face threats from fishermen who come from outside. They cannot make their livelihood by overcoming the threats posed by outsiders. Mulliyawalai villagers reported improper garbage disposal issues. Spatial distribution of these issues is illustrated in Map 55 given above.

## Vavuniya district

Initially, this area has belonged to the Vanni region and then the name of the Vanni region was changed to Mullaitivu region, and then named as Vavuniya district. By the time Ceylon gained independence, Vavuniya was one of three regions located in the Northern Province. Vavuniya district is bordered on the east by Anuradhapura and Mullaitivu, on the north by Mullaitivu district, on the west by Mannar and partly by Mullaitivu district on the southern side of Anuradhapura. The famous A9 road, the Colombo Fort - Kankasanthurei railway line and the Colombo Fort - Talimanar railway line runs across the region. The main rivers like Kanakarayankulam Aru, Pali Ganga, Parangi Ganga and many other sub-rivers flow through the region. According to the geographical characteristics, the region is rich in water resources and fertile soil in the form of a thin rock layer. Although the region's main livelihood is agriculture, small industries such as clothing, animal husbandry, and commerce are also part of the livelihoods of locals. Surplus milk is transported to other areas for the processing of dairy products. Agriculture and small industries such as animal husbandry and commerce are the main sources of income in the region.

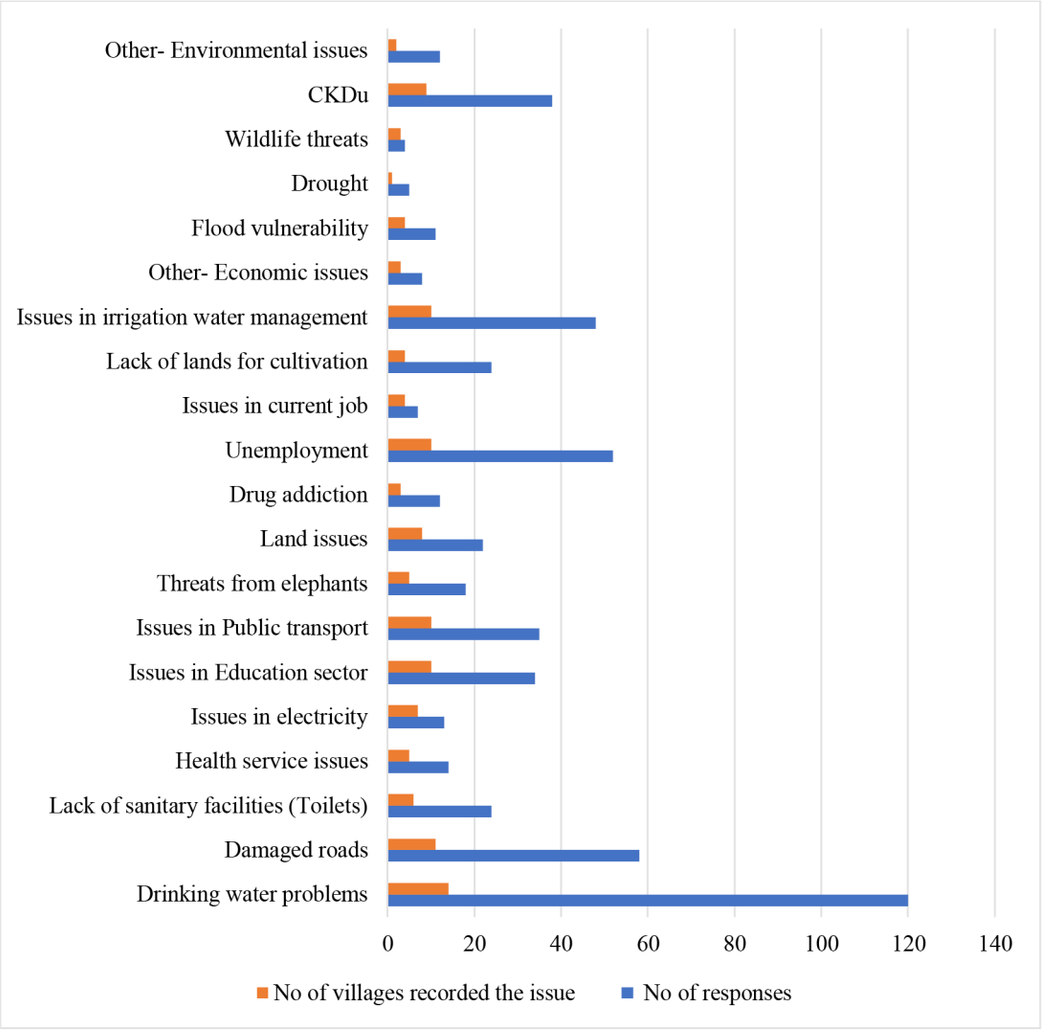
The Vavuniya district is divided into 4 DSDs and 106 GNDs where the population is 149,800 and 20.2% of them are in the urban sector while the majority, 79.8% live in the rural sector. Considering the population by ethnicity, 85.8 % are Sri Lankan Tamils, 9.7 % of the population are Sinhalese, 2.5% are Indian Tamils and 2.0% of the people are Sri Lankan Moors (Department of Census and Statistics, 2012).

Considering the labour force sectorial contribution, majority of the population, 45.6% engage in the service sector, 30.9% in the agricultural sector and 23.5% in the industrial sector. Total unemployment rate of the district population was recorded as 4.6% in 2019 (ibid). As for the educational infrastructure of the district, 3000 teachers were serving 32,000 students in 174 government schools in 2019. Out of the total government schools 95 of them function with less than 100 students 74 schools had 101-1000, 2 schools had 1001-2000 students and one school had 3001-3500 students (Central Bank of Sri Lanka, 2020).

During the Gammadda field survey 14 GNDs were visited and 93 villagers were interviewed. The next table and the graph illustrate the results from the respondents.

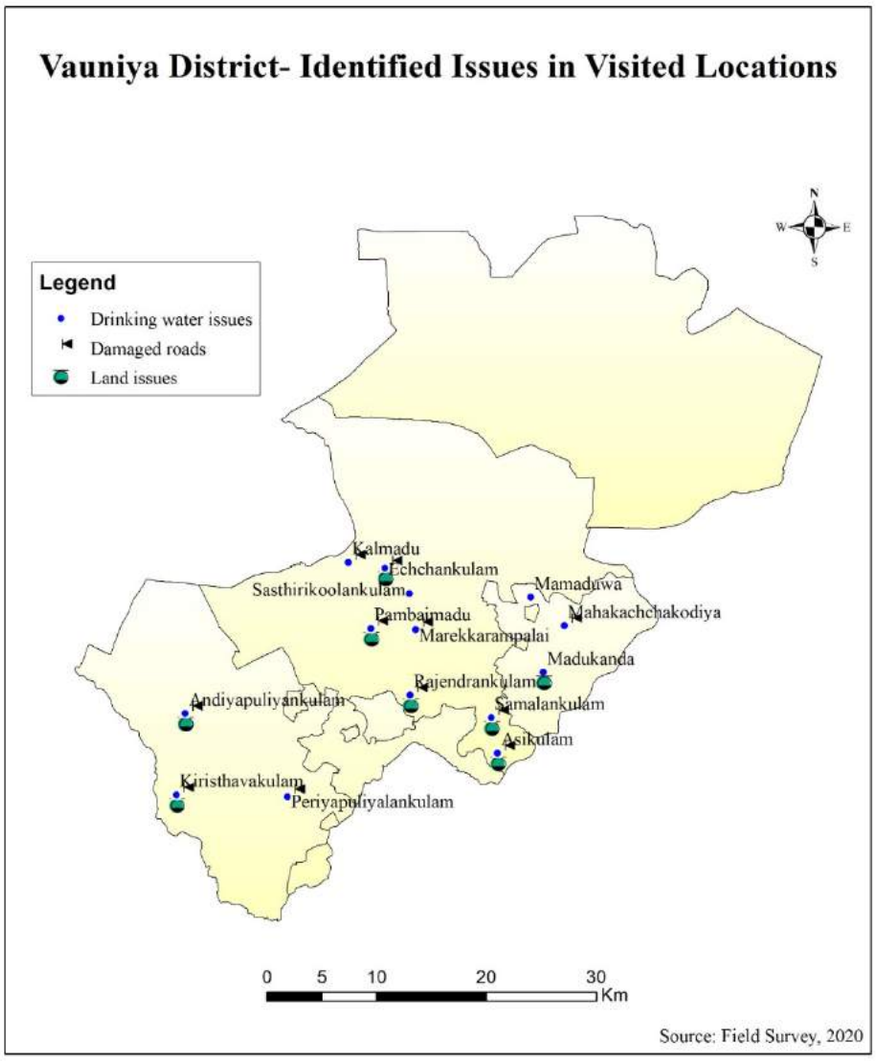
| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 120 | 14 |
| Damaged roads | 58 | 11 |
| Lack of sanitary facilities (Toilets) | 24 | 6 |
| Health service issues | 14 | 5 |
| Issues in electricity | 13 | 7 |
| Issues in Education sector | 34 | 10 |
| Issues in Public transport | 35 | 10 |
| Threats from elephants | 18 | 5 |
| Land issues | 22 | 8 |
| Drug addiction | 12 | 3 |
| Unemployment | 52 | 10 |
| Issues in current job | 7 | 4 |
| Lack of lands for cultivation | 24 | 4 |
| Issues in irrigation water management | 48 | 10 |
| Other Economic issues | 8 | 3 |
| Flood vulnerability | 11 | 4 |
| Drought | 5 | 1 |
| Wildlife threats | 4 | 3 |
| CKDu | 38 | 9 |
| Other Environmental issues | 12 | 2 |

Table 15: Summary of Responses Received



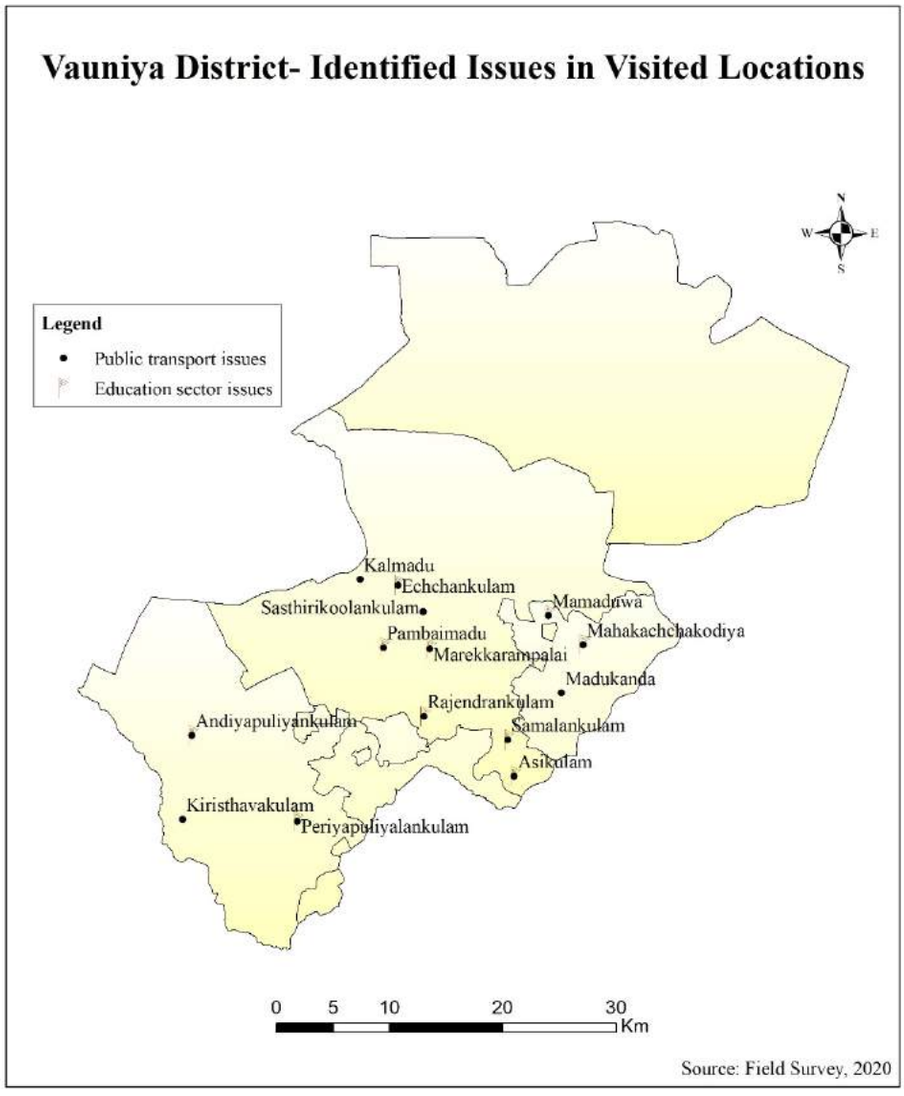

Graph 14: Identified Issues- Vavuniya District

Absence of permanent water sources for the community cause a scarcity of drinking water which is one of the major issues observed in all the visited locations. Most of the locations depend on ground water sources and surface water sources such as tanks/ streams. Damaged roads are the other major issue stated in 11 locations out of 14. Simultaneously, issues in public transportation create another striking issue. Respondents stated that school children and farmers also suffered due to the improper road and transport facilities in their day-to-day circumstances. The following map illustrates the distribution of the identified issues over Vavuniya.



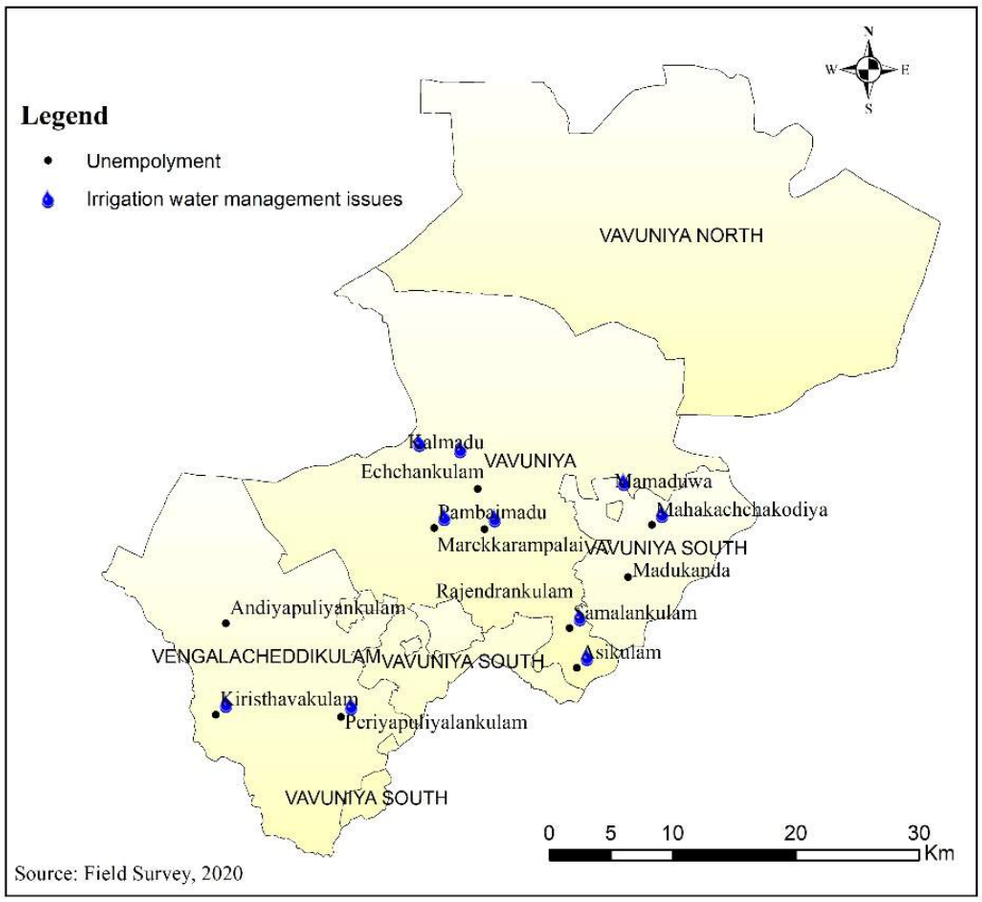

Map 56: Highly Recorded Issues- Vavuniya District

Land ownership is another issue recorded in villages such as Asikulam, Makundala, Echchankulam. As elaborated by the villagers, they did not receive deeds for their lands. Even though they cultivated and lived there, they cannot prove their ownership. On the other hand, lack of facilities such as physical resources and human resources of the village school are not up to a satisfactory level. The following map shows the distribution of some social issues.



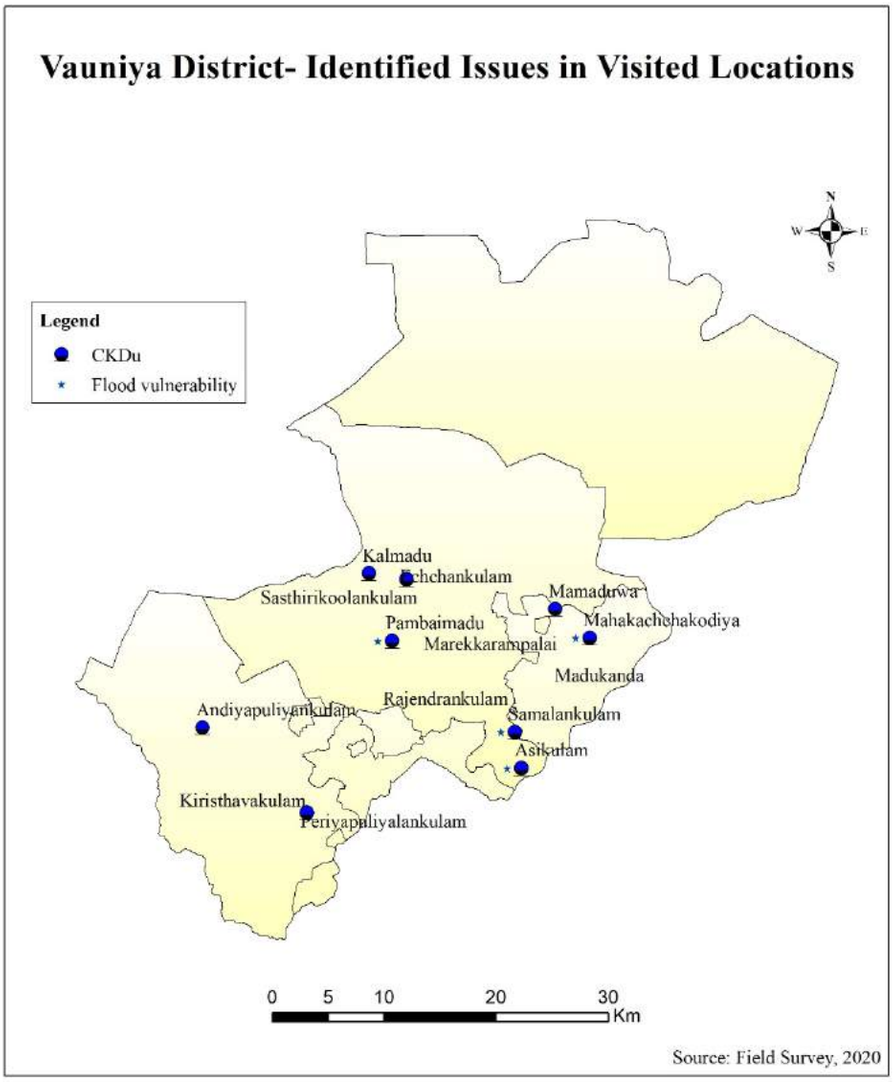

Map 57: Identified Issues in Visited Locations- Vavuniya District

The following map illustrates the prominent economic issues over the district. Even though the Vavuniya district is located in the dry zone area, the tank density is little higher than the other districts of the Northern Province. Most of the tanks in the visited locations are small scale village tanks and their capacities has now been reduced due to siltation. The tanks of the visited locations of Vavuniya DSD are not well connected with streams and the storage capacity is also low. Thus, it cannot store enough water for both cultivation seasons. Therefore, irrigation management system should be updated accordingly.




Map 58: Distribution of Identified Issues- Vavuniya District

As in Map 59 below, CKDu is one of the other major health issues identified over the visited locations. Low quality of the water has caused the issue to deteriorate further. In general, Vavuniya has moderate and mild risk for CKDu but, it is not completely invulnerable as the highest number of patients are found in areas adjacent to the Anuradhapura district. Thus, immediate actions should be taken to provide filtered drinking water for the community, which is a better solution to overcome CKDu issues in the visited locations.




Map 59: Identified Issues- Vavuniya District

Flood vulnerability is a direct result of mismanagement in irrigation channels and water drainage systems. According to the above maps, locations where there are irrigation water management issues also have flood vulnerability. Thus, to solve the problems in terms of flood vulnerability, a proper water management plan needs to be introduced.

# Kilinochchi District

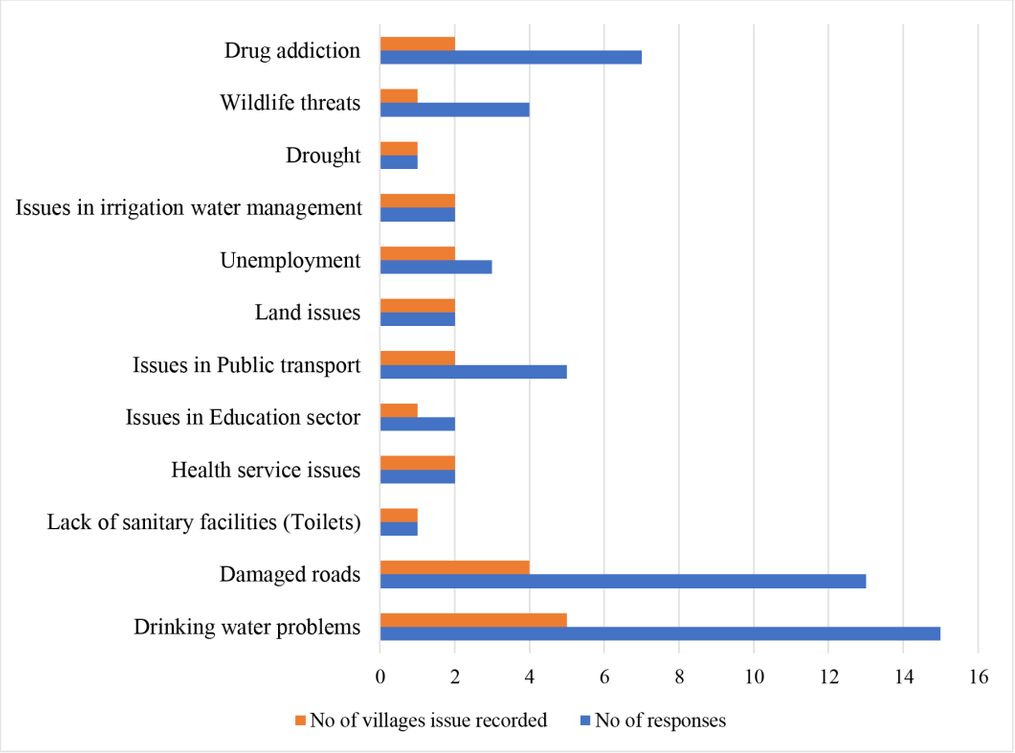
The Kilinochchi district, which was previously a part of the Mannar district, was established as a new administrative district on 3rd of February, 1984. By 1985, the district secretariat was established near the A9 highway. Also, in the district are places of historical value such as Uruttipuram Shivan Kovil, Puliyampokkanei Nagathambiran Kovil, St. Anthony's Catholic Church, Manitalli, St. Anthony Palaikevu Church, Bunaweli Shivan Kovil and Punakari Dutch Castle. In addition to the above, there are also natural resources in the area such as the Iranamadu Reservoir, the Chundikulam Bird Sanctuary and the Kaudarimunay Beach. The district consists of 1,237.11 sq. kilometers of land and 44.3 sq. kilometer of internal reservoirs. The region's main livelihood source is agriculture. The majority work in rice cultivation. Others occupy subsidiary farms, fruit crops and livestock (cattle, goats, and poultry). The fishing industry ranks second among the means of subsistence. With regard to the irrigation system and agricultural development in the Kilinochchi district, the Iranamadu Reservoir and the irrigation projects take center stage. They are considered as an integral part of the lives of the district's residents. Out of 21,208 families covered under the Iranamadu project, 9,495 are farmers. The total number of families in the agriculture sector is close to 40%. The Kilinochchi district is development oriented by promoting not only rice cultivation, but also by promoting pulses like cowpea, black gram (undu) and green gram. 464 tanks are being maintained by the Ministry of Agricultural Services (http://www.moha.gov.lk/). The Kilinochchi district is divided into 4 DSDs and 96 GNDs which is inhabited by 113,500 people.

Considering the ethnic division of the population, 97.3% of them are Sri Lankan Tamils, 1.2 % Sinhalese and 0.9% of Indian Tamils and 0.6% Sri Lankan Moors. In considering the labour force sectorial contribution, majority of the population engage in the service sector as 39.0%, 34.8% in the agricultural sector and 26.2% engage in the industrial sector. Total unemployment rate of the district was recorded as 2.4% in 2019 (Department of Census and Statistics, 2012). Focusing the educational infrastructure of the district, 2000 teachers were serving 28,000 students in 104 government schools in 2019. Out of the total government schools 33 function with less than 100 students, 69 schools had 101-1000 students, one school had 1501-2000 students and another school had 2001-2500 students (Central Bank of Sri Lanka, 2020).

The Gammadda team visited 5 GNDs and interviewed 20 rural villagers in the Kilinochchi district. The identified issues and a summary of the responses are indicated in the following table and visualized in the graph below.

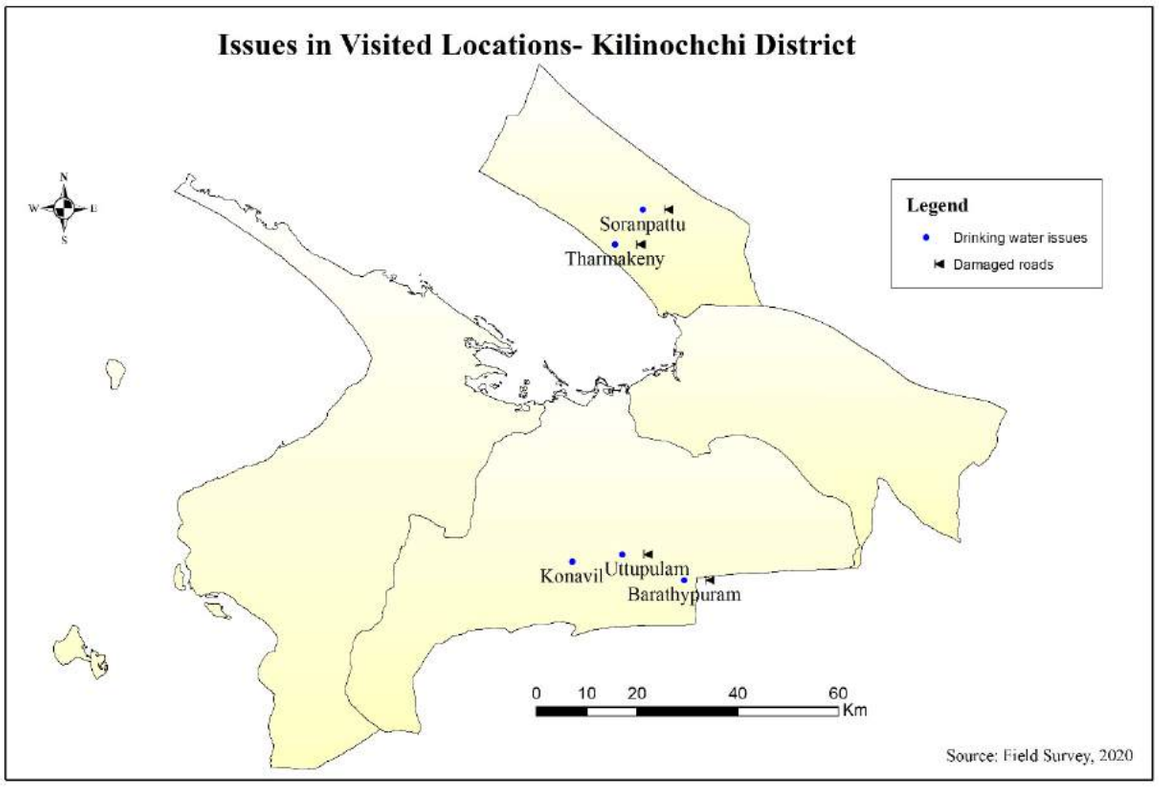
| Issues | No. of responses | No. of villages issue was recorded in. |
|---|---|---|
| Drinking water problems | 15 | 5 |
| Damaged roads | 13 | 4 |
| Lack of sanitary facilities (Toilets) | 1 | 1 |
| Health service issues | 2 | 2 |
| Issues in Education sector | 2 | 1 |
| Issues in Public transport | 5 | 2 |
| Land issues | 2 | 2 |
| Unemployment | 3 | 2 |
| Issues in irrigation water management | 2 | 2 |
| Drought | 1 | 1 |
| Wildlife threats | 4 | 1 |
| Drug addiction | 7 | 2 |

Table 16: Summary of Responses- Kilinochchi District




Graph 15: Identified Issues- Kilinochchi District

According to the results in the aforementioned graph, the most prominent issues in the visited locations are the lack of clean drinking water and damaged roads. Apart from these issues, a few other specific issues are also recorded. The absence of a reliable price for regional products, such as Palmyra related products in Araththinagar village is one of them. Karanthi and Soranpattu villages are affected by a monkey infestation. The following map illustrates the most recorded issues in the visited locations of the Kilinochchi district.




Map 60: Distribution of Identified Issues- Kilinochchi District

Soranpattu villagers reported several issues such as lack of proper equipment, playground facilities and an insufficient number of teachers in the village school. They urged us to find a solution to these issues in the village school because they are unable to send their children to schools with better facilities in the city; because they are unable to afford it.

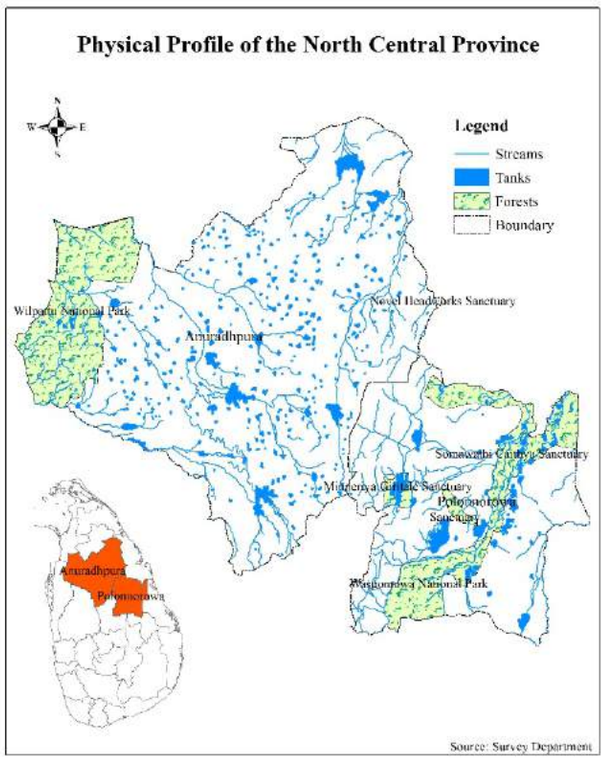
# North Central Province

The North Central Province is also named as “Nuwara Kalaviya” or “Wewbadi Rajjaya” (region with tanks), from ancient times. This region is known as the first kingdom of Sri Lanka. Low plain topography with a vast number of streams and tanks are the prominent features of the North Central Province. Climatologically this region belongs to the dry zone and red-brown soil is the major soil type of the region. Vast stretches of the land are utilized for agriculture because of the fertile soil, water availability and favourable climatic conditions. Phosphate and pink quartz are prominent minerals which are extracted for commercial purposes. Human resources, forests and timber, inland fisheries and cascade systems can be identified as potential resources in the province.

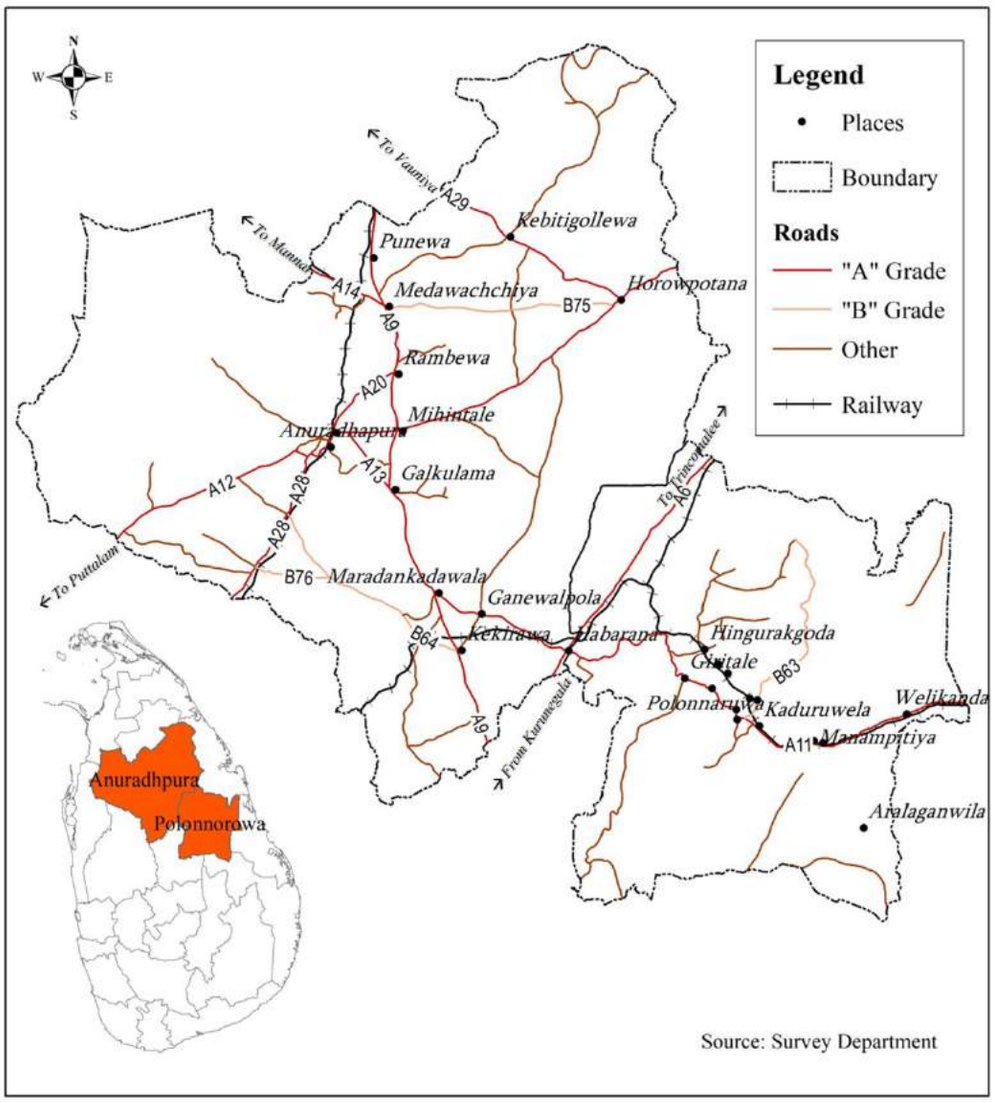
The North Central Province consists of two administrative districts namely Anuradhapura and Polonnaruwa and is bounded by eight administrative districts. The province is governed by 29 Divisional Secretariat Divisions, two municipal councils, 25 Pradeshiya Sabha and 988 GN divisions.

The North Central Province is home for 365,000 people who account for 6.5% of the total islandwide population. The total land area of the province amounts to approximately 16% of the total land area of the island. Population density is 142 people per sq. kilometer. Provincial contribution to the national GDP is recorded as 5.8%.

The following maps show the physical characteristics, particularly distribution of tanks, rivers and forest areas, and the road network in North Central Province.

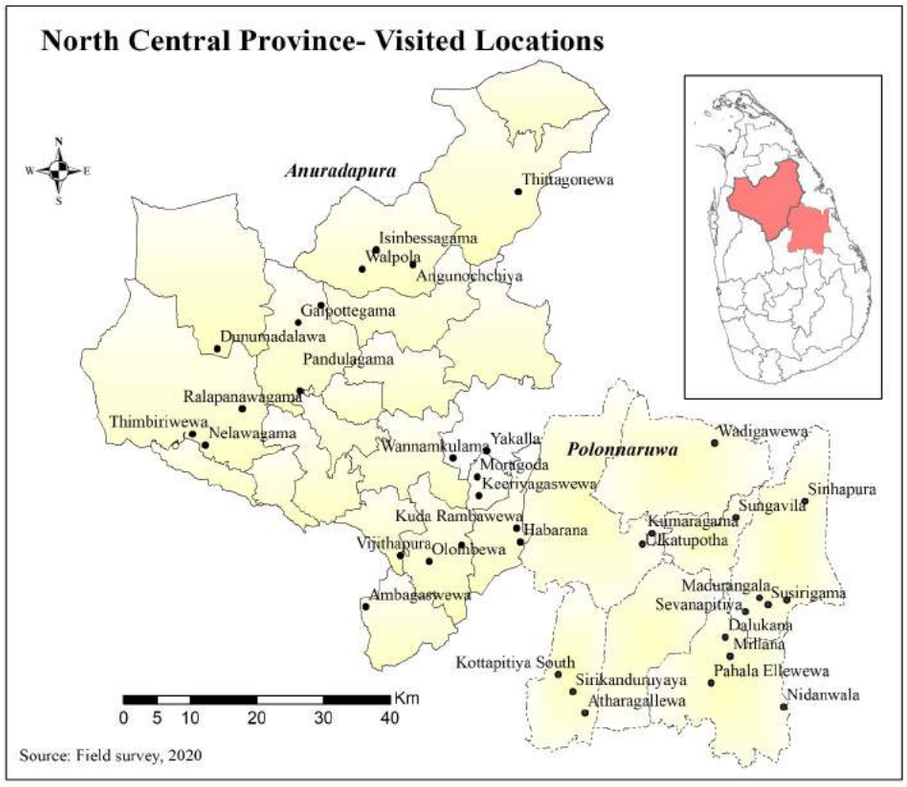



Map 61: Physical Profile- North Central Province




Map 62: Road Network- North Central Province

The Gammadda team has visited 38 GN Divisions in 15 DS divisions and interviewed 347 people over both Anuradhapura and Polonnaruwa districts. The following map illustrates the visited locations over the province. Subsequently, the next sections will discuss the issues identified in visited locations of the two districts in detail.




Map 63: Visited Locations- North Central Province

# Anuradhapura District

The Anuradhapura district where multicultural, multi-religious, and multi-linguistic societies live, is bordered to the north by the districts of Vavuniya, Mannar and Mullaitivu, to the south by the districts of Kurunegala and Matale, to the west by the districts of Puttalam and Mannar and to the east by the districts of Polonnaruwa and Trincomalee. Atamasthana, including Jaya Sri Maha Bodhi, is located within the city of Anuradhapura. Also, Mihintale Raja Maha Vihara, Thanthirimale Raja Maha Vihara, Avukana statue and many other religious places of Buddhist culture are found in the region and are tourist attractions for both domestic and foreign tourists. Further, the sacred city of Anuradhapura has been a UNESCO World Heritage site since 1981.

The Anuradhapura district has mild weather conditions without extremes throughout the whole year. The maximum temperature is about 32.9°C and the minimum temperature is about 24°C. The North East monsoon season is from September to February. During this time very heavy thunder showers can be expected. The annual rainfall is about 1700 mm. The district's primary livelihood is agriculture and the main crop is rice. Soybeans, corn, sesame, and onion are also grown as additional crops. Among the above crops, the nation's nutritional needs are largely met by growing corn and soybeans. The water requirements for agriculture are satisfied both by rain and by the irrigation system. The irrigation system of the area consists of 12 main tanks such as Kala Wewa, Thisa Wewa, Nuwara Wewa, Abhaya Wewa, Nachchaduwa, Rajangana and Padaviya. The area also has 85 medium tanks and 2,974 small tanks. The irrigation system of the area is an amazing achievement, even in the context of modern engineering.

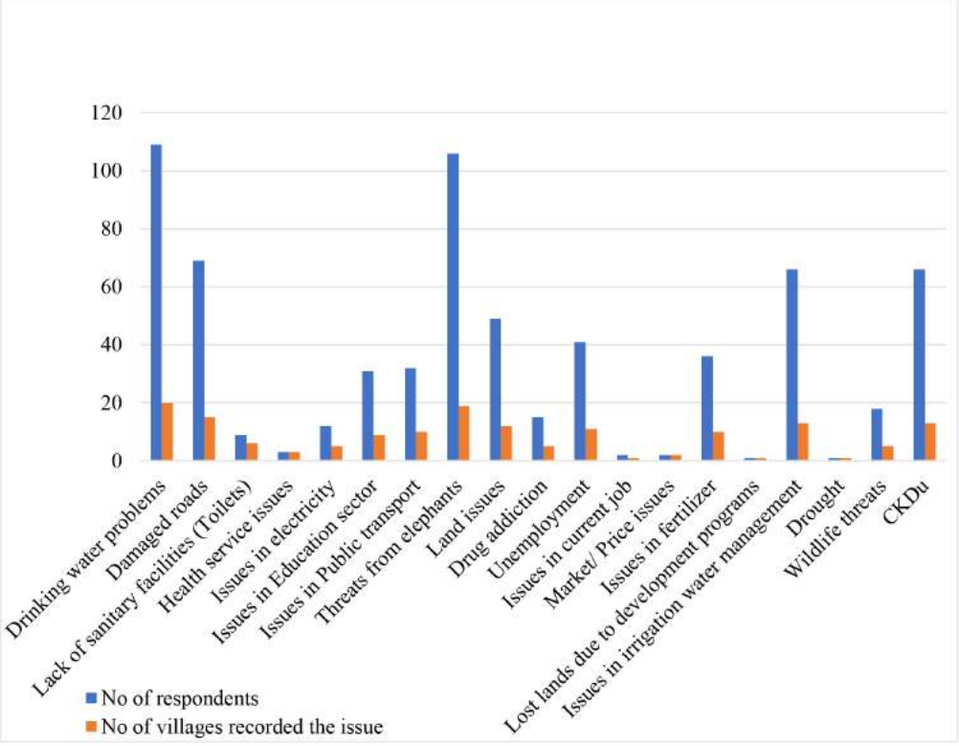
The population of the Anuradhapura district is 856,232 people. The labour force participation rate is recorded as 57.7% and sectorial engagement of employment is distributed as follows, agriculture accounts for 46.7%, the industrial sector 15.7% and the remaining 37.6% are in the service sector. Out of the total households, 2.7% were living under poverty and the unemployment rate of the district was recorded as 3.1% in 2019 (Department of Census and Statistics, 2020). Education sector statistics are also vital to define the socio-economic profile of a district. In the Anuradhapura district, total student population has been recorded as 206,000 and teacher population as 12,000 in 2019. Furthermore, all these pupils and teachers were distributed among 563 government schools and the majority of them, 444 schools, functioned with below 500 students while 105 schools functioned with 501-2000 students, 9 schools with 2001-3500 students and 5 schools with more than 3500 students. These numbers are far higher than the Polonnaruwa district (Central Bank of Sri Lanka, 2020).

The Gammadda team visited 21 GNDs of 9 DSDs and interviewed 166 villagers in rural areas of Anuradhapura. The following table and graph summarize the identified issues and their frequencies.

| Issues | No. of respondents | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 109 | 20 |
| Damaged roads | 69 | 15 |
| Lack of sanitary facilities (Toilets) | 9 | 6 |
| Health service issues | 3 | 3 |

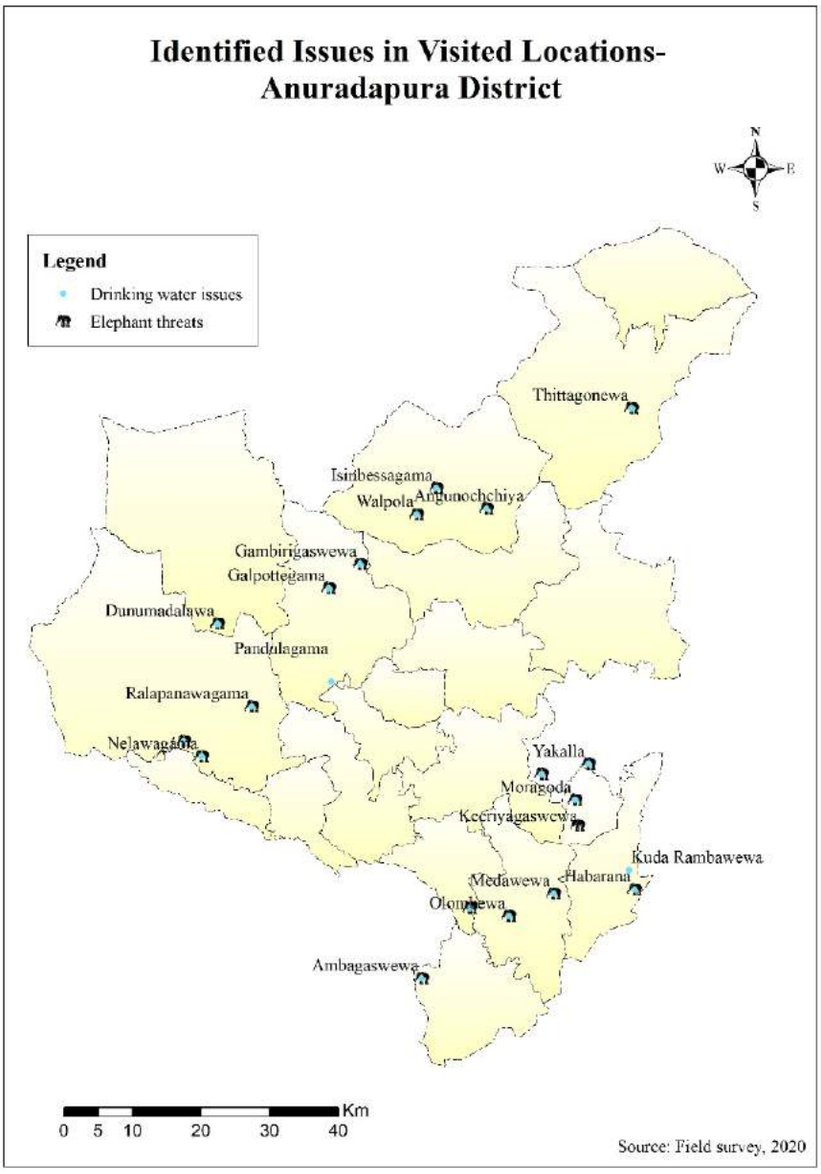
| | | |
|---|---|---|
| Issues in electricity | 12 | 5 |
| Issues in Education sector | 31 | 9 |
| Issues in Public transport | 32 | 10 |
| Threats from elephants | 106 | 19 |
| Land issues | 49 | 12 |
| Drug addiction | 15 | 5 |
| Unemployment | 41 | 11 |
| Issues in current job | 2 | 1 |
| Market/ Price issues | 2 | 2 |
| Issues in fertilizer | 36 | 10 |
| Lost lands due to development programs | 1 | 1 |
| Issues in irrigation water management | 66 | 13 |
| Drought | 1 | 1 |
| Wildlife threats | 18 | 5 |
| CKDu | 66 | 13 |

Table 17: Summary of Responses- Anuradhapura District



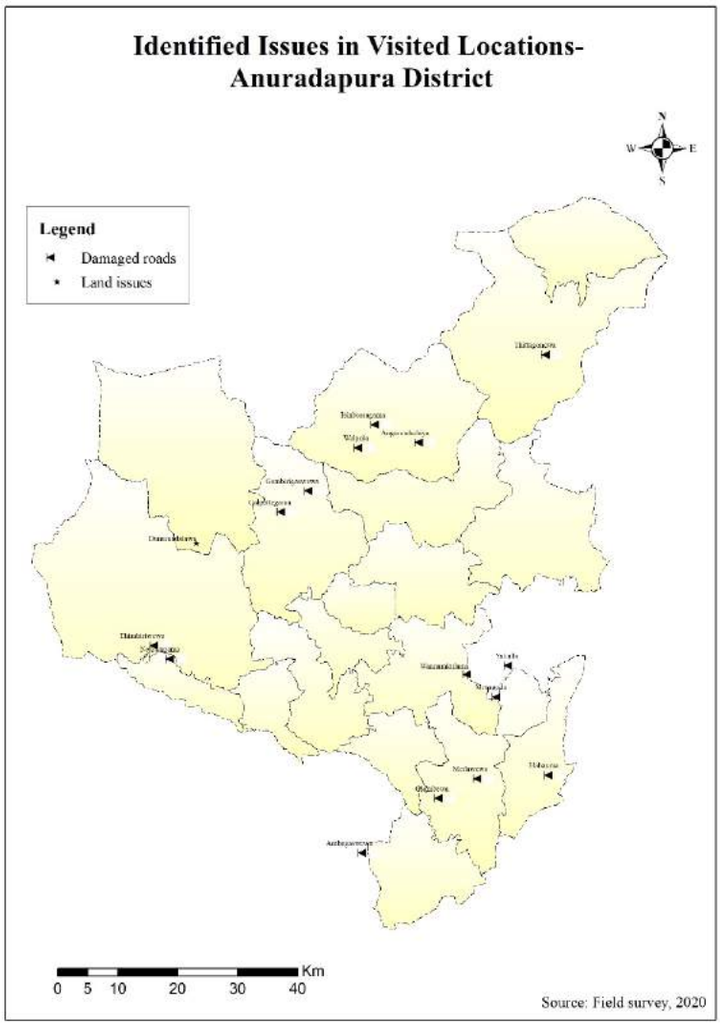

Graph 16: Identified Issues in Visited Locations- Anuradhapura District

As elaborated in the graph, contaminated drinking water and elephant threats are the most stated issues in the visited locations of the Anuradhapura district. Specifically, village drinking water sources such as, streams or wells are contaminated and residents are advised to avoid the consumption of water from these sources. In some instances, community water projects have been proposed and implemented, but they have not succeeded or were not implemented as designed. Thus, most of the visited villages are suffering from drinking water issues. Wild elephants also damage crop lands and other assets of the visited villages. Agunochchiya, Puwakpitiya, Dunumadalawa and Thithagonnewa are some villages where a high number of attacks from wild elephants was recorded. This issue is raised either because of the poor condition of the elephant fences or lack of food for the elephants in the surrounding woods or forests bordering the villages. The following map shows the locations where those issues were identified in Anuradhapura district.



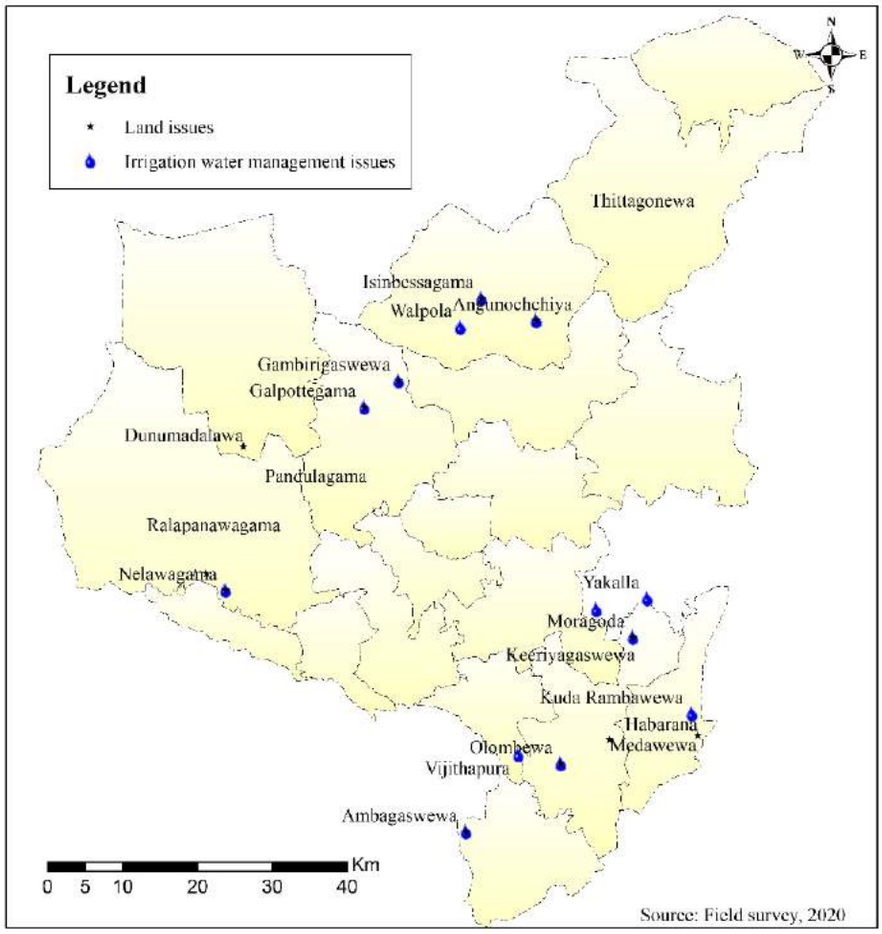

Map 64: Selected Issues in Visited Locations- Anuradhapura District

Most of the roads in the visited rural areas have not been renovated for a long time and their current conditions are not suitable for vehicles to travel on. On the other hand, some of the village farmers are cultivating in lands at the edges of the villages which are not owned by them even though they have cultivated or have been resided there for a long time. Some of the villagers stated that land ownership issue and deeds are critical issues they face when they continue their cultivations because the government owned lands are not open for private cultivation. The following map illustrates the spatial distribution of these issues in visited locations.



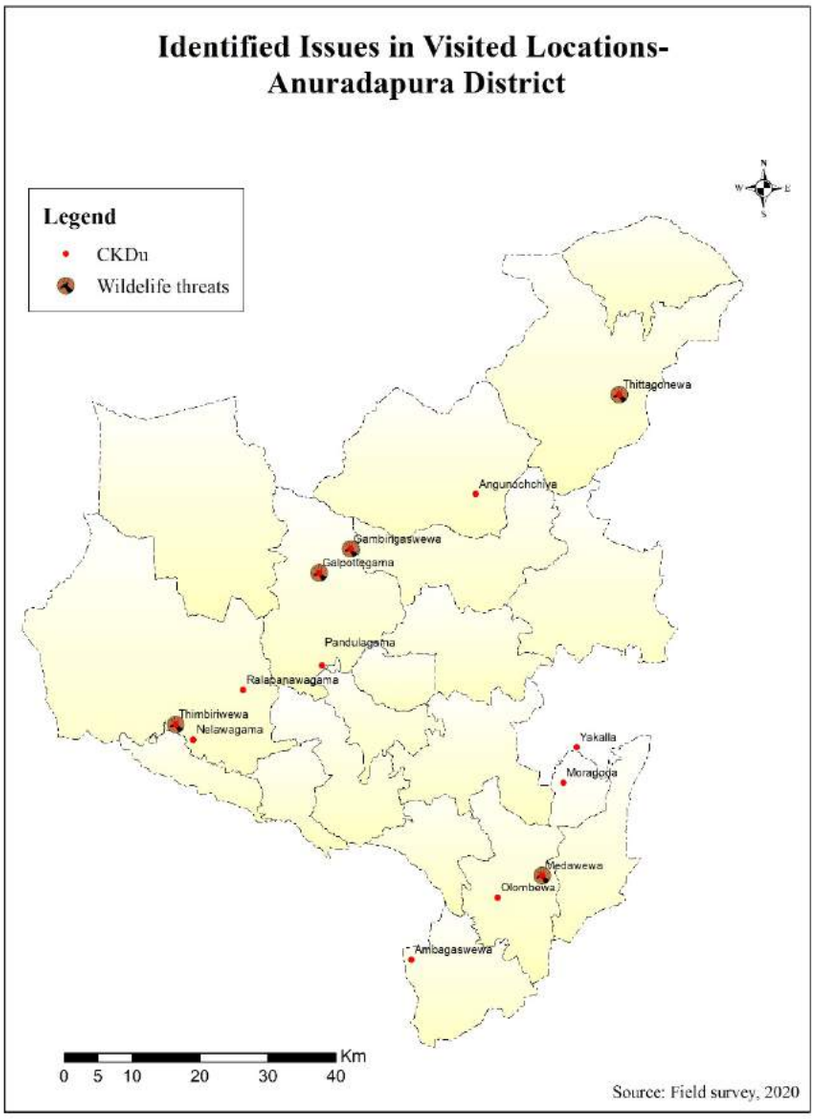

Map 65: Identified Issues in Visited Locations- Anuradhapura District

Apart from the land issue, irrigation water related issues are also highly reported by the villagers of the visited locations. With reference to most of the responses, village tanks were not renovated or repaired for a long period of time and some of them have been reduced in their capacity because of siltation. According to the villagers, removing sediment is a process which they cannot bear the cost of. Hakurupitiya, Agunochciya and Lenagama are few tanks which the villagers asked to be renovated. Map 66 shows the spatial distribution of irrigation water management issues of visited locations in the Anuradhapura district. Low water capacity contributes to limit the extent of crop land productivity during the dry season and eventually it affects the farmers' income as well.




Map 66: Distribution of Identified Issues - Anuradhapura District

Wild animals such as peacocks and monkeys cause troubles to crop lands and harvests. Most of the rural villagers are highly dependent on their cultivations either for income or for food. Thus, any damages to their cultivations can be critical to these villagers. Thirappane Wellamudawa, Thulana and Olanbewa are some villages where this issue has been recorded. On the other hand, CKDu is one of the most prominent health issues affecting the rural villagers. At least one CKDu patient can be found in most households in the visited locations of Anuradhapura. The spatial distribution of these issues is illustrated in the following map.




Map 67: Identified Issues in Visited Locations- Anuradhapura District

# Polonnaruwa District

The historical Polonnaruwa city, which marked the second kingdom of Sri Lanka and which is the area that provided rice to the whole nation from Parakum era, consists today of 7 Divisional Secretariat Divisions, 295 Grama Niladhari Divisions and many other resources with aesthetic values. The district makes significant contributions to the national economy. Polonnaruwa city is situated in the middle of Mahaweli plain, 216 km away from Colombo, in the Polonnaruwa district in the North Central Province of Sri Lanka. The total area of Polonnaruwa district is 3337.9 sq. kilometers. The district is bounded by the Trincomalee, Batticaloa, Ampara, Matale and Anuradhapura districts. Furthermore, Polonnaruwa is another prominent district where one could see vast expanses of paddy fields which contribute to the national paddy production. Since this area belongs to the dry zone, paddy cultivation mainly depends on the irrigation water which is supplied from minor and major irrigation projects. The district consists of 4 main tanks, 3 medium scale tanks, 62 small tanks in use, 35 small tanks which are not in use as well as 123 anicuts in use and 6 anicuts that are not in use.

Demographically, the population of Polonnaruwa is recorded as 406,100, with the entire population in the rural sector. Population density of the area is recorded as 143 people per sq. kilometer. Considering the ethnic share of the population, 90.7% are Sinhalese, 1.8% are Sri Lankan Tamils, 7.4% are Muslims and 0.1% from other ethnic groups (Department of Census and Statistics, 2012).

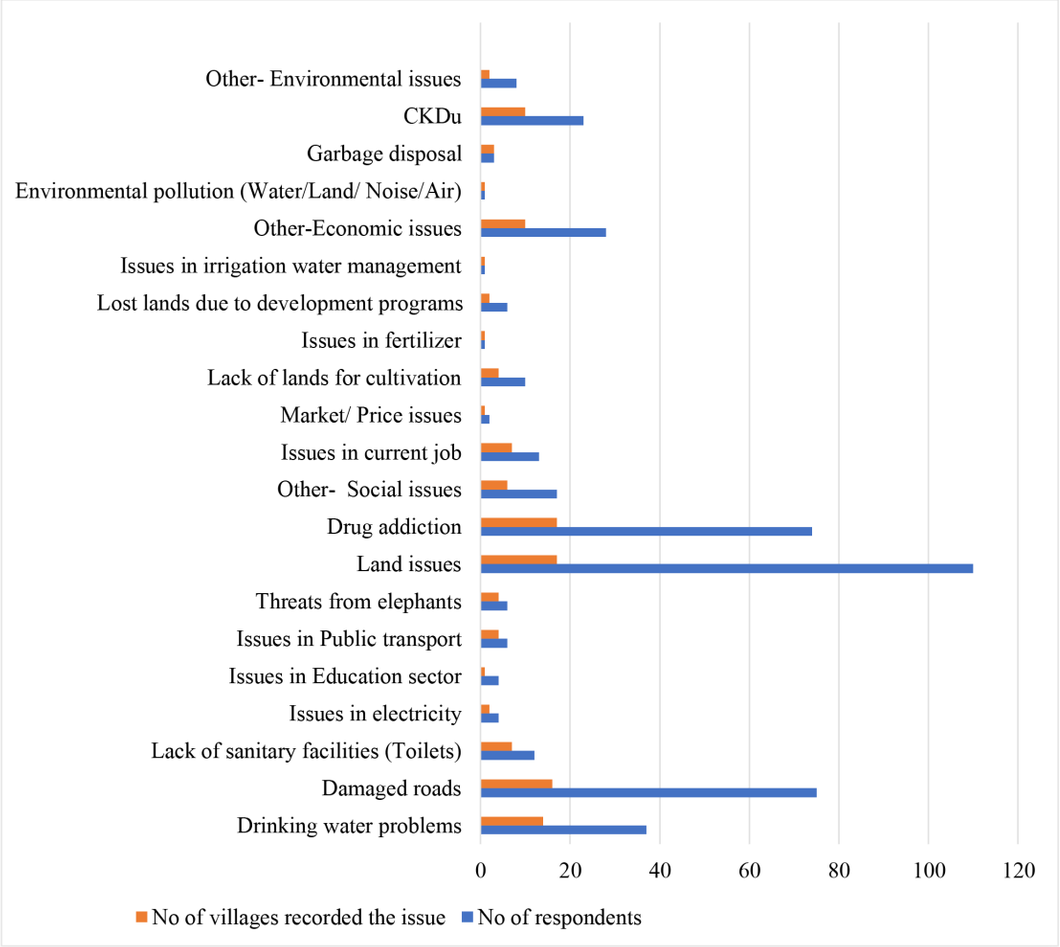
Considering the social infrastructure of the district, total government schools located in the district is recorded as 252 and student population distribution can be categorized as follows. Out of the total, 74 schools function with below 100 students, 125 schools with 101-500 students, 35 schools with 501-1000 students, 9 schools with 1001-1500 students and 8 schools function with 1501- 2500 students. Total student population in government schools is recorded as 92,000 with 5,000 teachers serving them. The literacy rate of the district is recorded as 90% which is comparable to other districts (Central Bank of Sri Lanka, 2020).

The labour force share for the agricultural sector is 41.7%, service sector 40.4% and 17.9% engage in industrial sector employments. The unemployment rate of the district was recorded as 3.6% in 2019. The poverty level was recorded as 0.6% in 2016 (Department of Census and Statistics, 2020). Economic infrastructure, particularly the road network is not well developed in Polonnaruwa compared to the other districts. Total length of the constructed roads by 2019 is 882 km with 143 km classified as A Class road, 230 km in Class B road, 486 km in Class C road and 23 km in Class D road (Central Bank of Sri Lanka, 2020).

As illustrated in the previous chapters, the Gammadda team has followed a systematic sampling method and visited the rural villages where there were severe issues, where the communities cannot cope or find suitable solutions. Total GNDs visited is 17 and they were distributed over 6 DSDs. Total number of interviews conducted is 181. Out of these interviews the following results were summarized.

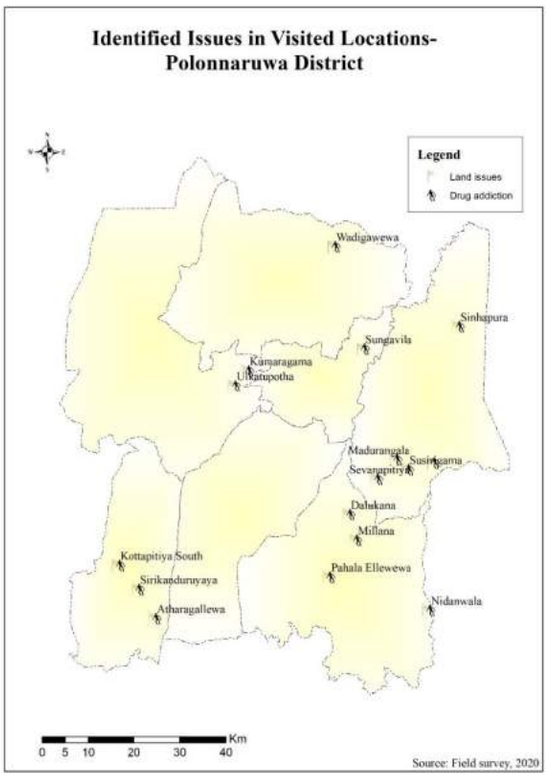
| Issues | No. of respondents | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 37 | 14 |
| Damaged roads | 75 | 16 |
| Lack of sanitary facilities (Toilets) | 12 | 7 |
| Issues in electricity | 4 | 2 |
| Issues in Education sector | 4 | 1 |
| Issues in Public transport | 6 | 4 |
| Threats from elephants | 6 | 4 |
| Land issues | 110 | 17 |
| Drug addiction | 74 | 17 |
| Other Social issues | 17 | 6 |
| Issues in current job | 13 | 7 |
| Market/ Price issues | 2 | 1 |
| Lack of lands for cultivation | 10 | 4 |
| Issues in fertilizer | 1 | 1 |
| Lost lands due to development programs | 6 | 2 |
| Issues in irrigation water management | 1 | 1 |
| Other- Economic issues | 28 | 10 |
| Environmental pollution (Water/Land/ Air) | 1 | 1 |
| Issues in garbage disposal | 3 | 3 |
| CKDu | 23 | 10 |
| Other Environmental issues | 8 | 2 |

Table 18: Summary of Responses

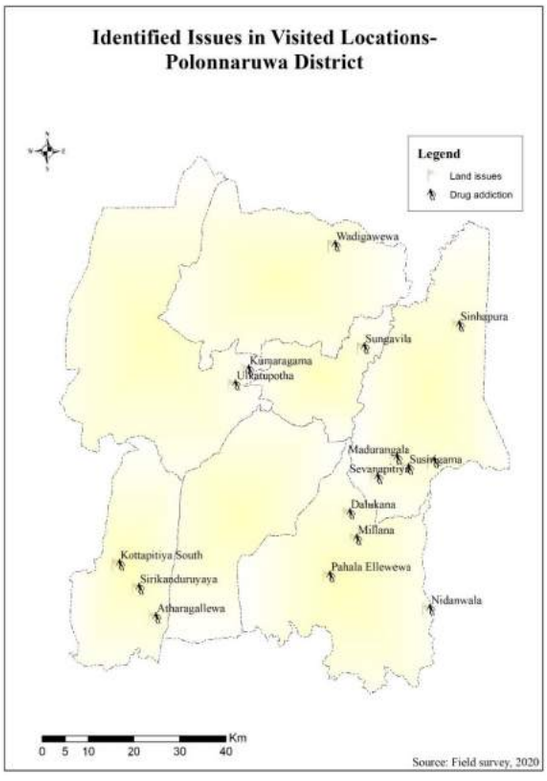



Graph 17: Identified Issues in Visited Locations- Polonnaruwa District

According to the responses received from the field survey, land issues and drug addiction issues were recorded from all of the visited villages. This is one outlier when compared to the results from other district, because almost every other district recorded damaged roads and drinking water problems as the most severe issues in the district. Elephant threats and the damaged roads were also recorded as problematic issues in the district. Elephant threats are interminable harm induced on rural life that poses immediate threats to both livelihood and lives. Absence of safe water sources or issues in community water management projects are major reasons for the drinking water issue. On the other hand, the rate of the CKDu patients is also higher in Polonnaruwa. Following maps illustrate the spatiality of selected issues in visited locations of Polonnaruwa.

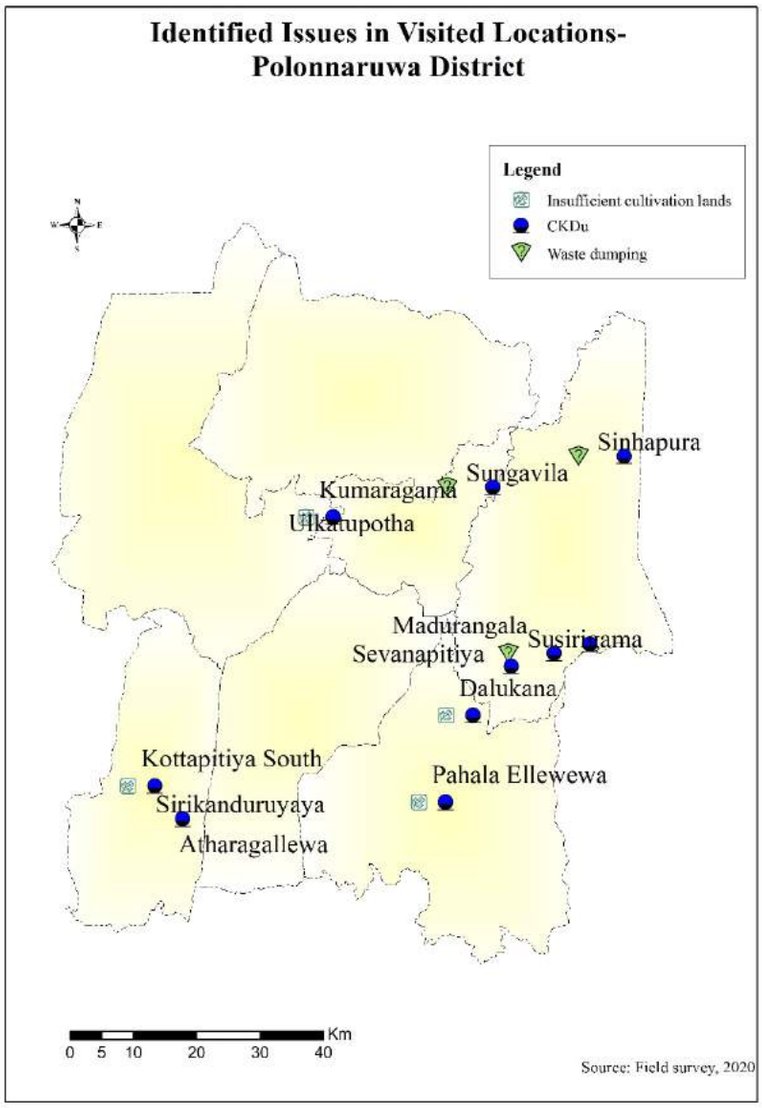



Map 68: Highly Recorded Issues- Polonnaruwa District




Map 69: Identified Issues in Visited Locations- Polonnaruwa District

Majority of the rural villagers of Polonnaruwa depend on farming for their livelihood. Crop lands and irrigation water systems can be considered their wealth. However, both these factors have troubles in visited locations. While some visited locations recorded poor irrigation systems, some locations recorded insufficient or total absence of lands for cultivation. Irrigation water management issues are also prominent in the visited villages as the areas depend on the irrigation water for their cultivation. Thus, irrigation water management issues and elephant threats contribute to a declining harvest and eventually the income of the rural communities. In conclusion, the visited villages of Polonnaruwa paint a sad picture in comparison to the Anuradhapura district. The following map illustrates the distribution of selected issues.

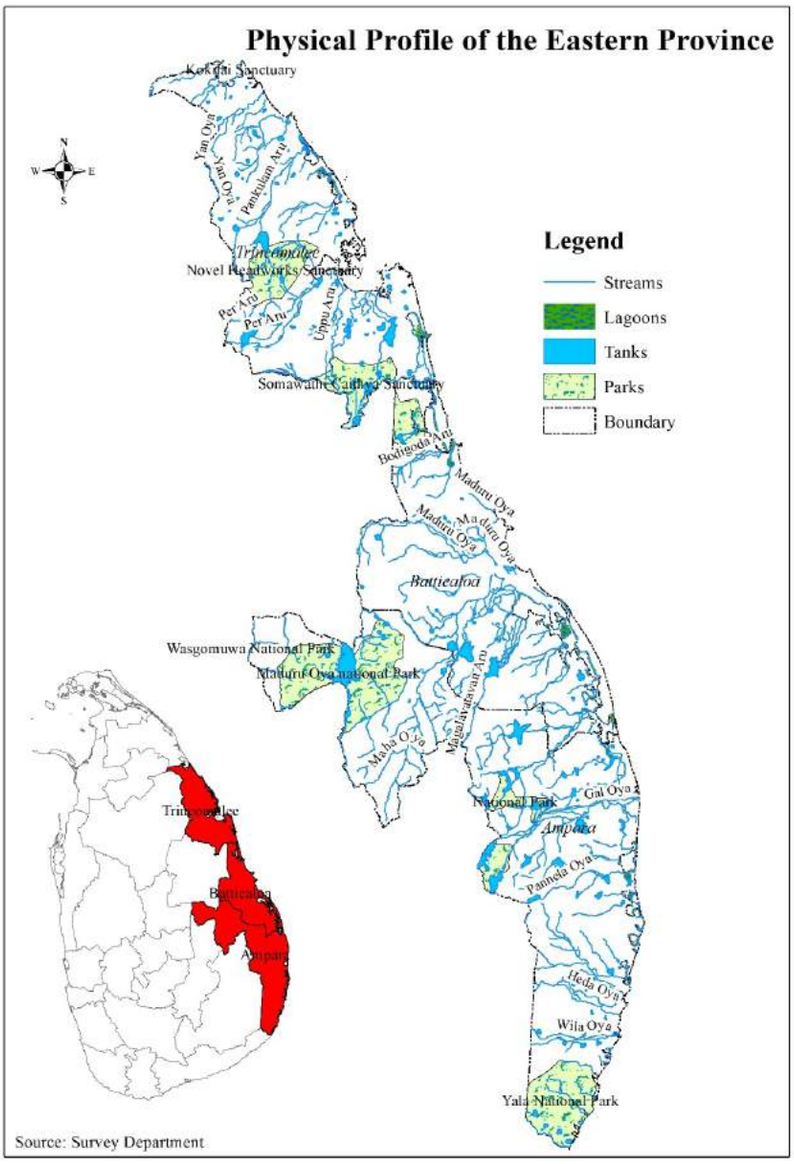



Map 70: Identified Issues in Visited Locations- Polonnaruwa District

# Eastern Province

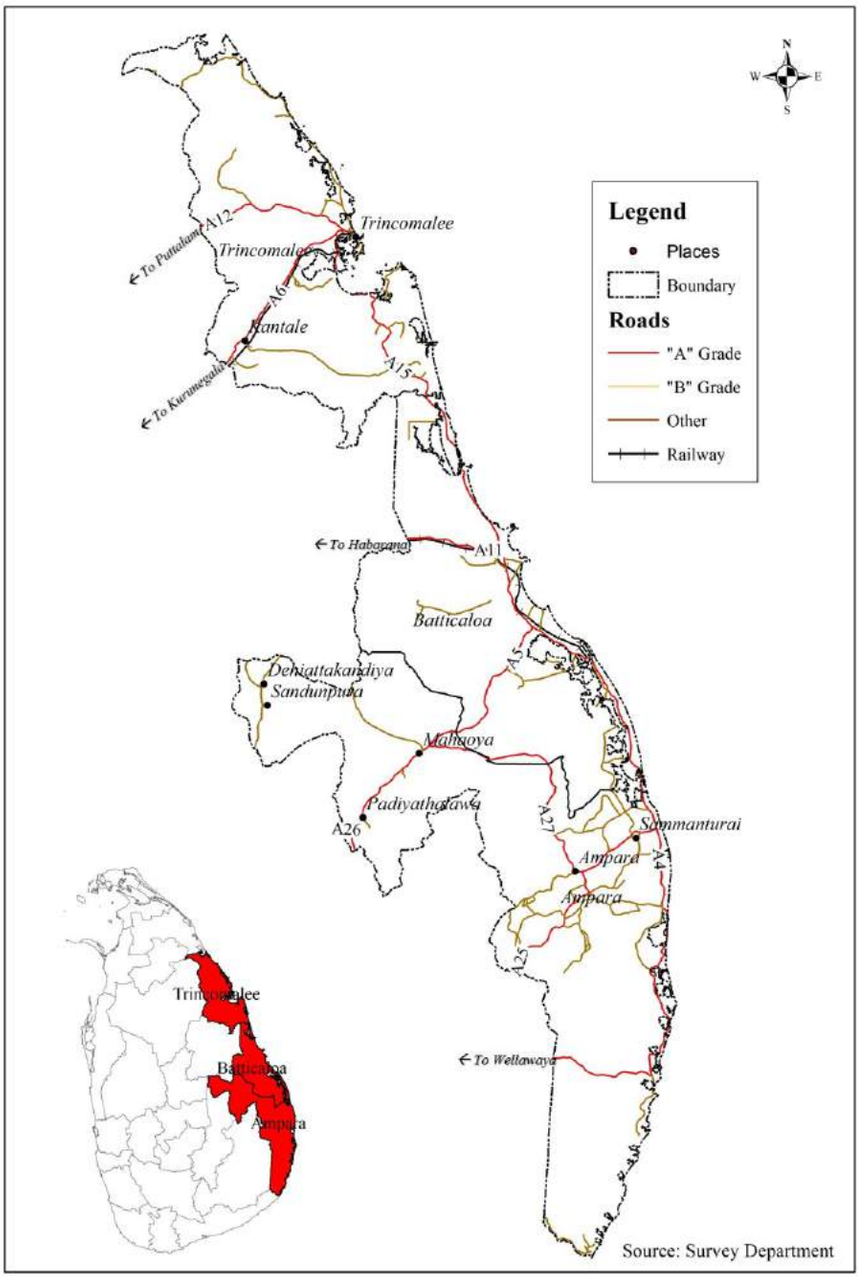
The Eastern Province has existed since the 19th century but did not have any legal status until 1987 when the 13th Amendment to the Constitution of Sri Lanka established provincial councils. However, from 1988 to 2006 the province was temporarily merged with the Northern Province to form the North Eastern Province. The Eastern province has an area of 9,996 sq. kilometers. The province is surrounded by the Northern Province to the north, the Bay of Bengal to the east, the Southern Province to the south, and the Uva, Central and North Central provinces to the west. The province's coast is dominated by lagoons, the largest being Batticaloa Lagoon, Kokilai Lagoon, Upaar Lagoon and Ullackalie Lagoon. This coastal ecosystem created many jobs opportunities, including fishery related and tourism related jobs for the locals. The Eastern coastline is a famous tourist destination for both local and foreign travelers. On the other hand, the Ampara district is recorded as having fertile paddy lands in the island which receives a higher paddy yield compared to other districts in the island. The Eastern Province has a basic agricultural economy and is known as the "granary of Sri Lanka". It contributes 25% of national rice production, 17% of national milk production and 21% of national fish production. Maize cultivation is expanding; large-scale cultivation of maize with hybrid seeds and contract marketing has dramatically increased production, fulfilling 25% of the country's maize requirement. The industrial sector has contributed 34% to the province's GDP, and export processing zones such as Trincomalee economic processing zone and Sampur Heavy Industries have been developed to boost the industrial sector, while the port of Trincomalee is developed for freight from bulk and industrial activities, including heavy industries.

Administratively, the Eastern Province has been divided into three districts, Trincomalee, Ampara and Batticaloa. The capital of the province is Trincomalee. The total population of the province is recorded as 1,729,000 in 2019. As illustrated in Map 71, several river basins and tanks can be identified in the province at different scales.



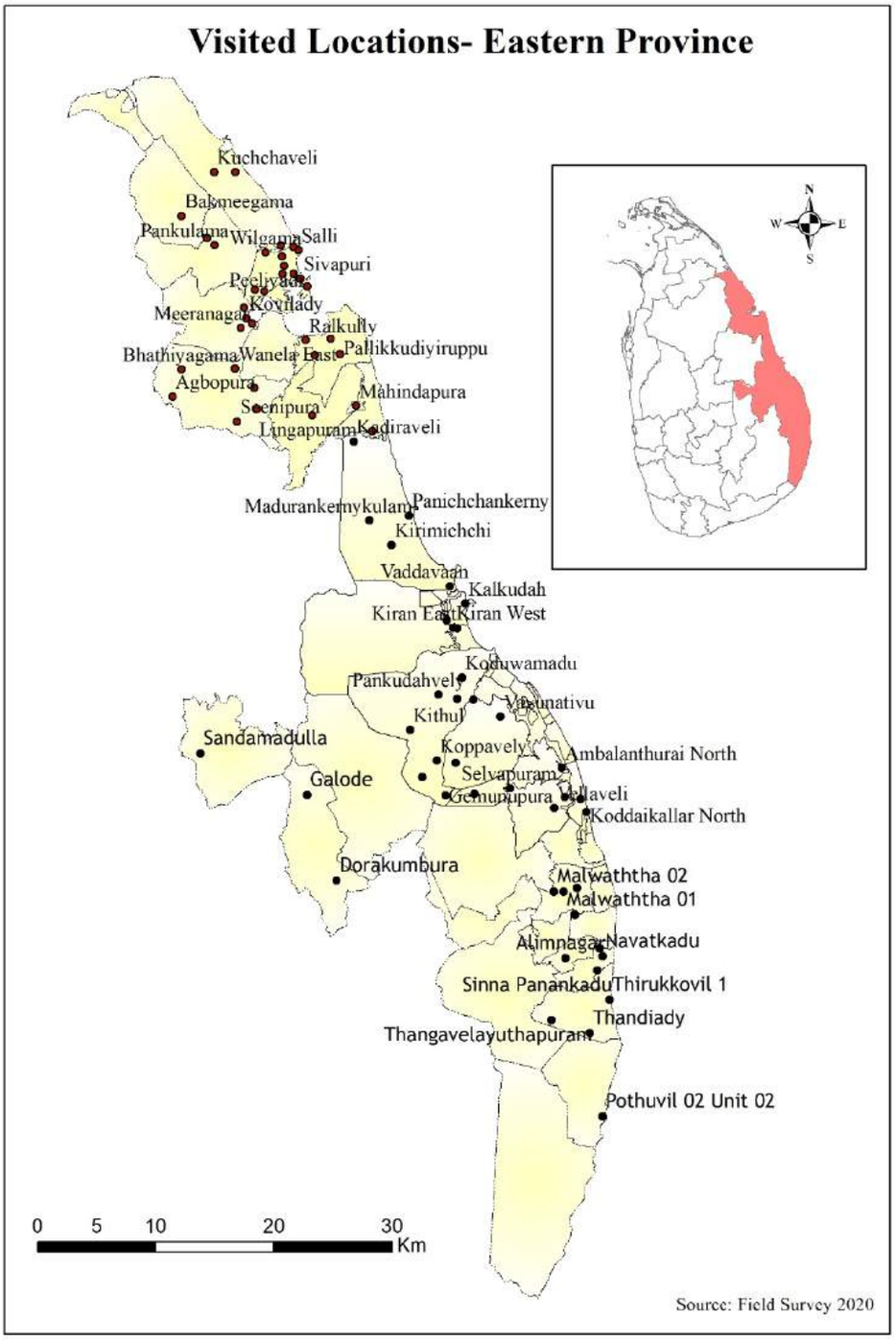

Map 71: Physical Profile of the Eastern Province

Considering the road network of the province, the total length of constructed roads is 2,334 km, length of Class A roads is 620 km, length of Class B roads is 551 km, length of Class C roads is 889 km and length of Class D roads is 272 km. Map 72 shows the road network of the province (Central Bank of Sri Lanka, 2020).




Map 72: Road Network- Eastern Province

In 2020, the Gammadda survey team visited 77 GNDs in all three districts of the Eastern province and 429 interviews were conducted. Map 73 shows the visited locations of the province.




Map 73: Visited Locations- Eastern Province

The next part of the chapter will discuss the socio-economic background of the districts and the status of issues identified during the field survey.

# Trincomalee District

The Trincomalee district is located in the eastern part of Sri Lanka, and it is an area rich in natural beauty. This region provides sufficient opportunities for economic affairs in the agricultural, pharmaceutical and commercial fields. It is bordered to the north by the Mullaitivu district, to the west by the Anuradhapura district, and to the south by Batticaloa and Polonnaruwa. Trincomalee's history goes back to time immemorial. In Mahavamsa and Chulavamsa, the two famous historical books of the Anuradhapura era, Trincomalee was referred to by the names Gokanna, Gokarna, and Gonagamaka. In addition, it has an ancient history and a natural harbor. Trincomalee, a natural deep-water port, has attracted sailors, merchants and pilgrims from Europe, the Middle East, Africa, China, East Asia, and Australia. Trincomalee, as it is popularly known, has been a seaport and a Hindu pilgrimage center since 400 BC. The oldest inscriptions are found in Trincomalee in Tamil. The Tamil colony in the port of Trincomalee was one of the oldest settlements on the island. An inscription dating back to 900-1000 AD belonging to the Chola Dynasty, carved near where the first temple of the Raqan stood, comes from a lock and also relates to Koneshwaram, as is the case of the Nilaveli inscriptions from the 10th century.

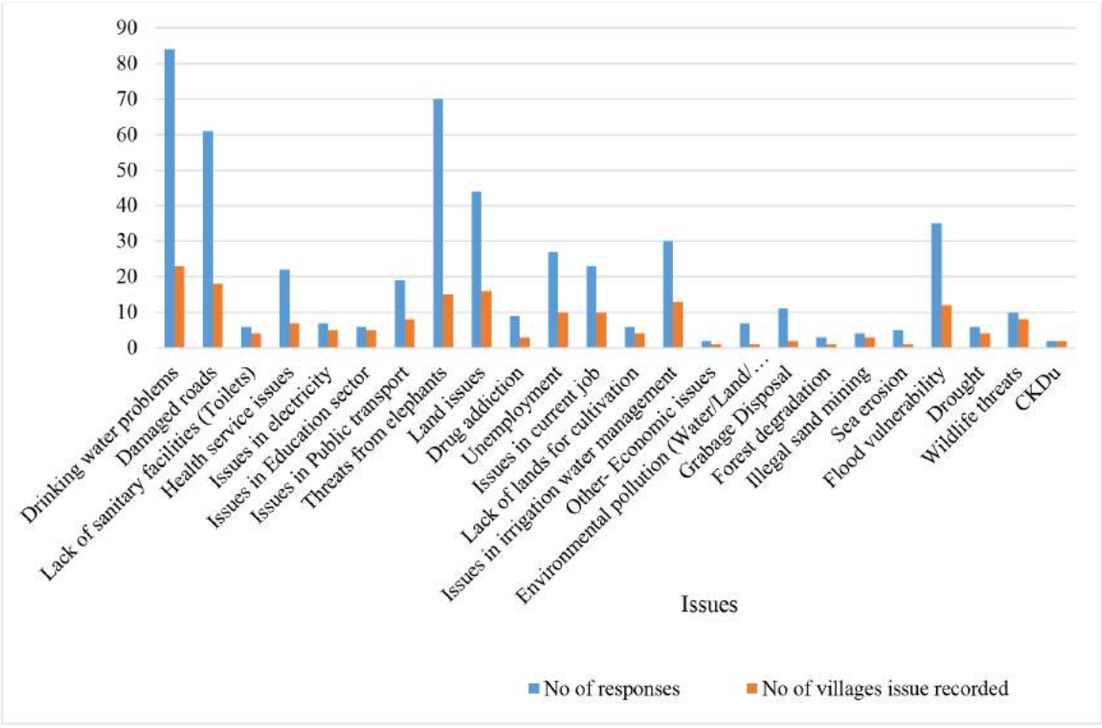
The area covers 2,728.8 sq. kilometers. It consists of 230 Grama Niladhari divisions and 11 DSDs. The main sources of livelihood in the region are agriculture and the fishing industry, and rice is the main agricultural crop. Some of the major reservoirs in the area are Kantale Lake, Morawewa, Mahadivulwewa, and Paravikulam. Additionally, there are three major irrigation projects, namely Kantale, Allakantale, and Morawewa. Livestock farming and management is another important livelihood. The tourism industry occupies an important place in economic affairs, as the region is famous for its coastal belt and other charming places. Trincomalee is a place of strategic value. That is why, in addition to the natural harbor, world famous companies such as Prima Sri Lanka and Tokyo Cement have set up their distribution centers in downtown Trincomalee.

Considering the demography of the district, 426,000 people live in the district and 26.7% of them are Sinhalese, 30.7% Sri Lankan Tamils, 0.3% Indian Tamils, 41.8% Sri Lankan Moors and 0.4% belong to other ethnic groups. Population density of the district is recorded as 168 persons per sq. kilometer in 2019. Considering the sectorial population distribution of the district, 22.4% of the total population live in the urban sector and 77.6% of the population live in the rural sector. Considering labour force statistics of 2019, 54.5% of the population occupy service sector employments while 24.6% were occupied in the agricultural sector and the remaining 20.8% were in the industrial sector. Among the employed population 63.8% are employees and the rest are self-employed who in turn are classified as follows, 3.5% employers, 30.7% Own Account Workers and 2.0% are contributing family workers. On the other hand, 4.5% of the population is unemployed and 2.2% of the population is under employed. Considering the educational infrastructure of the district, 99,800 students were studying in 313 government schools where 6,000 teachers were serving them in 2018. Out of the total government schools 101 schools function with less than 100 students, 159 schools with 101-500 students, 35 schools with 501-1000 students, 11 schools with 1001-1500 students, 2 schools with 1501-2000 students and 5 schools with 2001-3000 students. Considering the socio-economic background of the district, Trincomalee delivers an average standard of development both socially and economically (Central Bank of Sri Lanka, 2020).

The Gammadda research team has visited 34 GNDs in 9 DSDs of Trincomalee and interviewed 152 villagers. The following table and graph summarize the issues found in visited locations from the Trincomalee district during the field survey.

| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 84 | 23 |
| Damaged roads | 61 | 18 |
| Lack of sanitary facilities (Toilets) | 6 | 4 |
| Health service issues | 22 | 7 |
| Issues in electricity | 7 | 5 |
| Issues in Education sector | 6 | 5 |
| Issues in Public transport | 19 | 8 |
| Threats from elephants | 70 | 15 |
| Land issues | 44 | 16 |
| Drug addiction | 9 | 3 |
| Unemployment | 27 | 10 |
| Issues in current job | 23 | 10 |
| Lack of lands for cultivation | 6 | 4 |
| Issues in irrigation water management | 30 | 13 |
| Other Economic issues | 2 | 1 |
| Environmental pollution (Water/Land/ Noise/Air) | 7 | 1 |
| Issues in garbage disposal | 11 | 2 |
| Forest degradation | 3 | 1 |
| Illegal sand mining | 4 | 3 |
| Sea erosion | 5 | 1 |
| Flood vulnerability | 35 | 12 |
| Drought | 6 | 4 |
| Wildlife threats | 10 | 8 |
| CKDu | 2 | 2 |

Table 19: Summary of Responses- Trincomalee District

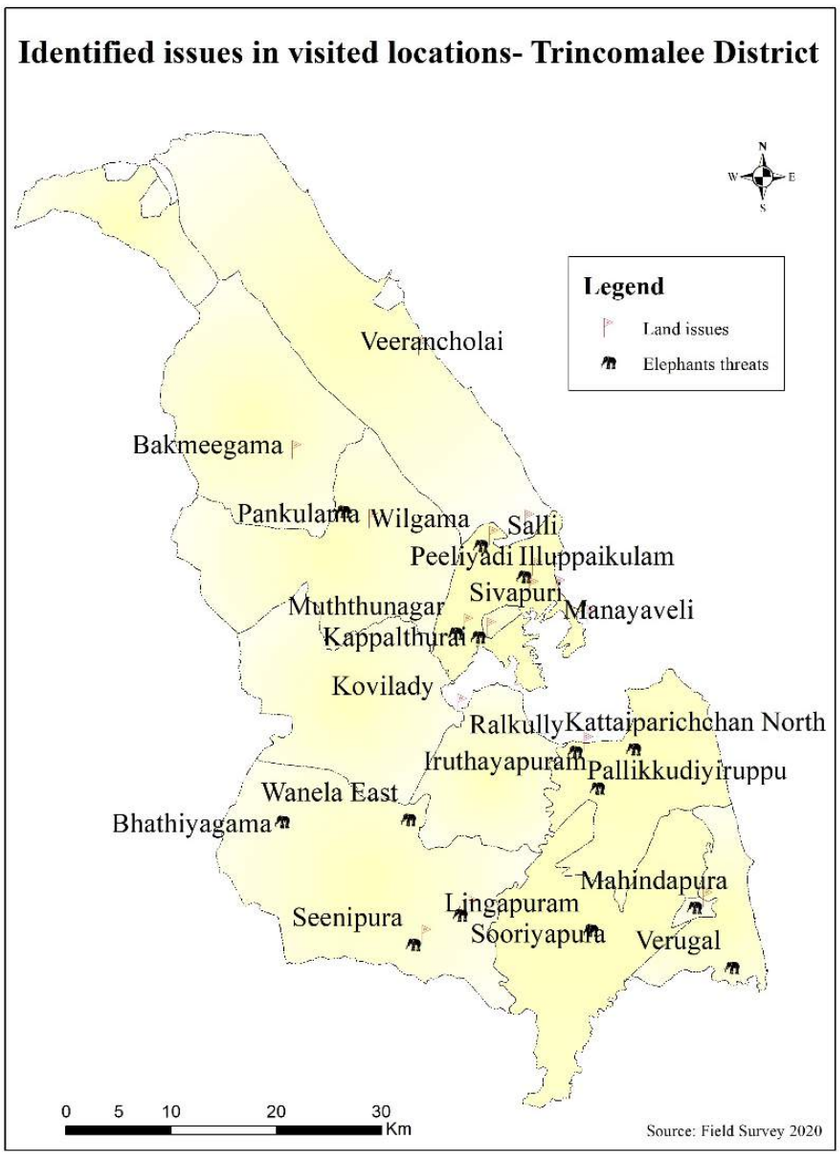



Graph 18: Summary of the Trincomalee District

The most prominent issue in the visited villages in Trincomalee is the lack of clean drinking water. This issue was recorded in 23 GNDs by 84 respondents. As they elaborated, most of the traditionally used tube wells and ground wells are now dried up. Some villages such as Samagipura are suffering because of insufficient water delivered by the community water project of the village. Thus, lack of drinking water has become a severe issue in the visited villages. On the other hand, villagers of Samagipura reported that their tank cascade systems do not function well. As a result, divergent issues can be raised such as fluctuation of ground water levels, insufficient tank water for cultivations and issues in ecosystem regulation which would affect the entire ecosystem of the area. Damaged roads are another common issue over the visited locations of Trincomalee. The following map illustrates the spatial distribution of the selected issues.

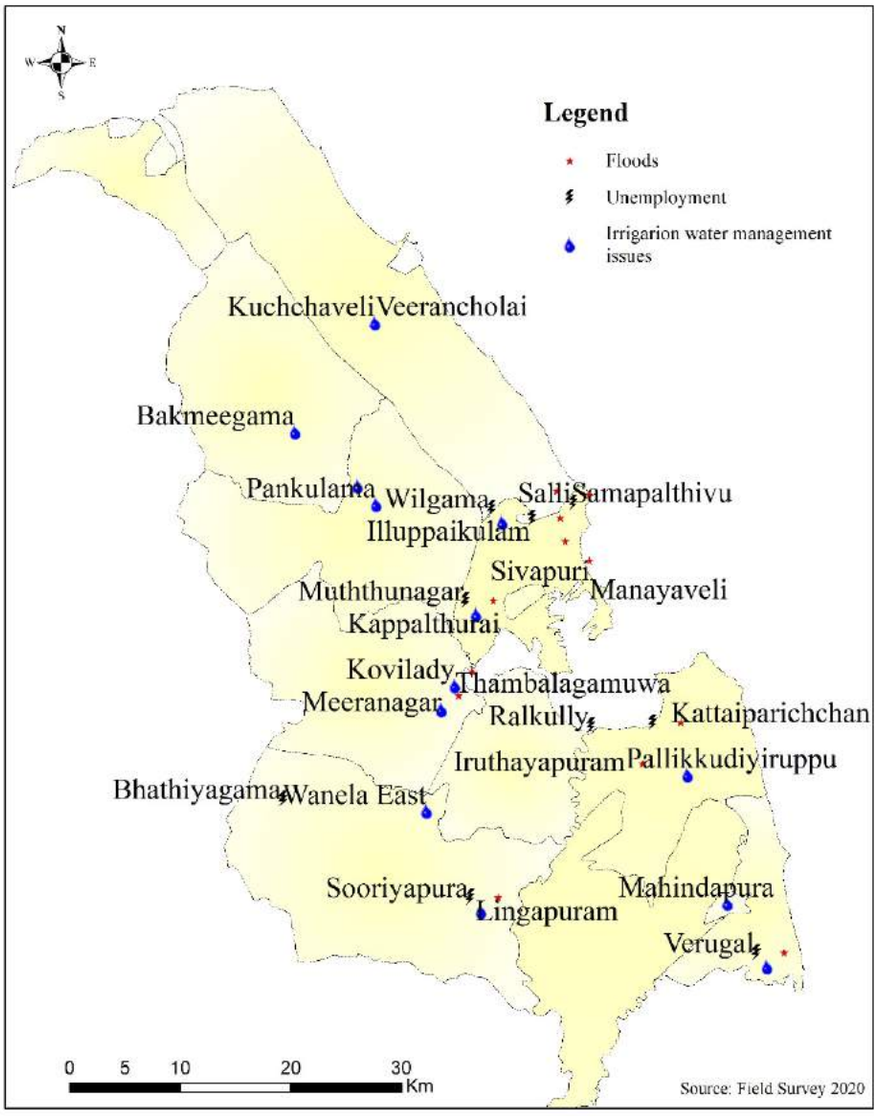

Map 74: Distribution of Issues- Trincomalee

Absence of deeds for the villagers' lands is another prominent issue found in most of the rural areas of Sri Lanka and Trincomalee is not an exception. Some residents of Seenipura in Kantale cannot claim deeds for their lands because they are categorized as unauthorized settlers on sugar factory lands. Technically it would be true but they also have a right to get a piece of land to live. These issues should be addressed by rural development projects. Apart from these issues, the elephant threat is prominent and common in most of the visited villages. This is caused by improper land use planning and the absence of sustainable development projects in the area. Constructing an elephant fence would not be a sustainable solution. Thus, proper identification of the problem and a holistic approach to the elephant-human conflict is mandatory. The following map illustrates the locations where these issues were associated.




Map 75: Distribution of Identified Issues- Trincomalee District

Destruction of tank cascade system is one of the major reasons which has caused the water capacity of these tanks to be reduced. Simultaneously, poor condition of the irrigation tanks and anicuts also reduce the capacity of water which can be stored. Eventually villagers have to depend on a limited water stock which is hardly sufficient for cultivation during the dry season. Unemployment is recorded in a few visited locations. The following map illustrates some issues that were identified in the Trincomalee district.




Map 76: Distribution of Selected Issues- Trincomalee District

# Batticaloa District

Batticaloa is a Portuguese derivation. The original name for the area is Tamil "Matakalabu" (translation: muddy swamp). According to Mattakallappu Manmiyam, the word Mattakkallpu consists of the Tamil words "Mattu" Matta, derived from "Mattam" meaning "flat" and the geographical name Kalappu. Mukkuwa called this place Kalappu-Mattam or lagoon limit. Later it became Matta-Kallappu or Flat Lagoon. Also, Batticaloa has the nickname "Land of the Singing Fish" due to the musical sounds related to fish or aquatic creatures in the Lake Batticaloa near Kaladi Bridge.

Since this is a district located mainly on the coast, the main resource of the district can be identified as the ocean. 76 Grama Niladhari Divisions and 8 Divisional Secretariats are located on the coastal belt. The extent of this coastline is 119.43 km. Fishing in the sea can be found as one of the main livelihoods of the people in this area. In the true sense of the meaning of the name of the district and area in extent 229.19 sq. kilometers from Kallaru up to Walachchenei is a lagoon. 8.7% of the total area of the district is covered by this lagoon. Batticaloa is an ancient harbor and the cranes used at that time are still found in Ghandi Park near the lagoon. Pasikuda is famous as a calm sea and it serves as an attraction for both local and foreign tourists. A soil composition which is highly suitable for paddy cultivation can be found in the western side. The rice production, which is carried out in high volumes has been the reason for the transformation of this district as a self-sufficient area.

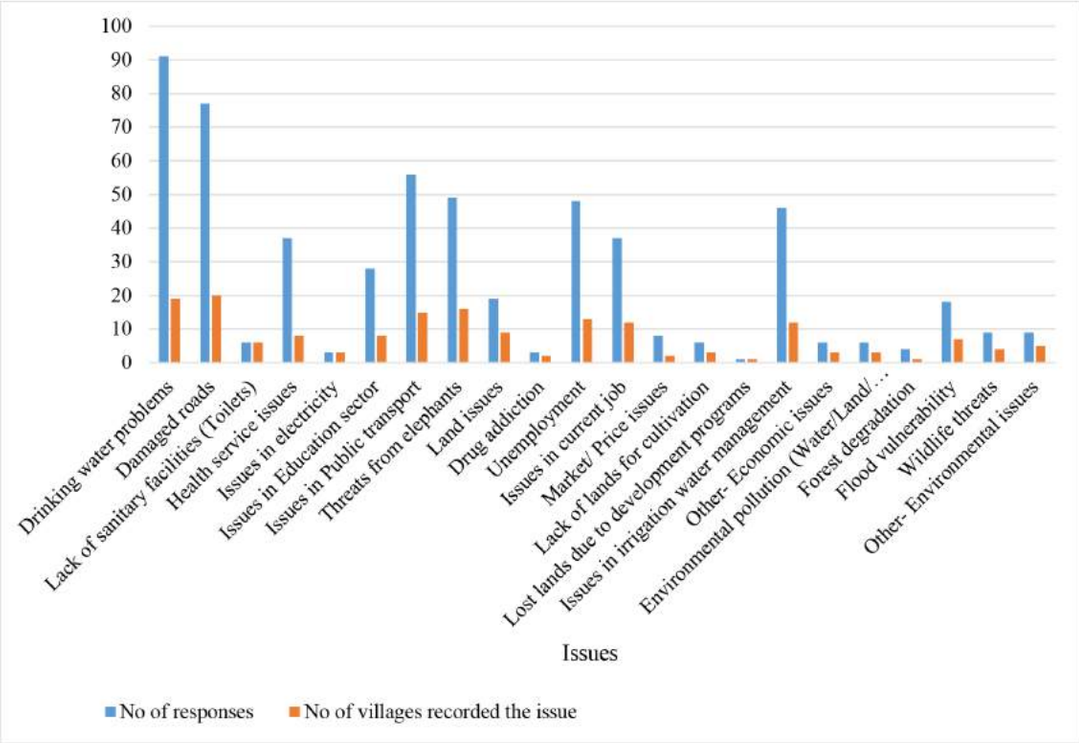
Focusing on the demographic overview of the district, the total population was recorded as 575,000 in 2019 and population density was recorded as 220 people per sq. kilometer which is the highest population density recorded in the Eastern Province. Considering the ethnic population of the district, the highest number recorded is Sri Lankan Tamils at 72.3%, Sri Lankan Moors 25.4%, Sinhalese 1.3%, Indian Tamils 0.4% and other ethnicities at 0.6%. Considering the social infrastructure of the district, 129,000 students were studying in 360 schools and the total government school teacher count was 8000 in 2019. Out of the total government schools in the district, 108 schools had less than 100 students, 168 schools had 101- 500 students, 59 schools had 501-1000 students, 11 schools had 1001-1500 students, 7 schools had 1501-2000 students and 12 schools consisted of 2000- 3000 students in 2019 (Central Bank of Sri Lanka, 2020).

The labour force of the district is dominated by service sector employees, who amount to 40.2% of the workforce, 30.9% are in the agriculture sector and 28.9% are in the industrial sector. Yet, Batticaloa district reported the highest unemployment rate of the Eastern Province, 7.4%. Out of the total population of the district, 1.8% lived in poverty during the year 2016 (Department of Census and Statistics, 2020).

The research team visited 26 GNDs of 12 DSDs and interviewed 138 people in Baticaloa. The following table and graph illustrate the summary of the issues identified in the visited locations of the Batticaloa district.

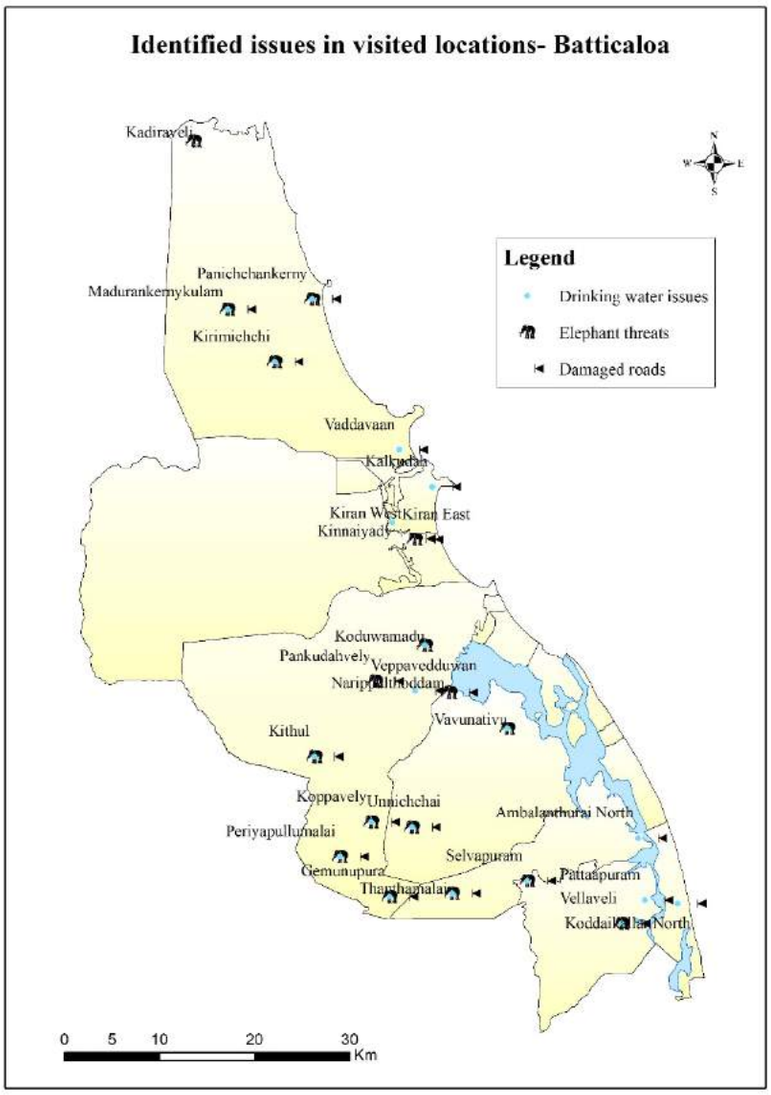
| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 91 | 19 |
| Damaged roads | 77 | 20 |
| Lack of sanitary facilities (Toilets) | 6 | 6 |
| Health service issues | 37 | 8 |
| Issues in electricity | 3 | 3 |
| Issues in Education sector | 28 | 8 |
| Issues in Public transport | 56 | 15 |
| Threats from elephants | 49 | 16 |
| Land issues | 19 | 9 |
| Drug addiction | 3 | 2 |
| Unemployment | 48 | 13 |
| Issues in current job | 37 | 12 |
| Market/ Price issues | 8 | 2 |
| Lack of lands for cultivation | 6 | 3 |
| Lost lands due to development programs | 1 | 1 |
| Issues in irrigation water management | 46 | 12 |
| Other Economic issues | 6 | 3 |
| Environmental pollution (Water/Land/ Noise/Air) | 6 | 3 |
| Forest degradation | 4 | 1 |
| Flood vulnerability | 18 | 7 |
| Wildlife threats | 9 | 4 |
| Other Environmental issues | 9 | 5 |

Table 20: Summary of Identified Issues




Graph 19: Issues in Visited Locations- Batticaloa District

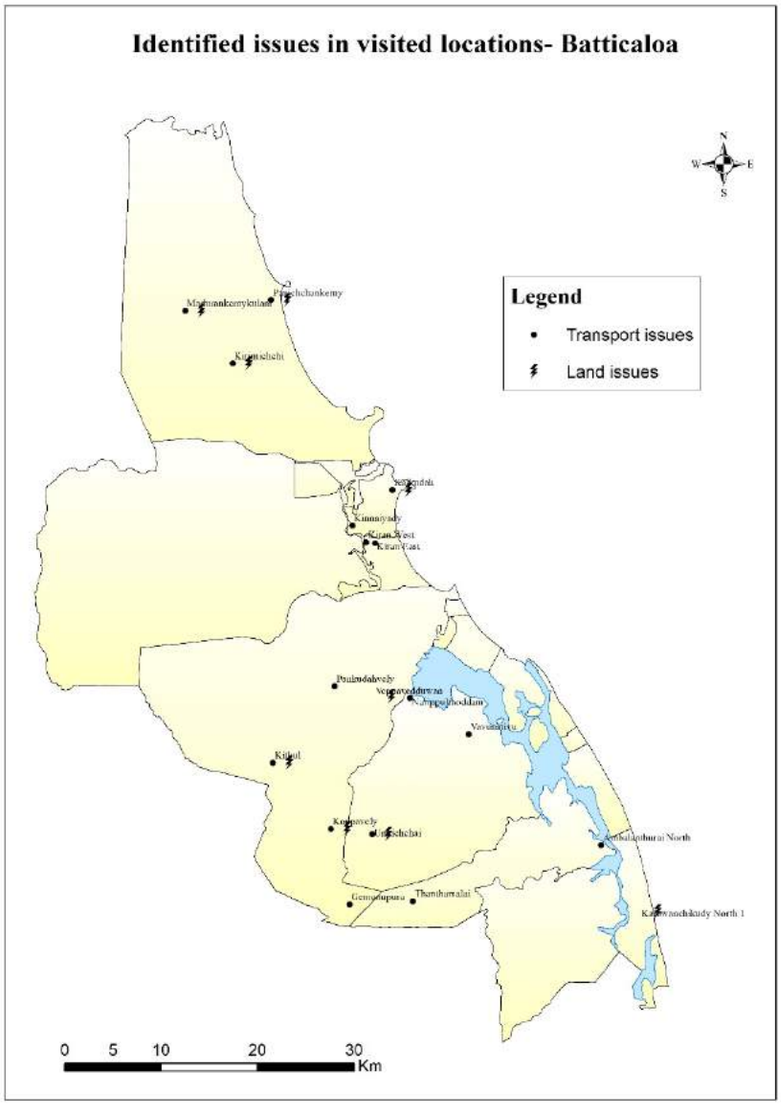
Damaged roads and drinking water issues are the highest stated issues in the visited locations of the Batticaloa district. Shallow ground water levels cause salt water intrusion to well water, resulting in unsuitable drinking water. Apart from these issues, public transport issues and irrigation water management issues are reported in the visited locations of the Batticaloa district. Most people stated that, fishermen did not receive enough subsidies and attention despite most of the coastal residents being fishermen. The following map shows some of the highly recorded issues in the Batticaloa district.




Map 77: Issues in Visited Locations- Batticaloa District

Elephants are a common sight in almost every village visited. Since this area is surrounded with a national park and conservation parks, most of the villages which were visited are parts of the elephant corridor. Thus, it is impossible to avoid elephants in their natural habitat but possible to establish a sustainable land use plan to overcome these issues.

Some of the people we visited in rural areas do not have the necessary deeds to prove land ownership. This is another prominent issue recorded in most of the visited locations. The following map shows some of the identified issues distributed over the district.



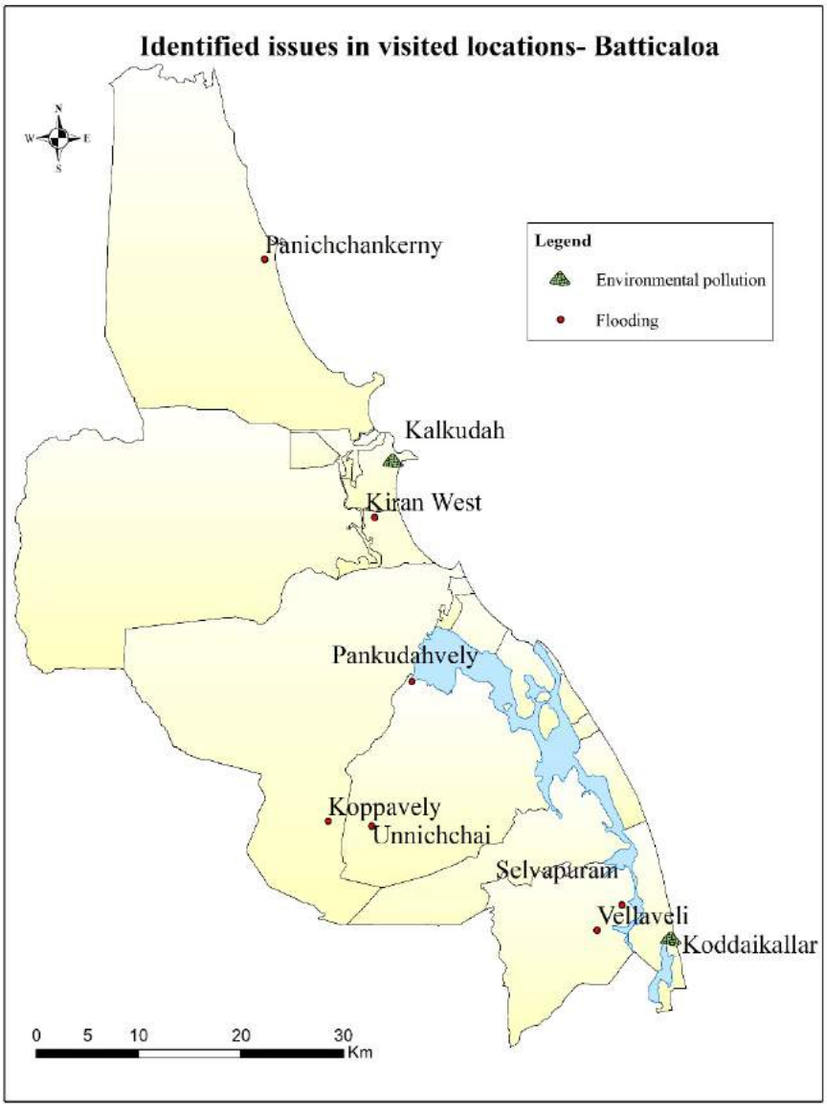

Map 78: Identified Issues in Visited Locations- Batticaloa District

Even with the fisheries industry, some villagers depend on agriculture as their livelihood. Thus, irrigation is the strategy they use to overcome the water shortages during dry season. However, it is not always successful as parts of the water supply becomes contaminated with salt water and eventually causes damage to the entire water supply reserved for cultivation.


Map 79: Issues in Visited Locations- Batticaloa District

Improper disposal of garbage is the major environmental issue recorded over the visited locations of Batticaloa. Eventually this issue causes land and air pollution in the surrounding areas. The following map shows the distribution of these issues over the visited locations.

Flooding is common during the rainy season and the major reason for it is the low elevation of the area. To overcome this issue houses have to be built considering this frequent flooding phenomenon and incorporating flood prevention measures.




Map 80: Issues in Visited Locations- Batticaloa District

# Ampara District

Ampara was a resting place for hunters during the British colonial period (late 1890s and early 1900s). During the development of the Gal Oya Project from 1949 by the late Prime Minister D. S. Senanayake, Ampara was transformed into a city. Initially, it was the residence of the construction workers of the Enginiyagala Dam. Later, Ampara became the main administrative city in the Gal Oya Valley.

Ampara, which includes 205,978 ha of land and 19,280 ha of internal reservoirs, is an area where the Sinhalese, Tamil and Muslim communities live together. It is bordered to the north by the districts of Polonnaruwa and Batticaloa, to the east by the Indian Ocean, to the south by the Hambantota and Monaragala districts, and to the west by the Badulla and Matale districts. The total area of the Ampara is 4415 sq. kilometers, which is an area that bears witness to cultural and religious heritage of historical value. Aranya Senasanas like Piyangala and Buddangala and religious places of archaeological value like Rajagala, Deegawapi, Magul Maha Vihara, Muhudu Maha Vihara, Neelagala Seya, and Kudumbigala are among the most important destinations. The hot springs of the Maha Oya and Badyathalawa regions, the charming coasts of Arugambay and the path of the Tamil pilgrims who walk annually to Katharagama are tourist attractions. This district is additionally blessed with cultural diversity compared to the other regions due to the presence of colonies of the Adhi Vasi people (indigenous people) located in Henanigala.

The district consists of Kalmunai Urban Council, Ampara Urban Council and 17 Pradeshiya Sabhas. The district is divided in to 20 DSDs and 507 GNDs and the total population of the district was recorded as 728,000 in 2019 and 38.9% of them were Sinhalese, 43.4% of them were Sri Lankan Moors, 17.3% were Sri Lankan Tamils 0.1% were Indian Tamils and 0.3% categorized under Other (Department of Census and Statistics, 2012).

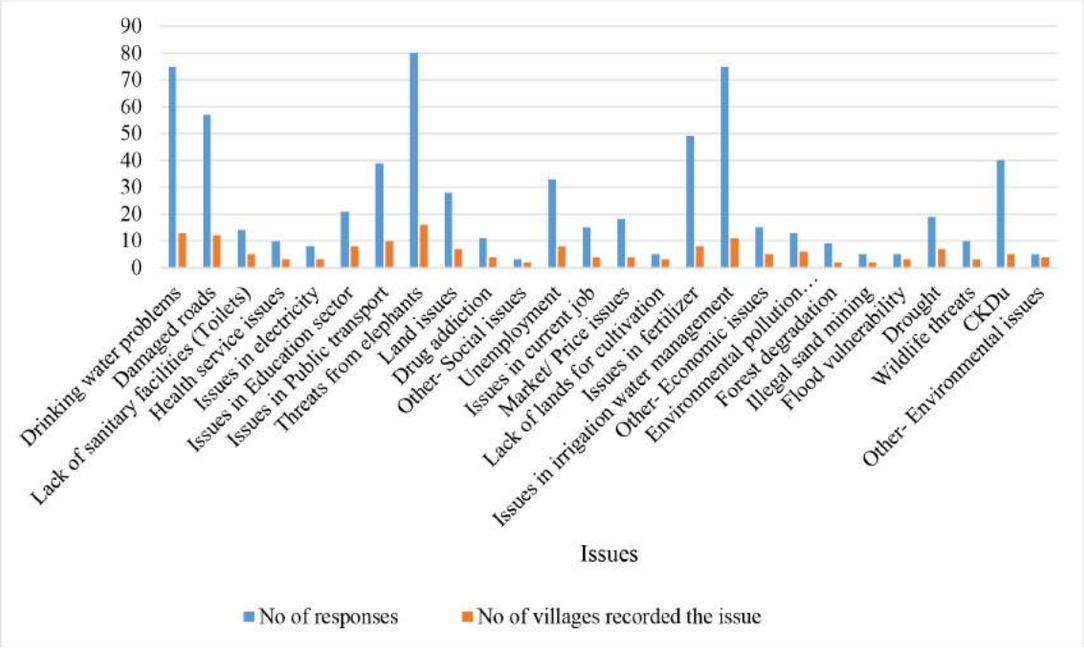
Focusing on the distribution of government schools over the district; total number of government schools were recorded as 441 and majority of them function with less than 500 students, where 118 schools function with less than 100 students and 231 schools function with 101-500 students. On the other hand, 54 schools function with 501-1000 students, 28 schools with 1001-2000 students, 8 schools with 2001-3000 students and 2 schools with 3001-3500 students (Central Bank of Sri Lanka).

Considering the labour force contribution of the district, 31.2 % are engaged in agriculture, 22.9% in the industrial sector and 45.9% in the service sector. The unemployment rate was recorded as 6.9% in 2019. Considering the employed population of the district, 62.2% are categorized as state employees and the rest are categorized as self-employed. Out of the total population 0.4% are recorded as living in poverty which is the lowest poverty level recorded in the Eastern Province (Department of Census and Statistics, 2020).

With this brief introduction to the Ampara district, the rest of the chapter will discuss the identified issues during the field survey by the Gammadda team, 2020. In total, the team has visited 17 GNDs and interviewed 139 people. The following table and graph summarize the issues and responses that were identified in the Ampara district.

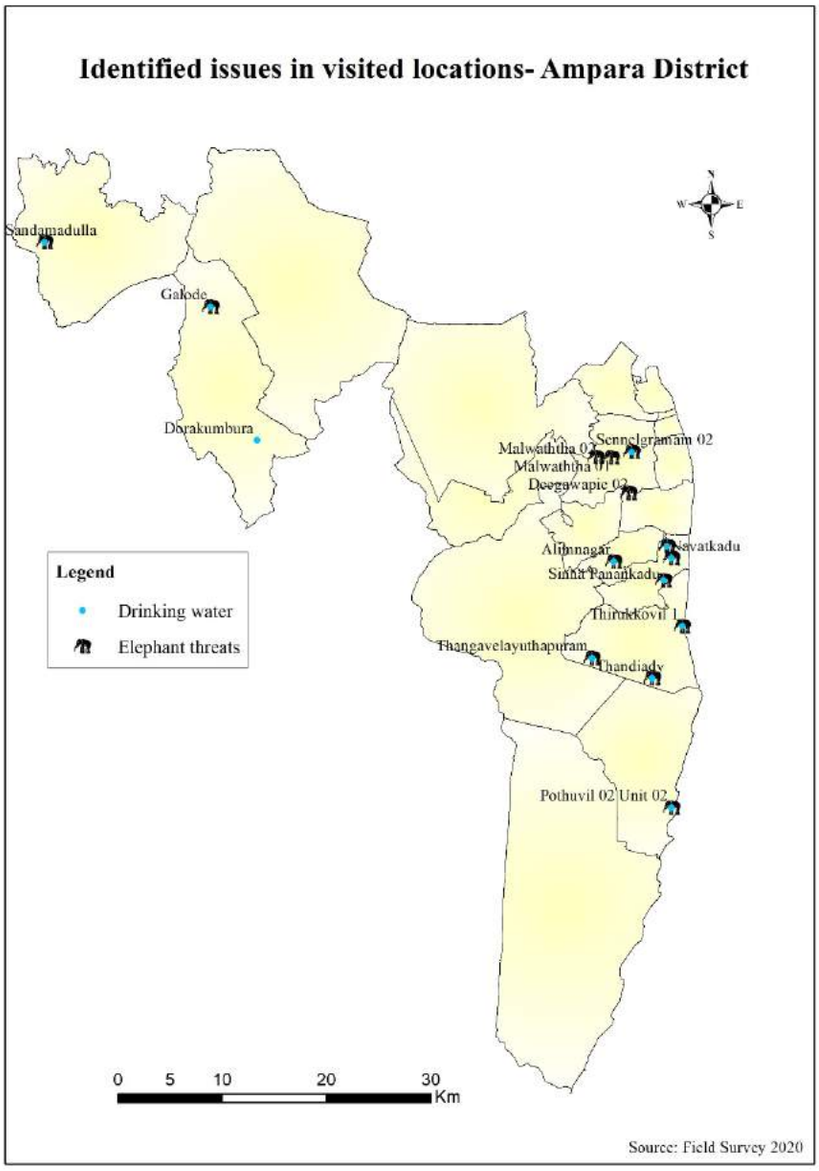
| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 75 | 13 |
| Damaged roads | 57 | 12 |
| Lack of sanitary facilities (Toilets) | 14 | 5 |
| Health service issues | 10 | 3 |
| Issues in electricity | 8 | 3 |
| Issues in Education sector | 21 | 8 |
| Issues in Public transport | 39 | 10 |
| Threats from elephants | 80 | 16 |
| Land issues | 28 | 7 |
| Drug addiction | 11 | 4 |
| Other Social issues | 3 | 2 |
| Unemployment | 33 | 8 |
| Issues in current job | 15 | 4 |
| Market/ Price issues | 18 | 4 |
| Lack of lands for cultivation | 5 | 3 |
| Issues in fertilizer | 49 | 8 |
| Issues in irrigation water management | 75 | 11 |
| Other Economic issues | 15 | 5 |
| Environmental pollution (Water/Land/ Air) | 13 | 6 |
| Forest degradation | 9 | 2 |
| Illegal sand mining | 5 | 2 |
| Flood vulnerability | 5 | 3 |
| Drought | 19 | 7 |
| Wildlife threats | 10 | 3 |
| CKDu | 40 | 5 |
| Other Environmental issues | 5 | 4 |

Table 21: Summary of Responses Ampara District



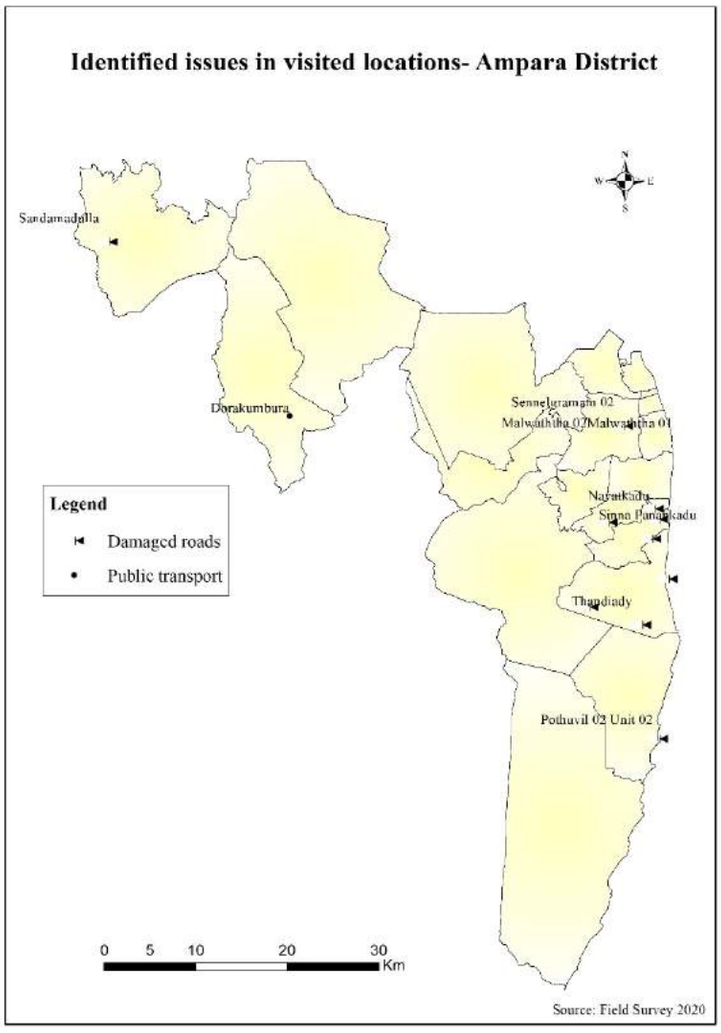

Graph 20: Identified Issues in Visited Locations- Ampara District

Threats from wild elephants is the highest recorded issue over the Ampara district which is different from the other frequently recorded issues in the Eastern Province. Some villages, such as Serupitiya, are bounded to the national parks (Wasgomuwa NP) and elephants could easily have access to the villages during the dry season or during the harvesting period due to the abundance of food which can be found in village crop lands. Elephant fences alone will not negate this issue. Lack of access to clean drinking water is the second most stated issue over the visited locations of Ampara. Map 81 shows the spatial distribution of these issues in the Ampara district.



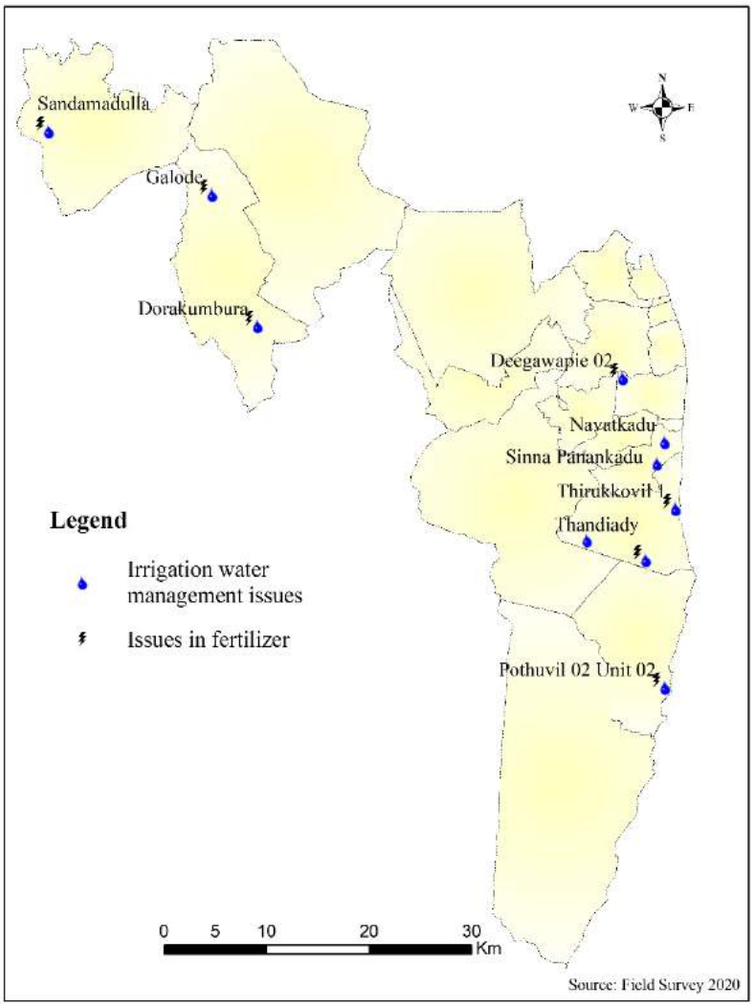

Map 81: Identified Main Issues in Visited Locations- Ampara District

As reported in other districts of the Eastern Province, damaged roads and poor transportation facilities are also prominent over the visited locations and they are elaborated in the following map.



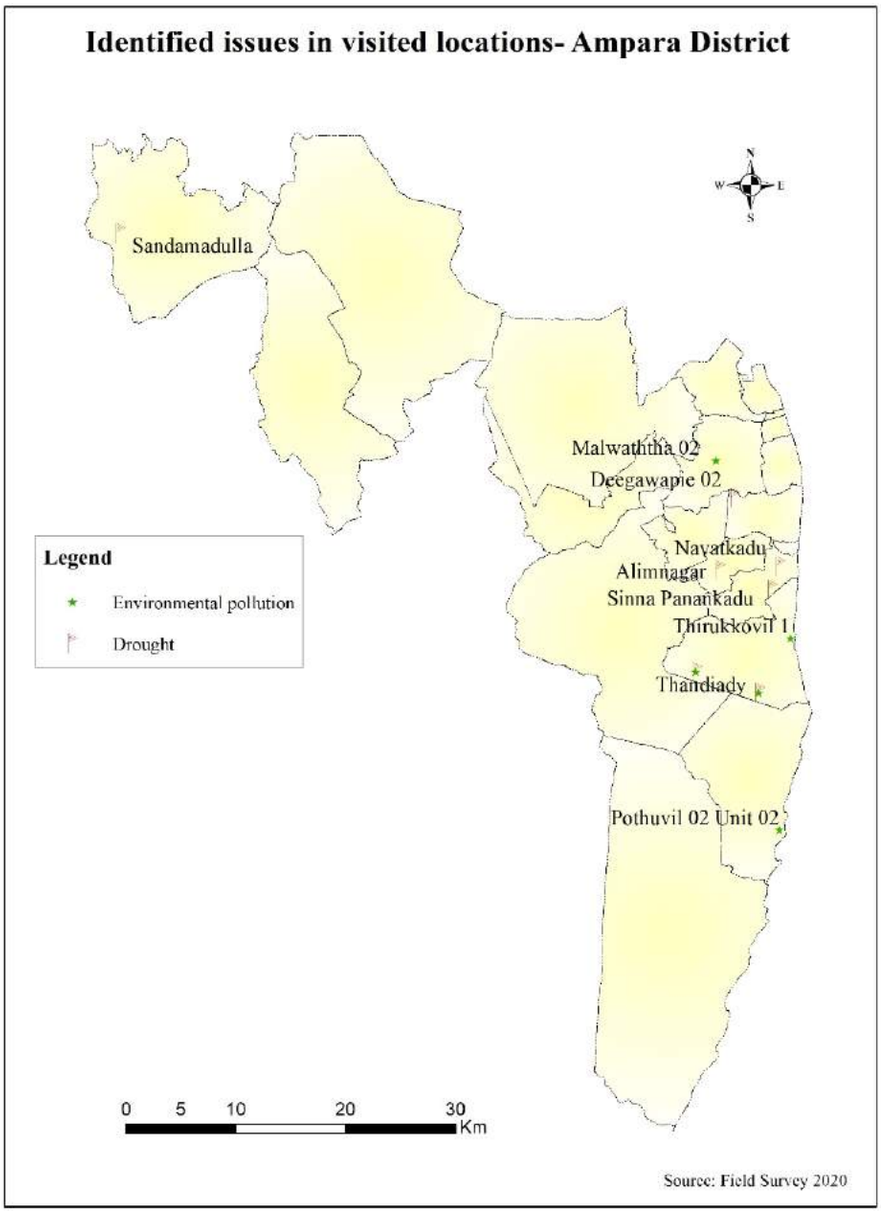

Map 82: Identified Issues in Visited Locations- Ampara District

As the "Granary" of the island, most of the agricultural sector farmers are engaged in paddy cultivation and difficulty in obtaining fertilizer for cultivation has become a frequently reported issue in the past few years. On the other hand, issues in irrigation water distribution, and poor conditions of tanks and anicuts combine to expose irrigation water management issues over the visited locations of Ampara. At the same time, some locations do not have a proper irrigation system and they have to depend on natural water sources such as streams for cultivation. Its' water flow is not sufficient for cultivation during the dry season. The following map shows the distribution of these issues. Some villagers in Neinakadu reported that they depend on small scale brick making industry and they do not have sufficient raw materials for their industry. As a result, they tend to over extract the clay in existing locations and cause severe environmental degradation over the area. These issues should have been addressed through regional development initiatives.




Map 83: Key Economic Issues- Ampara District

Improper garbage disposal from households, mills and small industries have caused land and air pollution over a few of the visited locations. These locations can be identified through the following map. Poor storage capacity of tanks and streams (due to siltation and improper garbage disposal) and poor water management strategies combine to cause severe difficulties in obtaining clean water during the dry season and residents have undergone frequent periods of drought in recent years.




Map 84: Key Environmental Issues- Ampara District

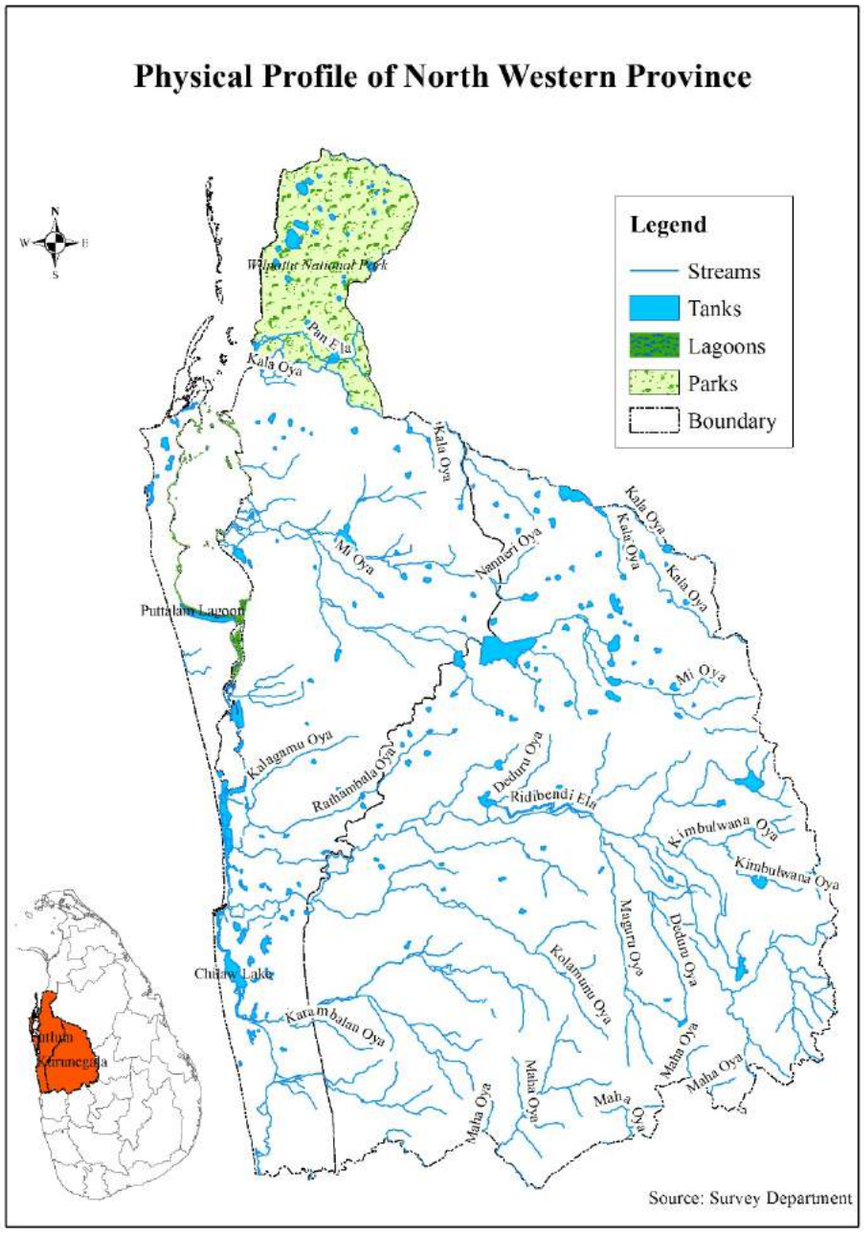
# North Western Province

The North Western Province consists of 7838 sq. kilometers of land area which is 11.5% of the total area of the island and is divided into two districts; Puttalam and Kurunegala. The capital city of the province is Kurunegala. The province is known mainly for its abundant coconut plantations. Fishing, prawn farming and rubber tree plantations are other prominent industries of the province. The climate of the North Western Province is tropical, with a marked dry season, and average temperatures of 20°C in January to 25°C in March. The south of the province is wetter, with nearly 2000 mm of rain per year, but the north of the province is one of the driest in Sri Lanka, with an average rainfall of less than 1100 mm in some areas.

The province has a highly developed agricultural economy, where it grows a variety of fruits, vegetables, flowering plants, spices, and oil seeds in addition to traditional agricultural crops such as coconut, rubber, and rice. Rich soil and a diverse climate in the province make it possible to grow almost any crop. Rice is the main agricultural crop in the province. Wayamba is the third largest rice producing province in Sri Lanka. There are two main growing seasons. Maha season (October-January) of heavy rains and Yala season (April-August) of a dry period. During the Yala season, farmers have to rely on irrigation. Recently, during the dry season, rice farmers have chosen to cultivate export crops and subsidiary food crops which generate greater profits.

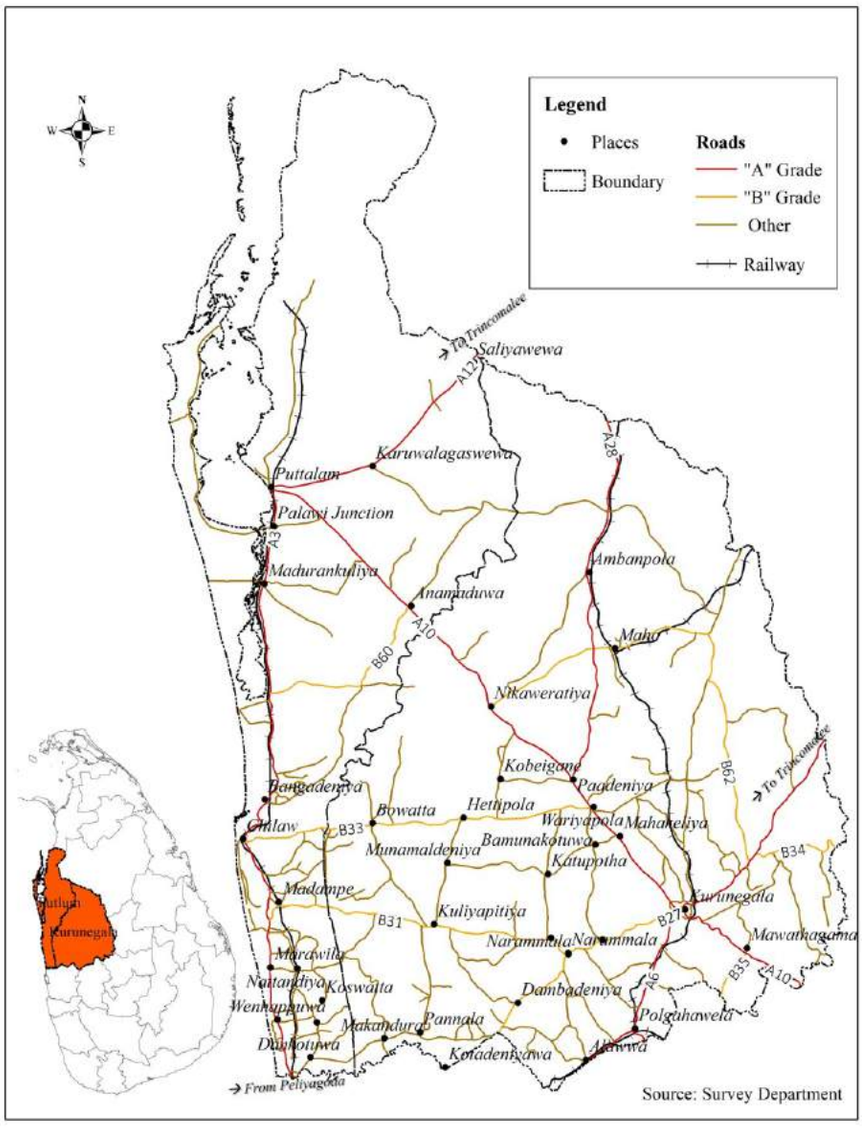
Historically the North Western Province is an important region thus; it is an archaeological treasure trove that was the seat of four medieval kingdoms of Sri Lanka between the mid-twelfth and mid-fourteenth centuries. After the kings of Sri Lanka were forced to move capitals due to foreign invasions, they built splendid castles in Paduwasnuwara, Dambadeniya, Yapahuwa and Kurunegala. The remarkable ruins of these castles, palaces, Buddhist temples, and monasteries provide exciting tours for visitors.

Map 85 indicates the major river basins and protected areas located in the province. Daduru Oya, Mi Oya, Kala Oya and Maha Oya are some of them. Sri Lanka's first National Park Wilpattu is situated in the North Western Province which is one of the prominent tourist attractions in the country.




Map 85: Physical Profile- North Western Province

The region is served by an extensive rail and road transport system providing linkages to the major cities and ports in Sri Lanka. Total length of the road network of the province is 4401 km, out of which 352 km are classified as A class roads, 1,003 km are B class roads, 1,914 km are C class roads and 831 km are D class roads (Central Bank of Sri Lanka, 2020). Map 86 shows the road network of the province.




Map 86: Road Network- North Western Province

The Gammada research team visited 41 GNDs over two districts and interviewed 338 villagers with the purpose of data collection. The following map shows those visited locations over the province.


Map 87: Visited Locations- North Western Province

The next sections of the chapter will discuss the identified issues over the visited locations in the two districts.

# Kurunegala District

The extent of the Kurunegala district situated in the North Western Province is 4812.7 sq. kilometers. The number of DSDs in the district is 30 and the number of GNDs is 1610. The Kurunegala district is bounded by the Anuradhapura district from the north, by the Matale and Kandy districts from the east, by the Gampaha and Kegalle districts from the south and by the Puttalam district from the west. There are wavy low lands in the district. They can be shown as internal plain lands but the area in the Divisional Secretariat Divisions like Mawathagama, Mallawapitiya, Rideegama and Ibbagamuwa show hilly geographical features. These areas are considered to be the areas that belong to the geographical divisions of the central hills. The highest extent of paddy and coconut lands is situated in the Kurunegala district. Agro-ecologically the northern area shows features of the dry zone, the southern and eastern areas show features of the wet zone and the rest of the areas show inter zonal features. There are a small number of areas which show wet zone features.

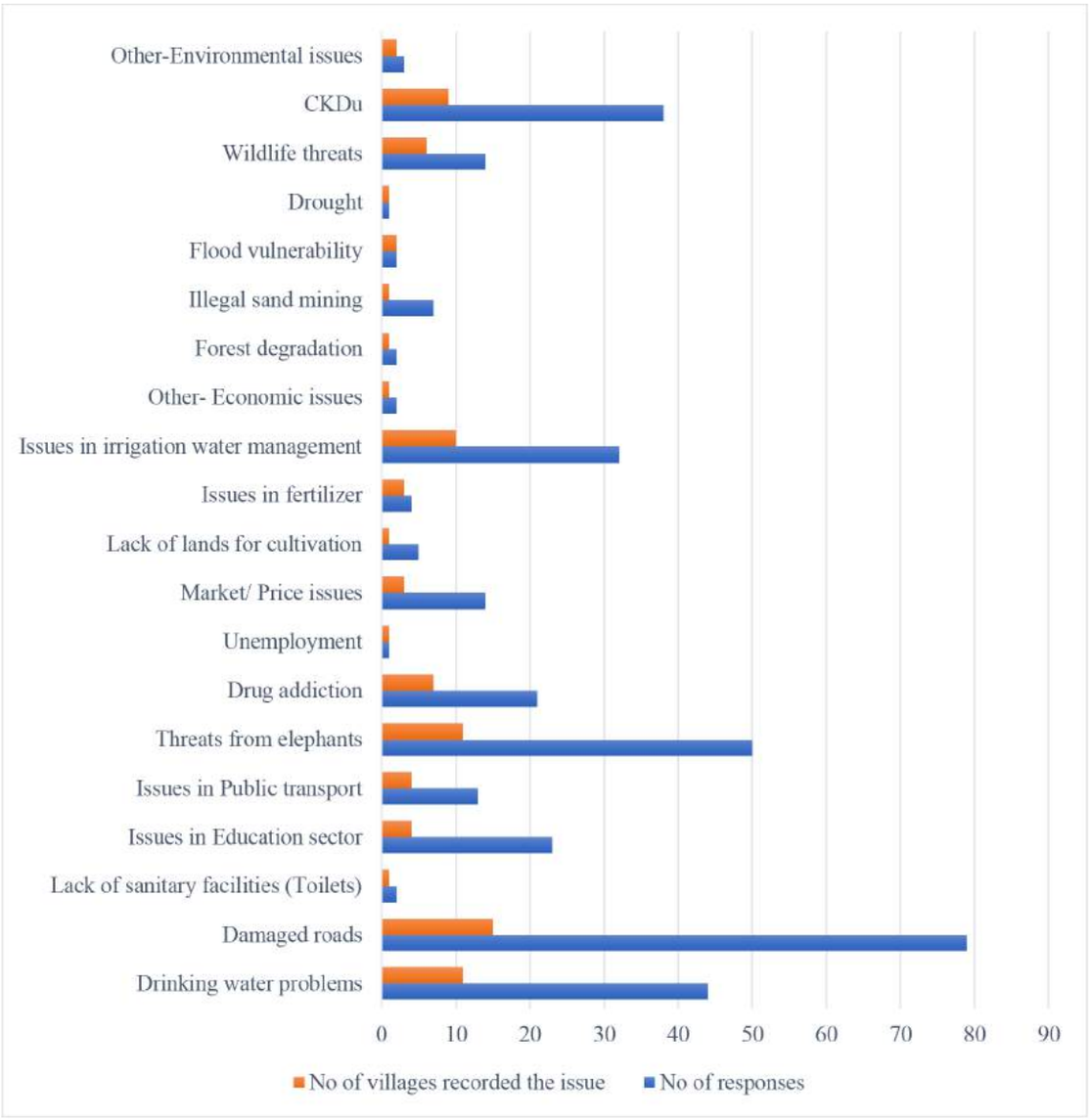
When considering the historical background of the district, special features are found in the history of the district. Kurunegala emerges proudly as the only district which had 4 kingdoms in the country. They are Panduwasnuwera, Kurunegala, Yapahuwa and Dambadeniya. Much evidence is found to support the fact that many glorious kings reigned in these kingdoms in the past.

The total population of the district is recorded as 1,618,500 and out of the total population, 91.4% are Sinhalese, 1.1% Sri Lankan Tamils, 0.2% Indian Tamils and 7.1% are Sri Lankan Moors. Considering the sectorial population distribution, 1.9% live in urban areas and 97.7% live in rural areas (Department of Census and Statistics, 2012). Apart from the demographic statistics, socio-economic statistics of the district can be summarized as follows. Unemployment rate of the district was recorded as 4.7% in 2019. Sectorial division of labour force is led by agriculture, participation in which was recorded as 28.6%, the industrial sector employs 30.8% and 40.6% are engaged by the service sector (Department of Census and Statistics, 2020). As for the educational infrastructure of the district 20,000 teachers are serving 343,000 pupils. The total number of schools in the district is 880 and out of them 255 schools function with below 100 students, 448 schools have 101-500 students, 100 schools have 501-1000 students, 29 schools with 1001-1500, 18 schools with 1501-2000 students, 10 schools with 2001-2500 students, 7 schools with 2501-3000 students, 5 schools with 3000-3500 students and 8 schools function with more than 3500 students in the Kurunegala district (Central Bank of Sri Lanka, 2020).

During the field visit, the Gammadda team visited 24 GNDs and interviewed 163 villagers in the district. The following table and graph summarize the identified issues and responses received for each issue.

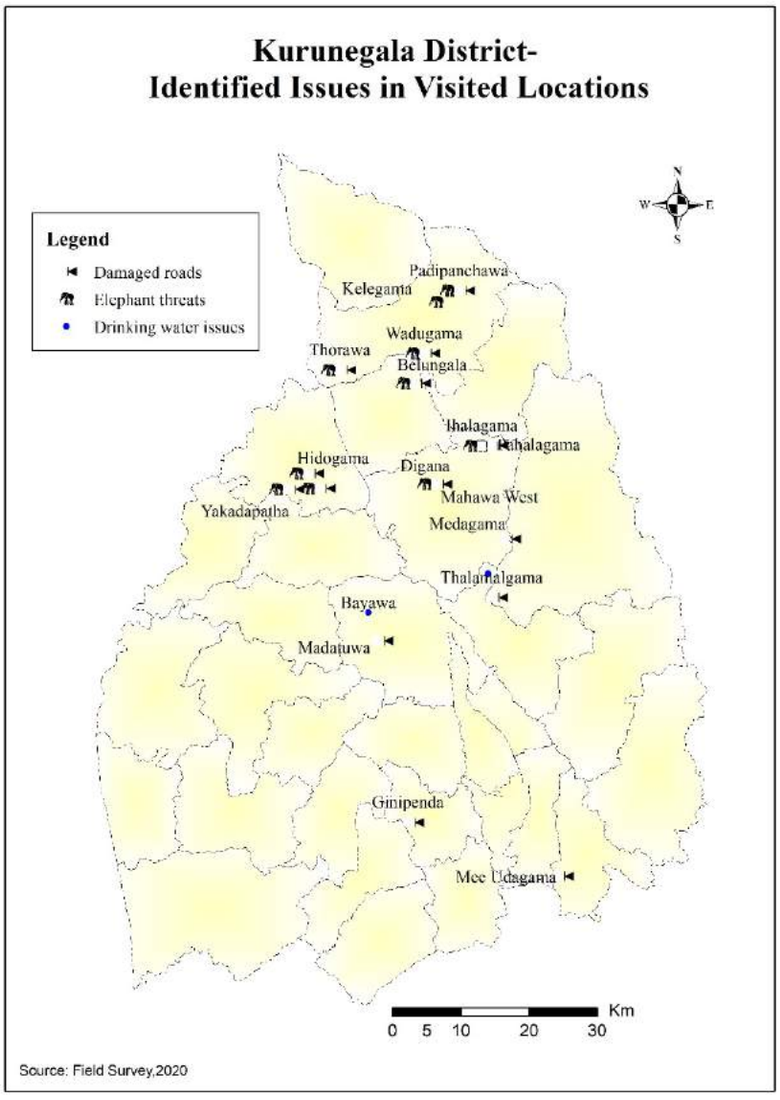
| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 44 | 11 |
| Damaged roads | 79 | 15 |
| Lack of sanitary facilities (Toilets) | 2 | 1 |
| Issues in Education sector | 23 | 4 |
| Issues in Public transport | 13 | 4 |
| Threats from elephants | 50 | 11 |
| Drug addiction | 21 | 7 |
| Unemployment | 1 | 1 |
| Market/ Price issues | 14 | 3 |
| Lack of lands for cultivation | 5 | 1 |
| Issues in fertilizer | 4 | 3 |
| Issues in irrigation water management | 32 | 10 |
| Other Economic issues | 2 | 1 |
| Forest degradation | 2 | 1 |
| Illegal sand mining | 7 | 1 |
| Flood vulnerability | 2 | 2 |
| Drought | 1 | 1 |
| Wildlife threats | 14 | 6 |
| CKDu | 38 | 9 |
| Other Environmental issues | 3 | 2 |

Table 22: Summary of Responses- Kurunegala District



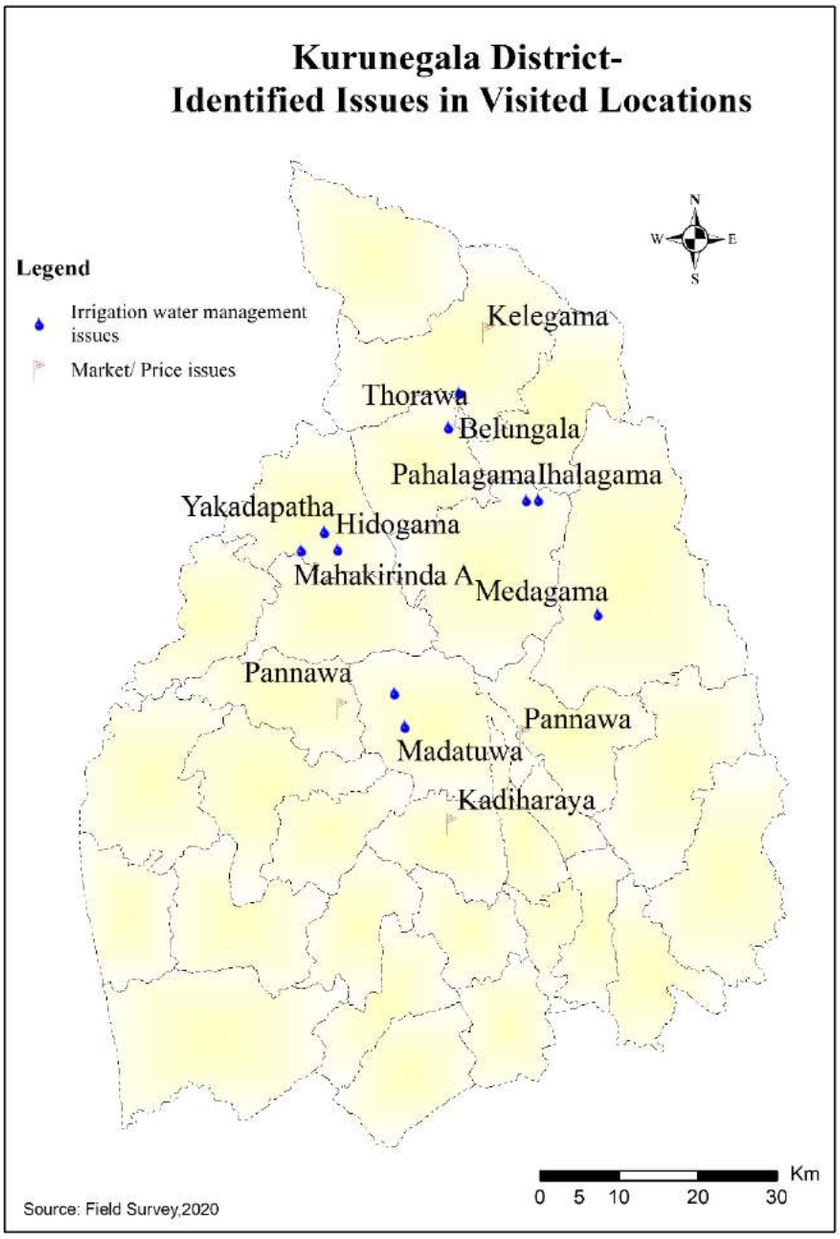

Graph 21: Identified Issues in Visited Locations- Kurunegala District

Damaged roads is the highest recorded issue across the visited locations while drinking water problems, elephant threats, and irrigation water management issues are the other prominent issues over the district. When considering the road conditions of the visited locations, most of them were unpaved roads and even the paved roads had not been renovated for a long period of time. Apart from the entrance roads to the village, other main rural roads are also not renovated and not maintained properly. As a result, difficulty in accessibility creates numerous other social and economic issues over the area. The following maps show the locations of identified issues.




Map 88: Identified Key Issues- Kurunegala District

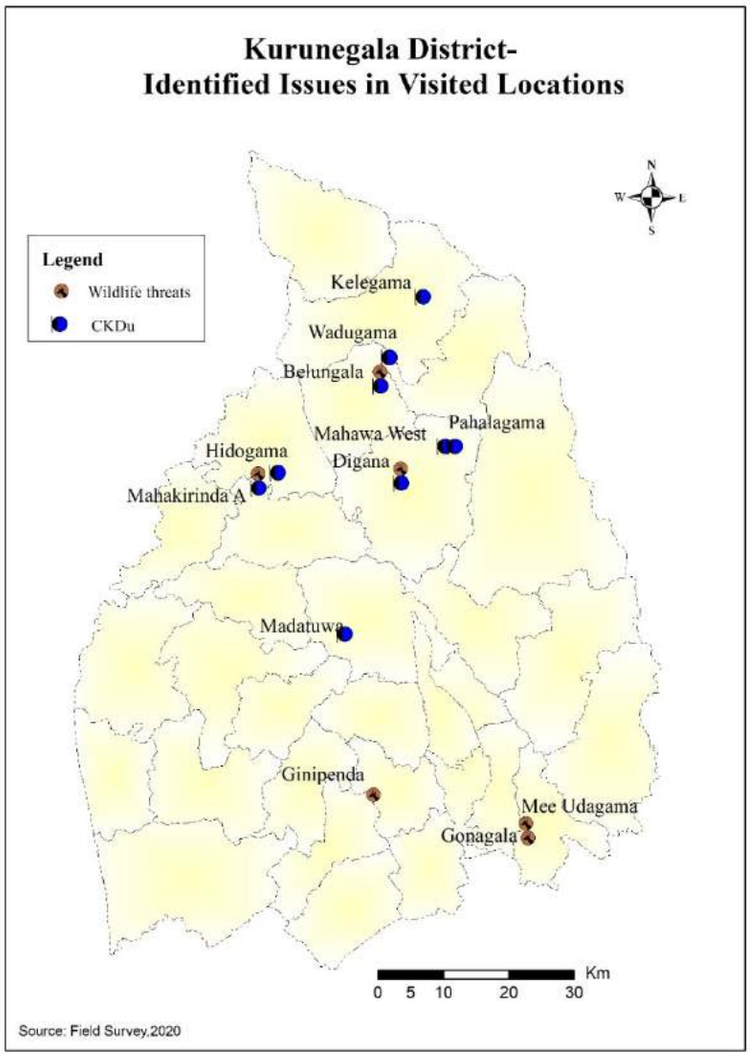
The absence of a permanent source of water to the village creates health and economic issues especially during the dry season. Elephant encroachment into the village has become a frequent and prominent issue over the visited locations. According to the villagers in Abanpola, Galgamuwa area, the Mi Oya protected area and the surrounding teak forests, which are under government ownership, are the areas where elephants come from. Established elephant fences are not useful to avoid elephant attacks. Mostly an elephant fence is just a strategy used to threaten the elephant rather than to address the root causes for elephant attacks.




Map 89: Identified Key Economic Issues- Kurunegala District

As elaborated in the map above, irrigation water management issues can be found in most of the visited villages in Kurunegala. Even though irrigation projects are distributed over the villages, coordination and management issues contribute towards limiting the benefits received by the farmers. Fixed prices for agricultural products mean small-scale household industries are unable to maximize their profits. Eventually this discourages both farmers and entrepreneurs.

Apart from the elephant threats, other wild animals such as monkeys and peacocks also damage cultivations. The following map shows the locations where wildlife threats and CKDu cases are recorded over the visited locations.




Map 90: Identified Issues- Kurunegala District

# Puttalam District

Puttalam, which marks the beginning of the Sinhalese nation, is a region with a long history (Tampabani). The district of Puttalam is a strip of land less than 300 meters above sea level. The district is 120 km long and 50 km wide. This area includes a coastal area of 288 sq. kilometers and the total area, including inland waters, is 3,072 sq. kilometers. The Puttalam district is a part of the Coconut Triangle and contributes to the Sri Lankan economy by exporting coconut products. The region's historic irrigation system has made rice cultivation the main source of income for the population.

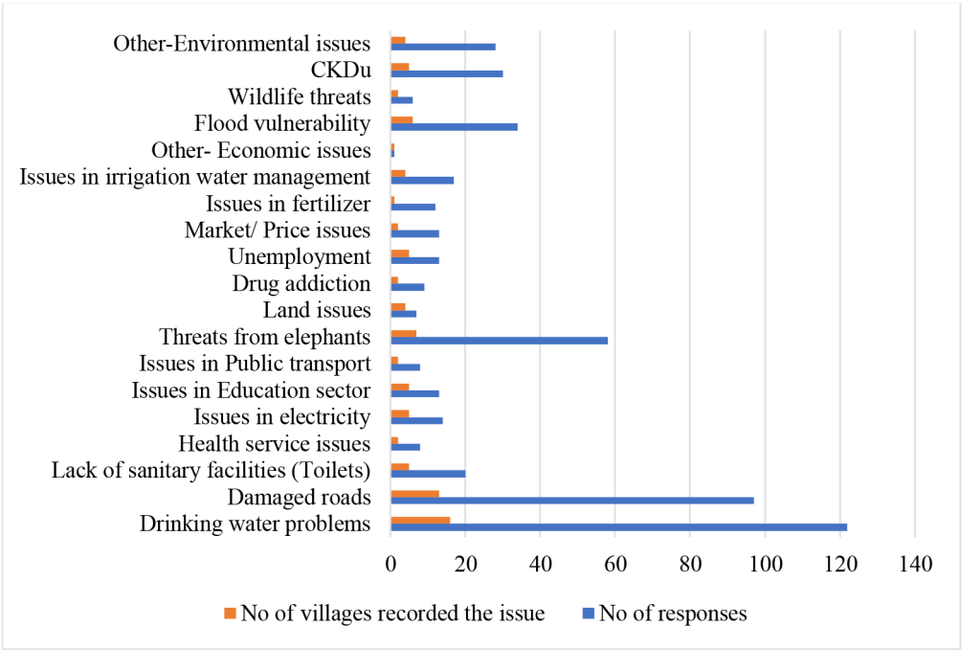
Rice is grown in the vicinity of water reservoirs such as, Kottukachchi, Thabbowa, Thinipittiya, Karawitta, Kattupotha, and Inginimittiya which were built according to the rules of ancient kings. The area adjacent to the irrigation lines Radavibandhi Ela and Neelabemma has been renewed as part of the main irrigation management program and rice is being grown successfully. Cashew nuts are grown on a large scale in the Wanathawillu D.S. Lime stone that is the raw material for making cement is available in Eluwankulam near Vanathawillu. Water resources such as a variety of fish, leeches and corals are largely available in the sea area from Wennappuwa to Kalpitya. Fishing industries are successfully implemented in the region. The soil of the area is also suitable for growing vegetables. This is one of the regions where salt is made. Shrimp cultivation has become a very profitable business. A great deal of foreign currency is earned because the lake area in the region is suitable for shrimp culture.

The total number of inhabitants in Puttalam is 762,400. 8.8% live in the urban sector, 91.0% in the rural sector and the remaining 0.2% live in the estate sector. Ethnic distribution of the district is recorded as follows, 73.6% Sinhalese, 6.3% Sri Lankan Tamils, 0.3% Indian Tamils, 19.4% Sri Lankan Moors and 0.5% from other ethnic groups (Department of Census and Statistics, 2012). Labour force participation of the district was recorded as 53.8% and the unemployment rate was 2.5% in 2019. Sectorial employment consists of 23.7% in the agricultural sector, 32% in the industrial sector and 44.3% in the service sector (Department of Census and Statistics, 2020).

The Gammadda team visited 17 GNDs in Puttalam and interviewed 175 people and identified the issues as indicated in the table and graph below.

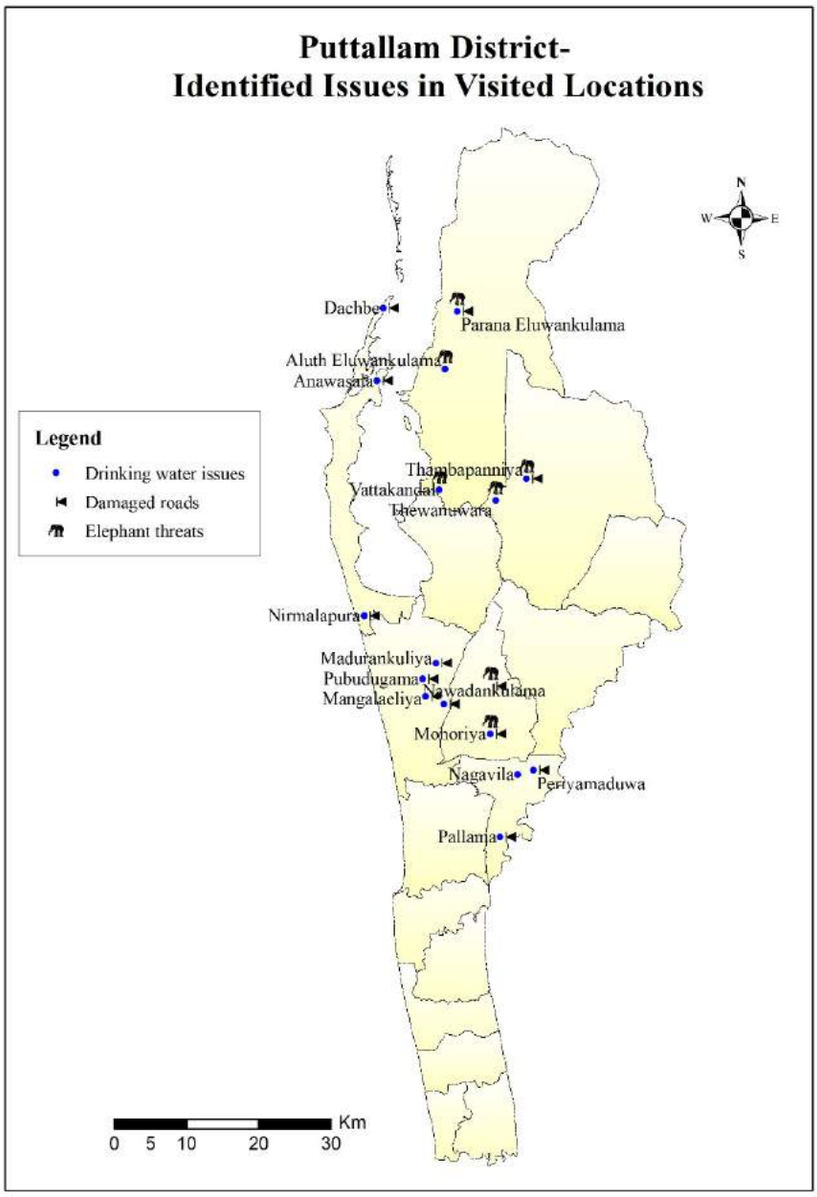
| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 122 | 16 |
| Damaged roads | 97 | 13 |
| Lack of sanitary facilities (Toilets) | 20 | 5 |
| Health service issues | 8 | 2 |
| Issues in electricity | 14 | 5 |
| Issues in Education sector | 13 | 5 |
| Issues in Public transport | 8 | 2 |
| Threats from elephants | 58 | 7 |
| Land issues | 7 | 4 |
| Drug addiction | 9 | 2 |
| Unemployment | 13 | 5 |
| Market/ Price issues | 13 | 2 |
| Issues in fertilizer | 12 | 1 |
| Issues in irrigation water management | 17 | 4 |
| Other Economic issues | 1 | 1 |
| Flood vulnerability | 34 | 6 |
| Wildlife threats | 6 | 2 |
| CKDu | 30 | 5 |
| Other Environmental issues | 28 | 4 |

Table 23: Summary of Identified Issues- Puttalam District



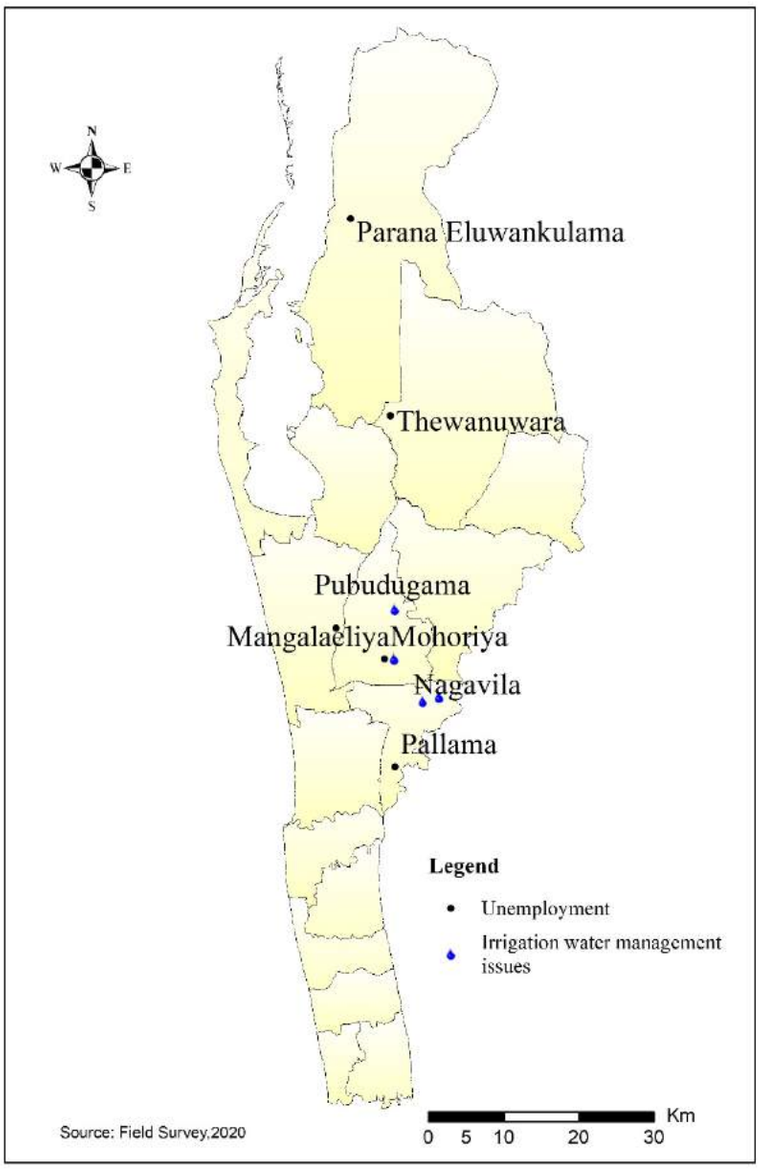

Graph 22: Identified Issues in Visited Locations- Puttalam District

Drinking water issues, damaged roads, elephant threats and flood vulnerability are the highest recorded issues over the visited locations. The following map illustrates the locations identified with these issues during the field survey.



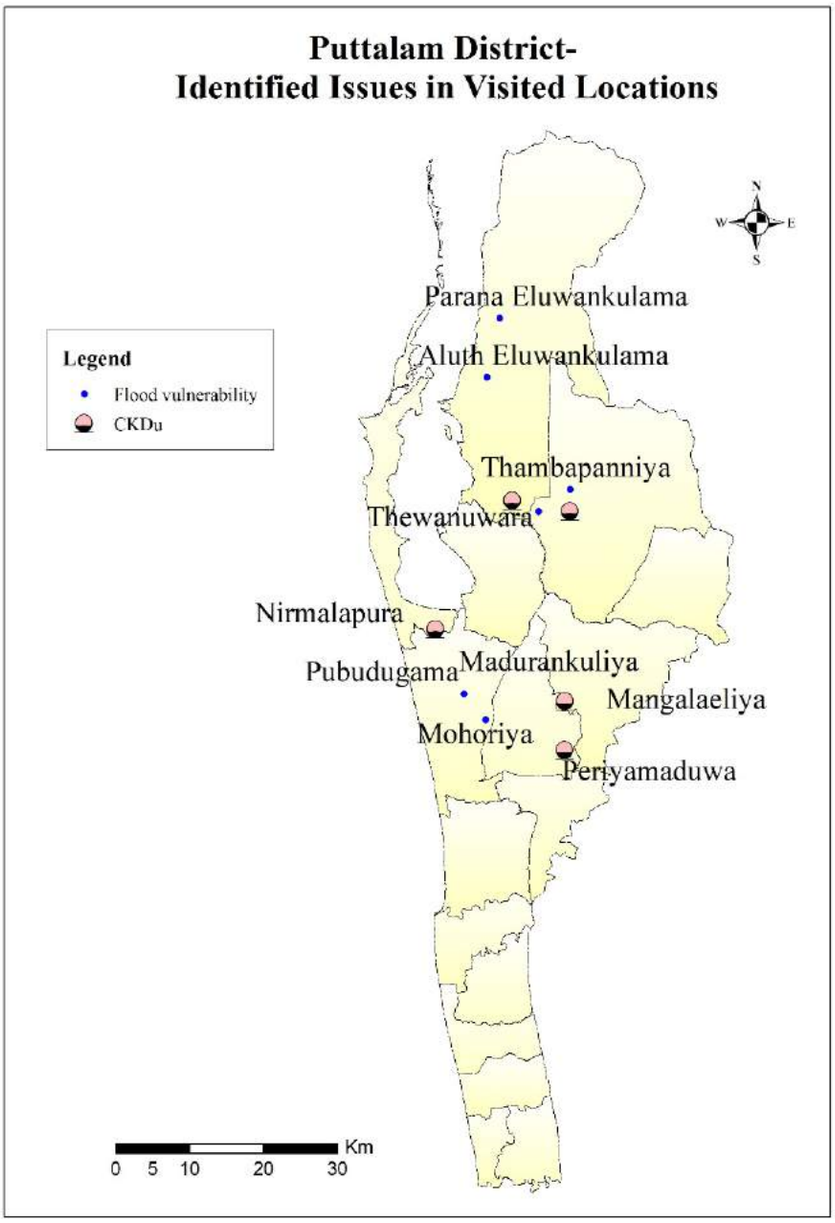

Map 91: Distribution of Key Issues- Puttalam District

As indicated in the map above, lack of access to clean drinking water and damaged roads are the highest recorded issues. Most of the visited locations do not have water filtering facilities, so villagers have to consume impure water which again drives different adverse health outcomes, especially CKDu. Access roads to the village are not maintained to a satisfactory level and most of the locations do not have regular public transportation facilities available. Cultivations are frequently devastated by elephants and establishing elephant fences are not sufficient in lieu of neglecting other reasons for elephants to enter the villages.




Map 92: Distribution of Key Economic Issues- Puttalam District

Irrigation water problems are prominent in the southern part of the district because these are the locations that depend on farming mostly. According to the villagers they do not receive enough water for cultivation during the dry season. Generally, this area has a dry climate and dependency on irrigation water is very high. Thus, the absence of adequate irrigated water makes them economically helpless.



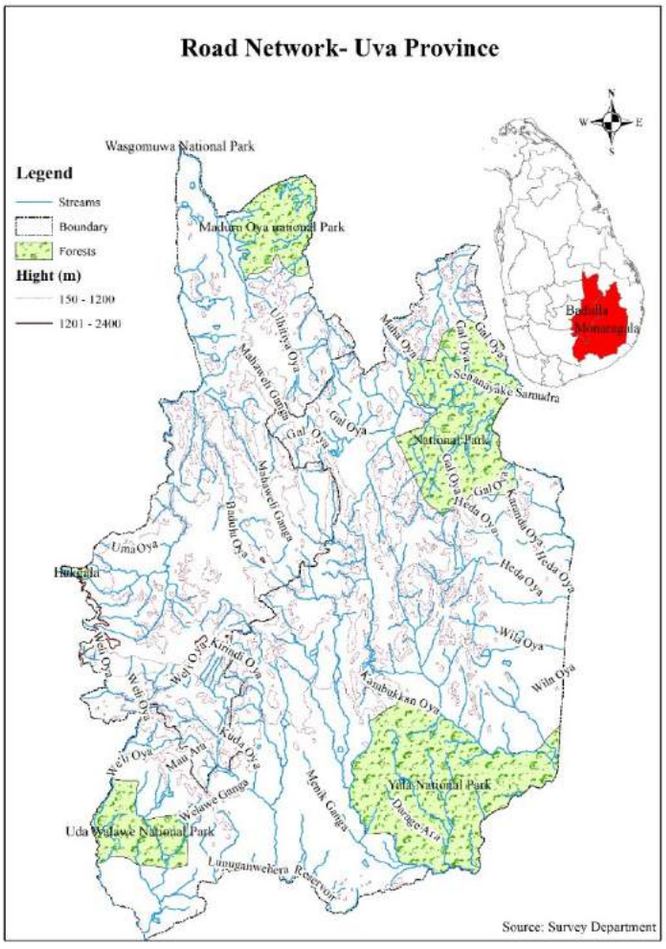

Map 93: Distribution of Key Issues- Puttalam District

As indicated in the map, flood vulnerability is a common issue over the most visited locations. Absence of water flow blocking structures over the area directly caused to enter heavy water flow at once to the village. So as soon as the rain starts, most of the streams over flow and villages are inundated. CKDu is also recorded in few locations which were visited.

To overcome these issues an integrated regional land use plan and development plan is mandatory. Rather addressing the symptoms of the problem, it is essential to address the causes of these issues.

# Uva Province

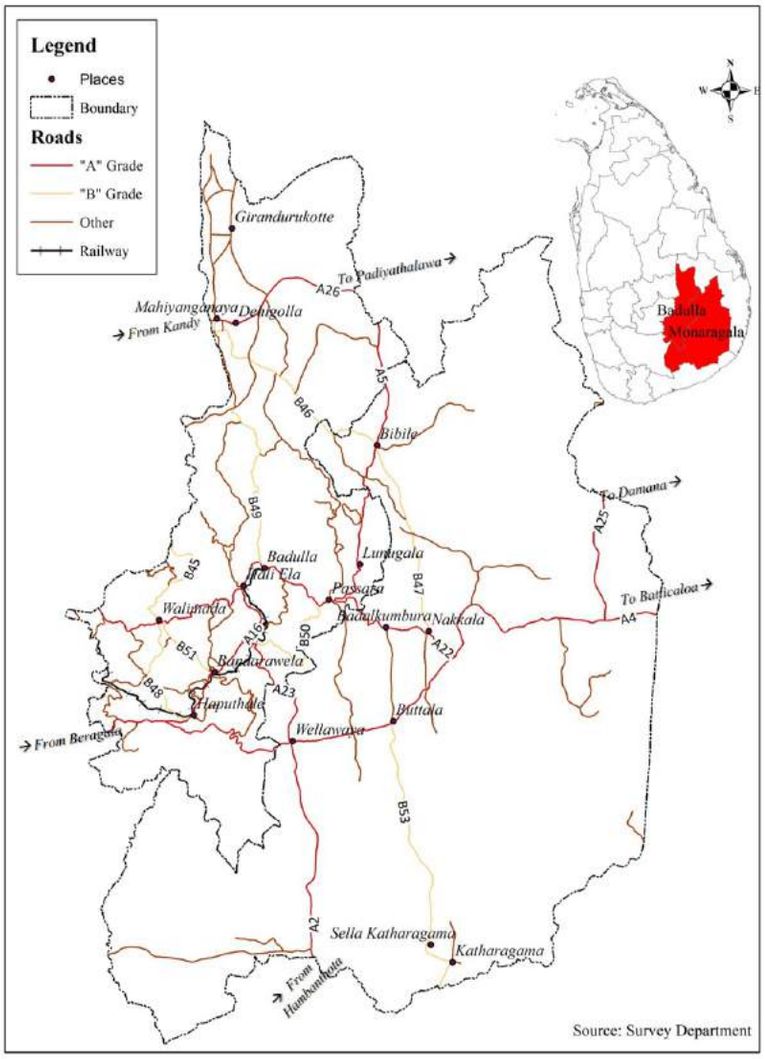
Uva Province consists of two districts, Badulla and Monaragala. Badulla is the capital city of the province. This province is surrounded by the Central, Sabaragamuwa, Eastern, and Southern provinces and Uva Province is the second least populated province of the island. Topographically, Uva Province comprises of major mountain ranges such as, Namunukula, Lunugala and Haputale with a number of waters falls and the Welimada plateau. Kiridi oya, Kubukkan oya, Menik Ganga and Walawe River are major rivers that start from the mountain ranges of Uva Province. Sub Montane rain forests, Pathana, and Montane grass lands are the major vegetation types that exist in the province. Map 94 illustrates the physical characteristics of the province.




Map 94: Physical Profile- Uva Province

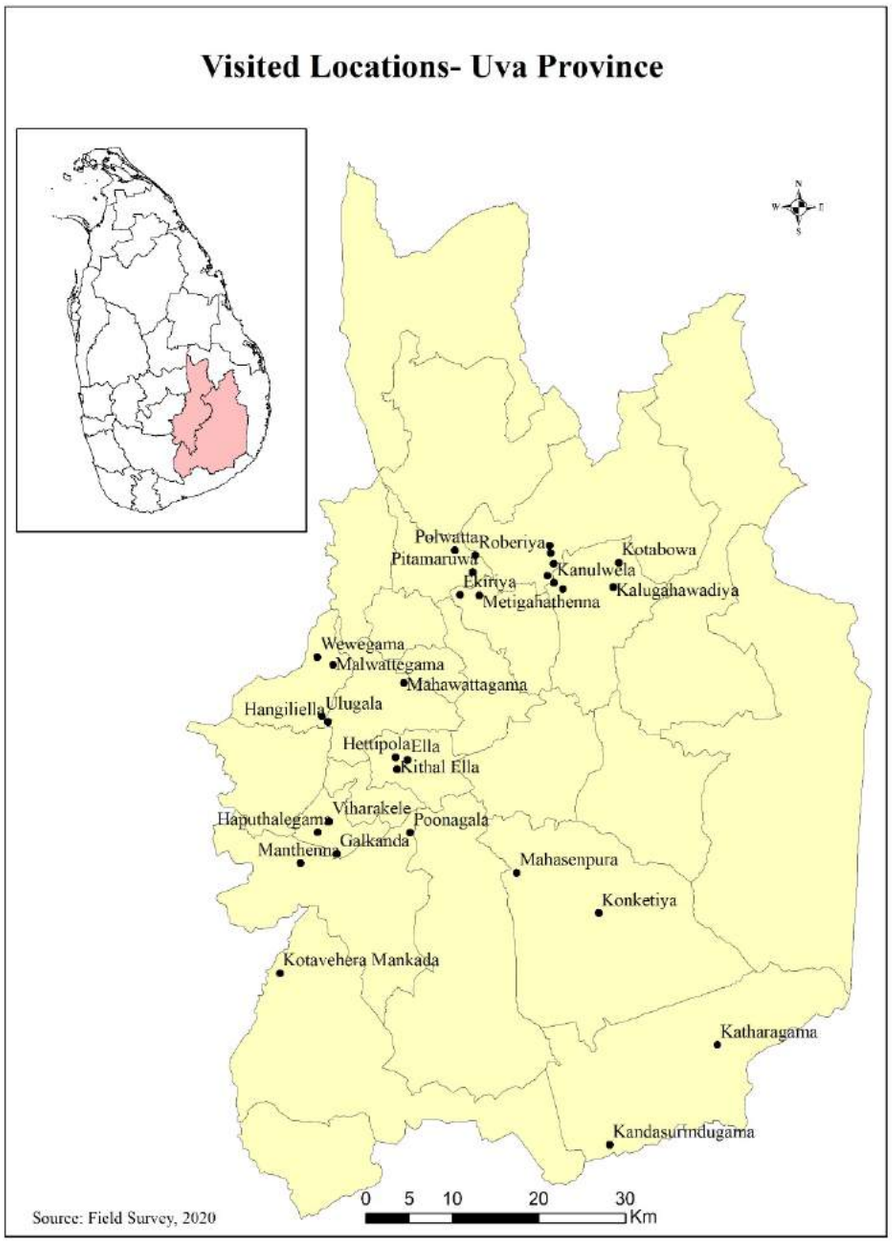
The area now known as the Uva Province was one of the important parts of the Kandyan Kingdom, which was the last kingdom of Sri Lanka. 1818 Up country rebellion started in Uva with the leadership of the Keppatipola Dissawe. During the rebellion, British persecuted and chased people away from Uva and eventually this area became abandoned. Later on, British planters interested in the mountainous area, established tea plantations mainly over the Badulla area.

Currently, Uva Province is home for 1,266,463 people and only 5.5% live in urban areas with 81.7% in rural areas with the remaining 12.8% in the estate sector. Considering the percentage distribution of population by ethnic group, 80.8% are Sinhalese, 14.7% Tamils, 4.3% Muslims and 0.3% belong to other ethnic groups. The literacy rate of the province is recorded as 92.2% with a 94.7% literacy rate for males and 89.8% for females. Out of the total population 31,162 of people were unemployed in 2012 (Department of Census and Statistics, 2012). Total length of roads in the province by 2019 were recorded as 3,535 km, and total length of A and B grade roads is 1164 km. Map 95 shows the road network of the province.




Map 95: Road Network- Uva Province

During the field visit of Gammadda 2020, 31 villages were visited and 331 people were interviewed in order to identify the prominent issues of each location. The following map illustrates the issues recorded at the visited locations in the Uva Province.




Map 96: Visited Locations- Uva Province

Subsequently, the next section will discuss the identified issues over each district of the Uva Province.

# Badulla District

The Badulla district is situated in the eastern part of the central highlands of Sri Lanka and it can be described as an area with distinct geographical features. The specific and most identical geographical features of the district are the mountain ranges stretching from the north to the south and the wide valleys spread in between, equal altitude peaks which clearly represent the dry zone of the central hills- cumulus clouds are mostly formed above this area, creating a picturesque view. Badulla area is completely surrounded by a range of mountains and it makes a real "Basin" marking the north boundary by the "Dumbara" ridge, eastern and southern boundaries by high mountain platforms and the western boundary by the ridges of the central hills and the altitude is about 1400 m. Special geographical characteristics are prominently shown in the Welimada plateau, Badulla basin and the east and south platforms of Namunukula and Madulsima ridges. Haputale ridge is located at the southwestern border. The southern parts of the Uva basin get a rain fall of 1524-1905 mm per year while the annual average rain fall of the district reaches 1397 mm. The temperature varies with the elevation. At a height of 200m, the temperature of Namunukula, Diyathalawe and Badulla indicate the values of 20.6°C, 23.4°C and 25.2°C respectively (http://www.badulla.dist.gov.lk/).

Badulla had been identified as a civilized area even during 6th century BC and it is proved through the evidence of Lord Buddha's visit to Mahiyanganaya. During the Kandyan Kingdom era this area was included in Uva Wellassa and was identified as one of the most populated regions in the island. During the colonial era, the British established several large scale plantations, especially tea, over the mountainous area and access roads were built and connected the area with the main hubs of the island. Now Badulla is identified as the regional hub of the Uva province. 15 Divisional Secretariats Divisions are governed by the District Secretariat of Badulla. 567 Grama Niladhari Divisions are included in these 15 Divisional Secretary's Divisions. 1996 villages and 186 plantations, where Tamils live are scattered among these Grama Niladhari Divisions. Further, a network of 14 Pradeshiya Sabhas, 2 Urban Councils and one Municipal Council are linked with the administrative and political framework of the district.

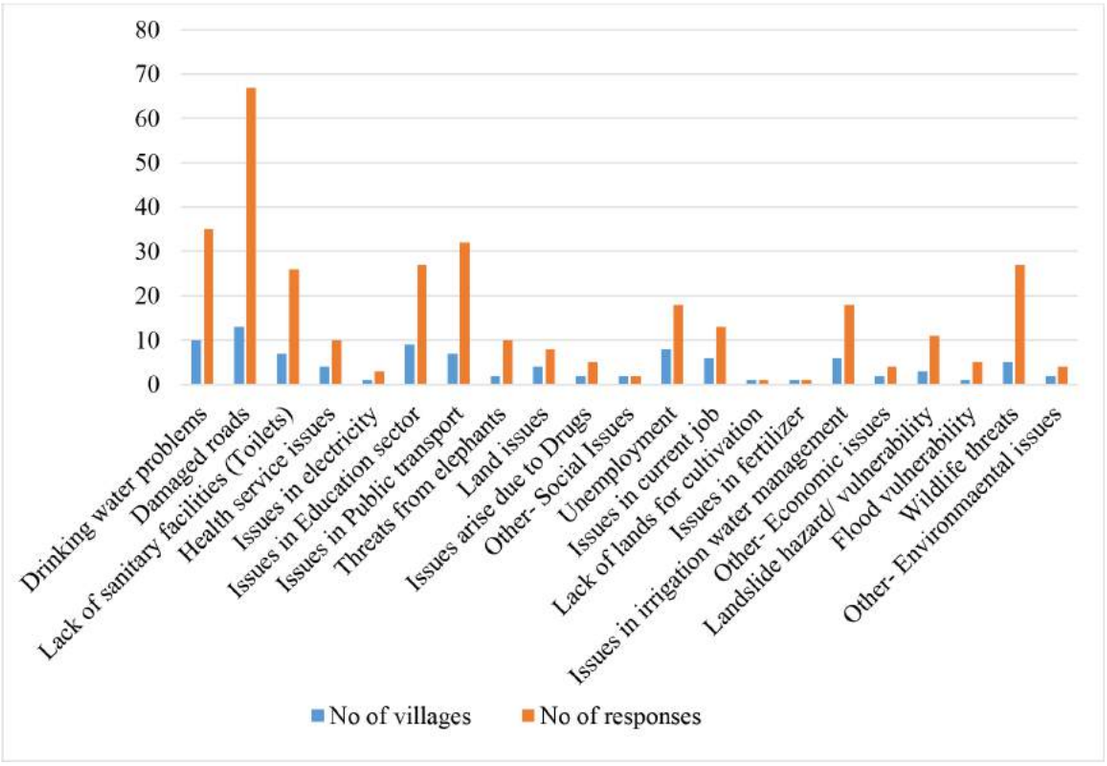
Out of the total district population, which is about 815,400, 73.0% are Sinhalese, 2.7% Sri Lankan Tamils, 18.5% Indian Tamils and 5.5% Sri Lankan Moors. Considering the sectorial population distribution, 8.6% live in urban areas, 72.6% in rural areas and 18.9% in the estate sector (Department of Census and Statistics, 2012). This is the second largest estate population in the country. Apart from the demographic statistics, socio-economic statistics of the district can be summarized as follows. The unemployment rate of the district was recorded as 4% in 2019. Sectorial division of the labour force is led by agriculture, participation in which was recorded as 55.4%, industrial sector 11.0% and 33.6% engaged in the service sector. Considering the educational infrastructure of the district, 13,000 teachers were serving 185,000 pupils. Total number of schools in the district were 605, and out of them 492 schools functioned with below 500 students, 79 schools had 501-1000 students, in 13 schools, the student enrollment was 1001-1500, 9 schools with 1501-2000, 7 schools with 2001-2500 students, 2 schools with 2501-3000 students, 1 school with 3001-3500 students and 2 schools functioned with more than 3500 students in the Badulla district (Central Bank of Sri Lanka, 2020).

During the field visit the Gammadda team visited 18 GNDs of 6 DSDs and interviewed 105 villagers in the Badulla district. The following table summarizes the identified issues and responses received for each issue.

| Issues | No. of villages the issue was recorded in. | No. of responses |
|---|---|---|
| Drinking water problems | 10 | 35 |
| Damaged roads | 13 | 67 |
| Lack of sanitary facilities (Toilets) | 7 | 26 |
| Health service issues | 4 | 10 |
| Issues in electricity | 1 | 3 |
| Issues in Education sector | 9 | 27 |
| Issues in Public transport | 7 | 32 |
| Threats from elephants | 2 | 10 |
| Land issues | 4 | 8 |
| Issues arise due to Drugs | 2 | 5 |
| Other Social Issues | 2 | 2 |
| Unemployment | 8 | 18 |
| Issues in current job | 6 | 13 |
| Lack of lands for cultivation | 1 | 1 |
| Issues in fertilizer | 1 | 1 |
| Issues in irrigation water management | 6 | 18 |
| Other Economic issues | 2 | 4 |
| Landslide hazard/ vulnerability | 3 | 11 |
| Flood vulnerability | 1 | 5 |
| Wildlife threats | 5 | 27 |
| Other Environmental issues | 2 | 4 |

Table 24: Summary of Responses- Badulla District

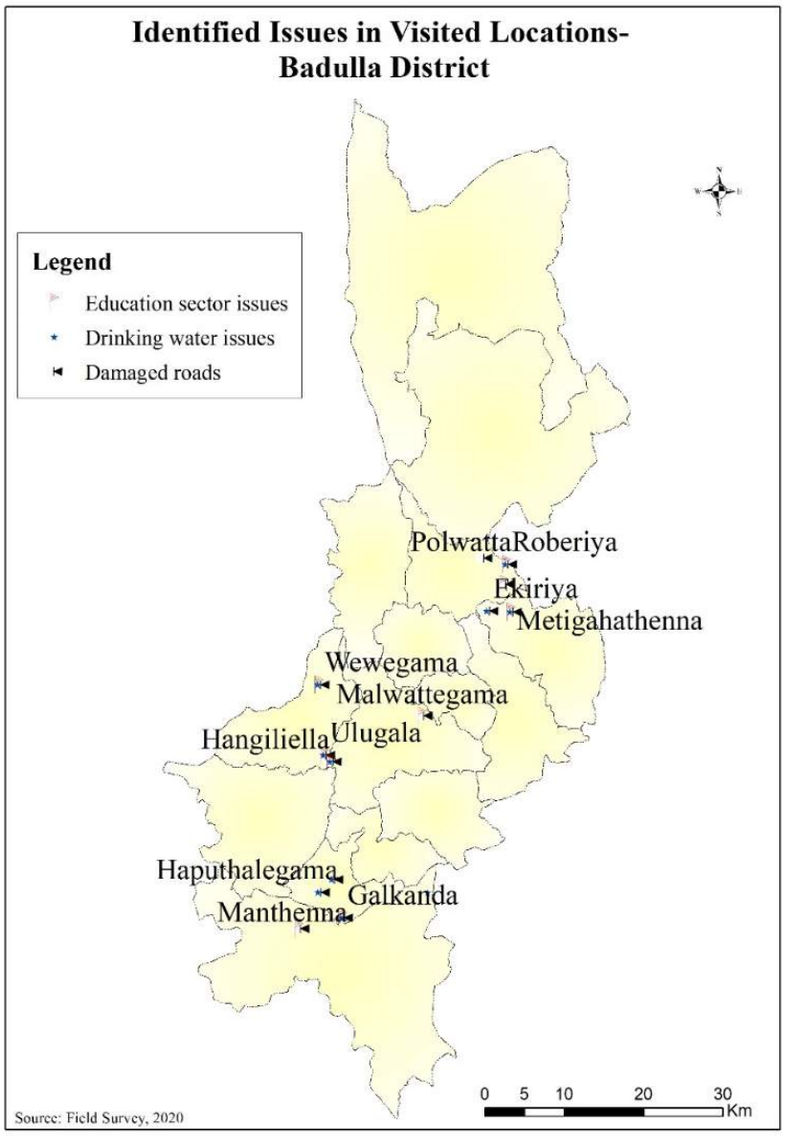
Graph 23 summarizes the identified issues of the Badulla district.




Graph 23: Identified Issues in Visited Locations- Badulla District

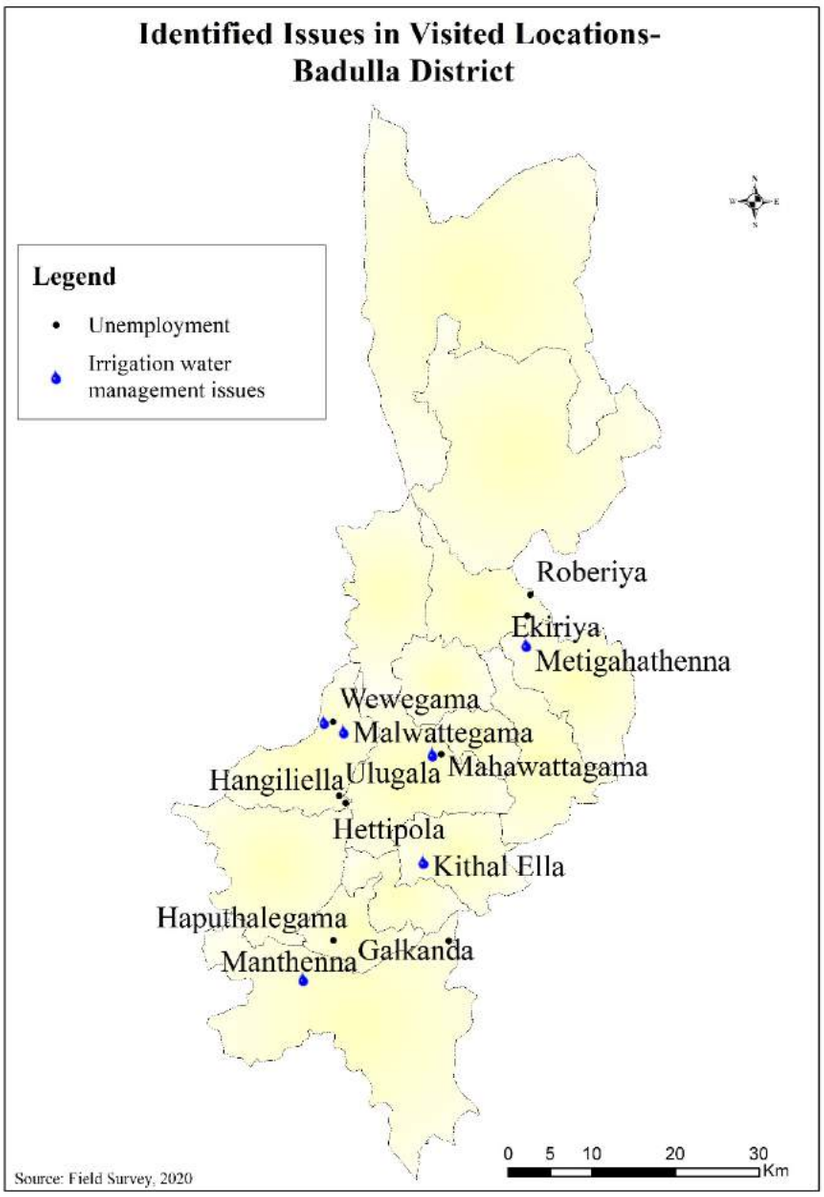
Damaged roads and drinking water problems are the highest recorded issues in the visited locations. Education sector issues and public transport issues are other common issues in the visited locations. The visited rural locations are situated far from the hub of Badulla town and regional roads are not developed well. Rural roads are either; 1. constructed a long time ago which are now damaged, or 2. not developed as tar/ concrete roads and are maintained as gravel roads. Heavy showers and turbulent water flow further damage the roads which cannot be used for travelling. Pitamaruwa residents have reported that the road to the village has not been constructed because of the failure to obtain relevant permission for construction. Nearby land owners (either private or government) are not willing to give permission to broaden and construct the road which is another coordination issue that results in delay of road renovation and reconstructions in several visited locations of the Badulla district. Malwattegama is a village in Uva Paranagama and villagers have to use a long detour to reach Welimada town avoiding the A5 main road because of the absence of a bridge across the Uma Oya which flows at the edge of the village located next to the A5 main road.

Lack of facilities, such as, a library, laboratories, playgrounds and teachers' quarters, and shortage of teachers for secondary level classes are prominent issues related to the education sector. Map 97 shows the spatial distribution of these issues over the visited locations in the Badulla district.



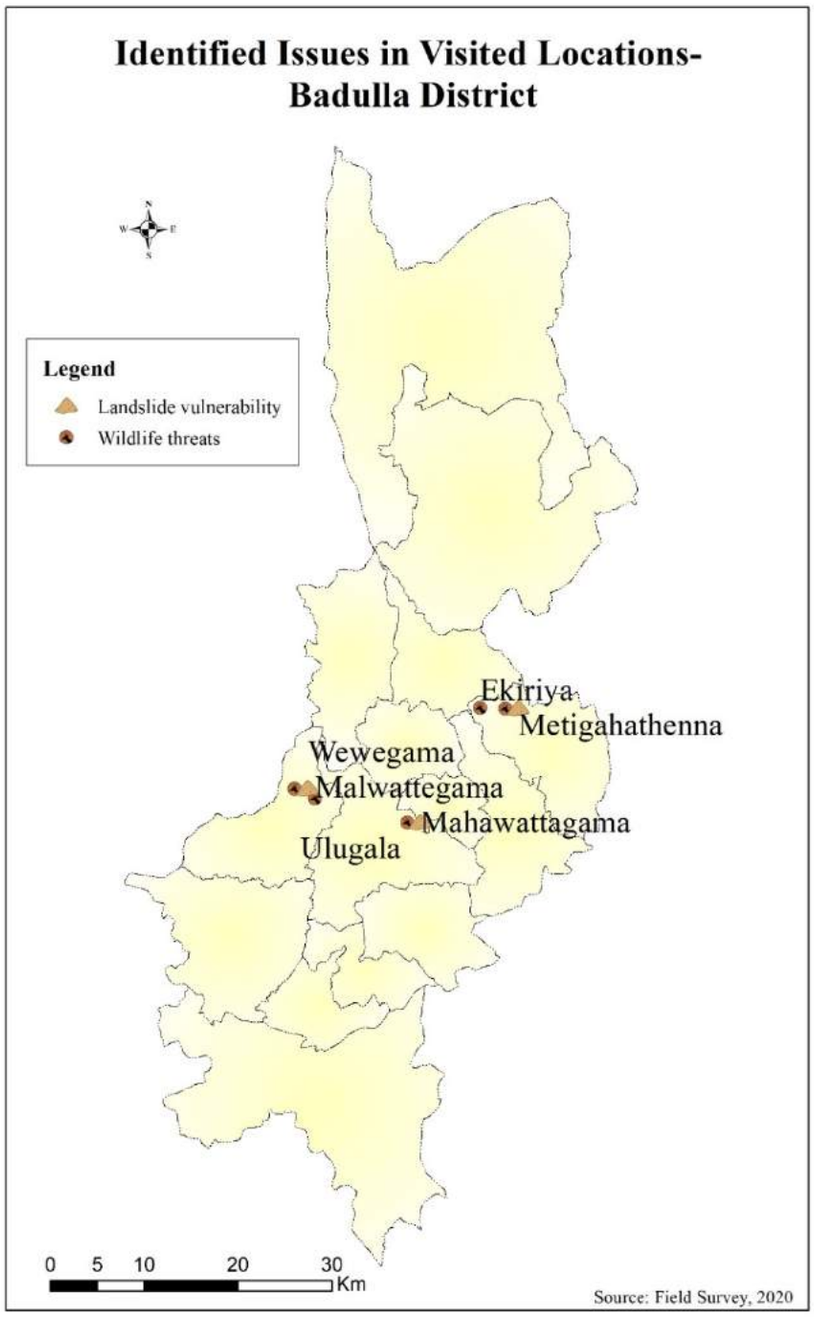

Map 97: Identified Issues in Visited Locations.

Inadequate access to safe drinking water is becoming a severe problem during the dry season in most of the visited locations. Absence of community water management systems in rural villages is the main reason for this issue. Proper management of existing water resources could solve the issue in a sustainable way. Lack of sanitary facilities and proper houses in estate settlements was also prominent in said visited estate settlements of Badulla.




Map 98: Key Economic Issues- Badulla District

Wild animals such as monkeys, wild boars, and porcupines damage the crop lands and home gardens in Malawattegama and Hagiliella, villages in Uva Paranagama. The following map shows the other prominent environmental issues identified in the visited locations of the Badulla district.




Map 99: Identified Issues in Visited Locations- Badulla District

The Badulla district is one of the highly vulnerable areas to landslides in the Central Highlands. Relocating settlements in moderately vulnerable areas is impossible due to the lack of safe land available and other practical issues. However, these villagers have to adapt to live with landslides. Lack of awareness regarding landslides is one of the major deficiencies which we observed among the villagers. Enhancing awareness on pre-disaster management is essential to overcome this issue.

# Monaragala District

The Monaragala district, which was known in the past as Wellassa, is situated in the Uva Province close to the East and South East of Sri Lanka. The district is enriched with different natural resources and it is the second largest district of Sri Lanka consisting of 5,959 sq. kilometers. This district is bounded in the east and north by the Ampara district, west and north by the Badulla district, south by the Hambantota district and south west by the Rathnapura district. This district belongs to both dry and intermediate zones. Nearly 70% of the district is covered by the dry zone. The specialty of the district is the Monaragala mountain range situated in the middle of the district, which demonstrates features of wet zone and it is considered as one of the most specific climatic zones. The average annual rainfall of the district is approximately 1,625 mm and the average temperature is 260C (http://www.moha.gov.lk/).

The district includes 11 DSDs, 319 Grama Niladhari Divisions, 1324 villages and 11 Pradeshiya Sabhas. The Monaragala district accommodates 451,100 people and 98.1% of them live in rural areas while 1.9% of the population lives in estates (Census, 2012). The population density of the district was recorded as 90 persons per sq. kilometer in 2019. Considering the ethnicity of the total district population, the majority are Sinhalese, with 94.9%, 1.8% Sri Lankan Tamils, 1.1% Indian Tamils and 2.1% are Sri Lankan Moors while 0.1% were categorized under other (Department of Census and Statistics, 2012).

Educational sectorial statistics shows that 7000 teachers were serving 108,000 students in 297 government schools. Out of these total schools, 81 schools function with less than 100 students, 138 with 101-500 students, 56 schools with 501-1000 students, 9 schools with 1001-1500 students, 5 schools with 1501-2000 students and 4 schools with 2001-3000 students (Central Bank of Sri Lanka,2020). Focusing on the sectorial employment of the district, the leading share of the labour force belongs to the agricultural sector with a 48.65% participation rate, while the industrial sector employed 16.0% and 35.4% were employed in the service sector. However, the unemployment rate of the district is recorded as 4% which is as same as the Badulla district (Department of Census and Statistics, 2020).

The Gammadda research team visited 13 GNDs of 5 DS divisions. Based on the visited locations following problems were identified with the given responses.

| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 97 | 12 |
| Damaged roads | 95 | 12 |
| Lack of sanitary facilities (Toilets) | 30 | 4 |
| Health service issues | 13 | 5 |
| Issues in electricity | 12 | 2 |
| Issues in Education sector | 19 | 5 |
| Issues in Public transport | 63 | 7 |
| Threats from elephants | 46 | 6 |
| Land issues | 56 | 8 |
| Drug addiction | 14 | 3 |
| Other Social issues | 10 | 5 |
| Unemployment | 45 | 7 |
| Issues in current job | 36 | 7 |
| Market Price issues | 3 | 3 |
| Lack of lands for cultivation | 18 | 5 |
| Issues in fertilizer | 16 | 6 |
| Lost lands due to development programs | 1 | 1 |
| Issues in irrigation water management | 59 | 8 |
| Other Economic issues | 35 | 8 |
| Environmental pollution (Water/Land/ Noise/Air) | 1 | 1 |
| Forest degradation | 2 | 2 |
| Illegal sand mining | 1 | 1 |
| Landslide hazard/ vulnerability | 4 | 1 |
| Drought | 41 | 9 |
| Wildlife threats | 41 | 5 |
| CKDu | 17 | 3 |
| Other Environmental issues | 19 | 5 |

The following graph illustrates the details in the table further.

Table 25: Summary of Responses- Monaragala District

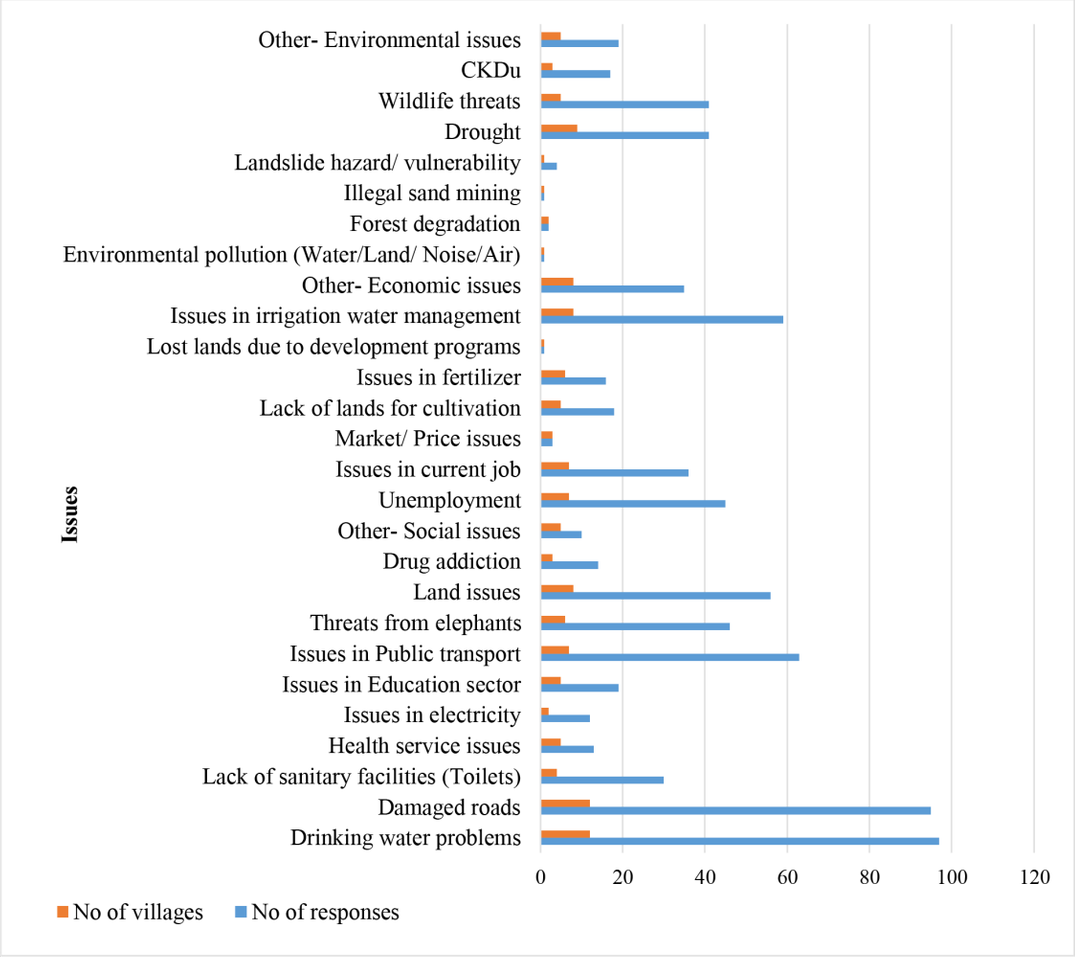
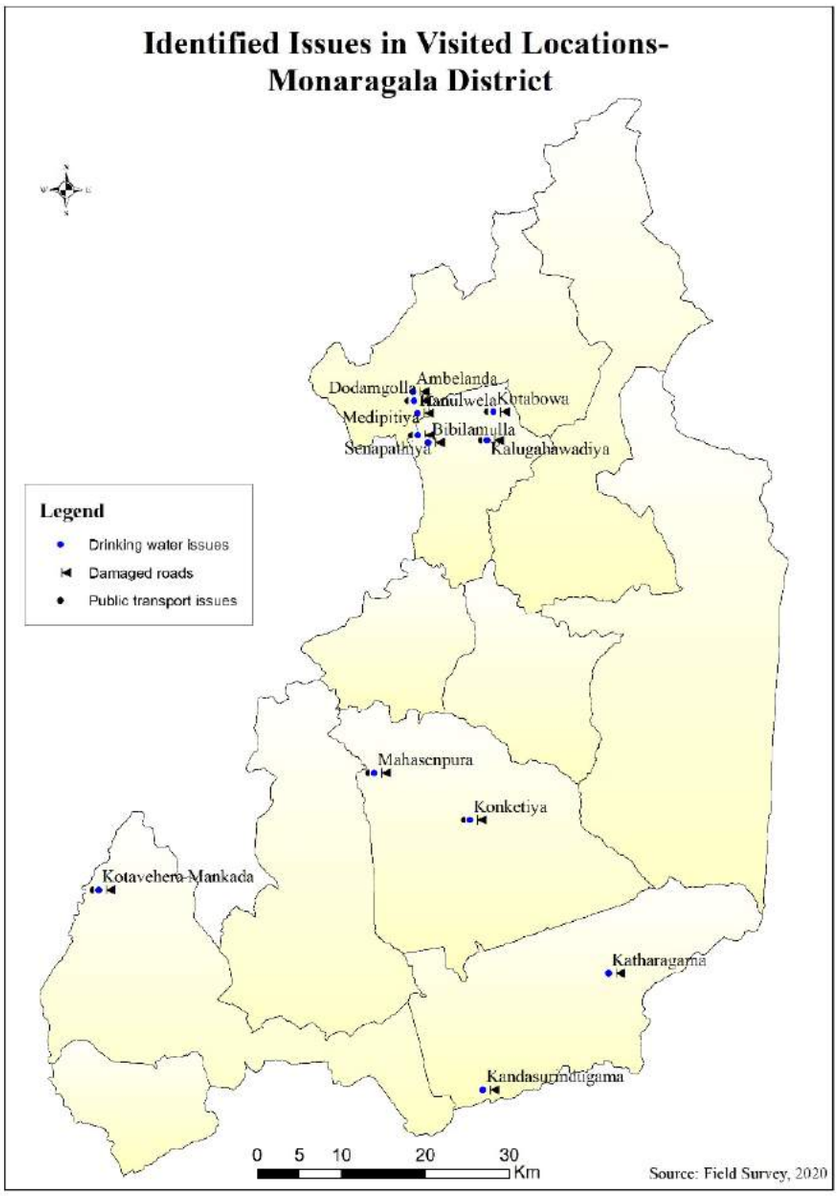


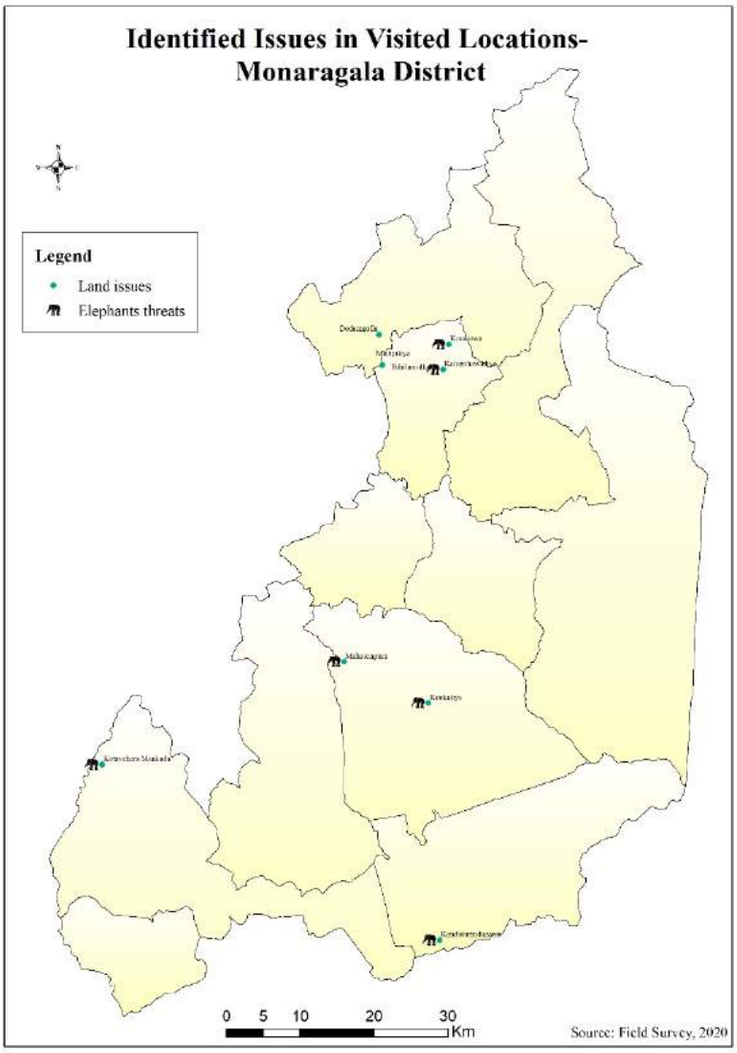

Table 25: Summary of Responses- Monaragala District

As in most of the other locations in the Uva province, drinking water problems and damaged roads are the main issues identified in the Monaragala district. Even though surface water sources are available in and around the visited locations, the water is not safe enough to drink. Villagers stated that water is contaminated by agro-chemicals. This is one of the major fears that villagers are facing in these rural villages. Since a higher number of kidney patients was recorded in these villages, safe drinking water has become a luxurious utility for them.




Map 100: Identified Issues in Visited Locations- Monaragala District

Poor conditions of the village roads are also cited in almost every visited location of the Monaragala district. Land issues and elephant threats are other most recorded issues in the visited GNDs. The following maps illustrate the spatial distribution of these issues.

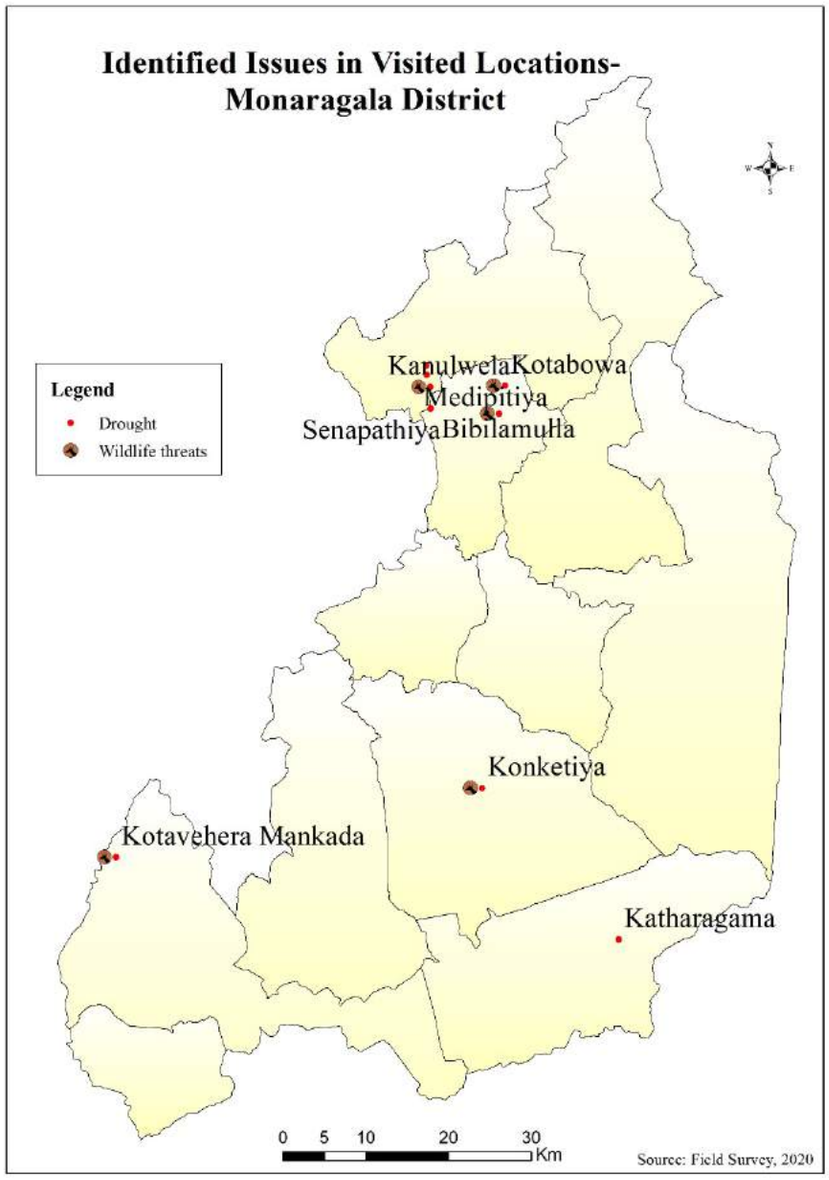



Map 101: Identified Issues in Visited Locations- Monaragala District

Issues in irrigation water management are also mentioned by a high number of villagers. Poor maintenance of the existing tanks/ channels and low capacity of the tanks are the main reasons for this issue. The unemployment rate is high for rural youth, especially among the educated crowd. On the other hand, most of the villagers depend on daily wages. Thus, jobs are not likely on a regular basis because of the limited demand for labour for either farm lands or other private ventures. The following map illustrates the distribution of these issues.


Map 102: Identified Issues in Visited Locations- Monaragala District

The absence of proper water management systems in the rural areas is one of the major factors that contribute to the increased water scarcity during the dry season. Respondents from the aforementioned areas stated that they suffer a lot due to damaged crops and scarcity of drinking water. Villages where these issues were recorded are located in the dry zone and water storage is a must for the dry season. Besides the threats from wild elephants, other wild animals such as monkeys and peacocks damage the crops and home gardens and as a result the expected income is reduced from agricultural products. The following map shows the spatial distribution of these issues in the Monaragala district based on the visited locations.




Map 103: Identified Issues in Visited Locations- Monaragala District

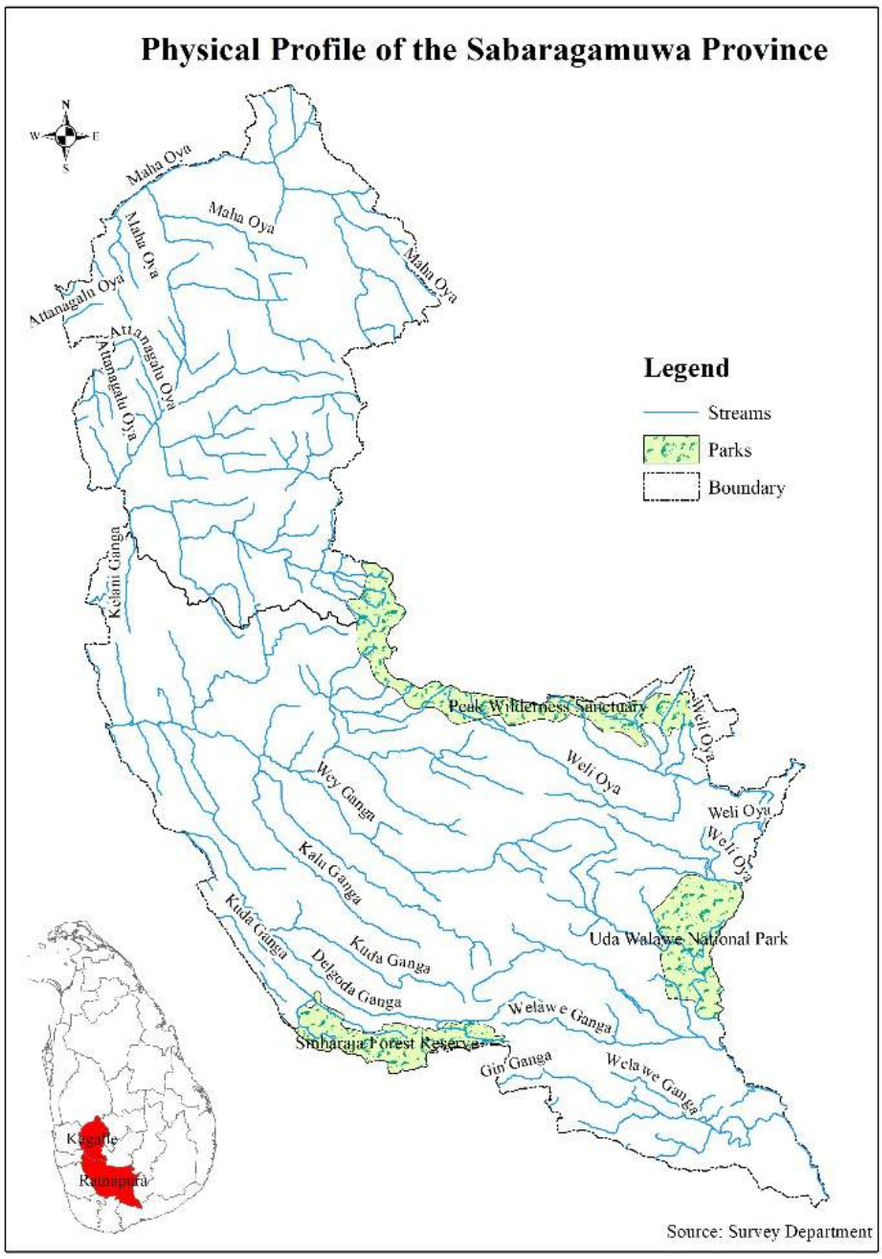
# Sabaragamuwa Province

The Sabaragamuwa Province comprises of two districts: Rathnapura and Kegalle. It is named after its ancient indigenous inhabitants, the "Sabara", an indicative term for hunting and gathering tribes, a term rarely used in ancient Sri Lanka. The product most related to Sabaragamuwa is "Gemstones". The valleys of this beautiful and fertile region are home to alluvial soil rich in gemstones, including sapphires, rubies, moonstones, cat's eyes and star sapphires. The mines of Sabaragamuwa have been in operation for over two thousand years, and some scholars define the province as the "land of jewels" described in the sixth voyage of Sindbad the Sailor, as it was said in Arabian Nights. Whatever the truth maybe, Maghreb gemstone merchants were frequent visitors to Rathnapura, the provincial capital, in the centuries before the arrival of Europeans, and the region is still home to a large and vibrant Muslim community whose members are still important in the local gemstone trade.

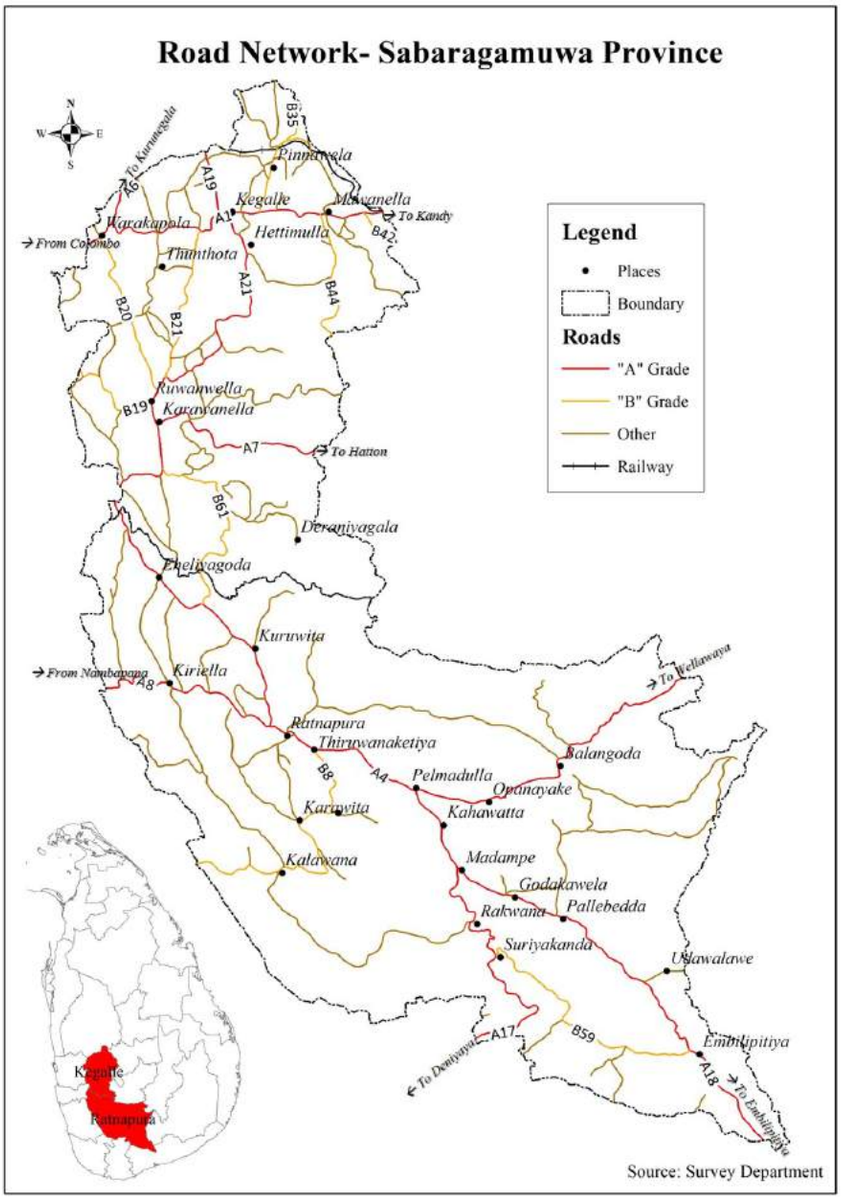
However, Sabaragamuwa is also the largest tea producing region or "district" in Sri Lanka, and its relative importance has increased since the expansion of Ceylon tea markets in the Middle East and the former Soviet Union. Sabaragamuwa tea, like Ruhuna tea, is primarily low growing. Its properties vary with elevation from sea level to about 800 meters (2,500 feet). The highest areas are located below the boundaries of the Sinharaja and Peak Wilderness nature reserves and share the local climatic conditions produced by the tropical forests, cloud forests and high grassy plains endemic to this region. As a result, they produce tea with a somewhat different character than that cultivated at low altitudes in the region. Some of these properties receive the highest rainfall compared to agricultural areas.

Map 104 shows the river basins and protected areas associated with the Sabaragamuwa province. Kalu Ganga, Walawe Ganga and Aththanagalu Oya are the prominent river basins in Sabaragamuwa.

Map 105 shows the road network of the province. Total road length of the roads by 2019 was 3847 km with 416 km in A class rods, 809 km in B class roads, 1,268 in C class roads and 1,355 km belongs to D class roads (Central Bank of Sri Lanka, 2020).

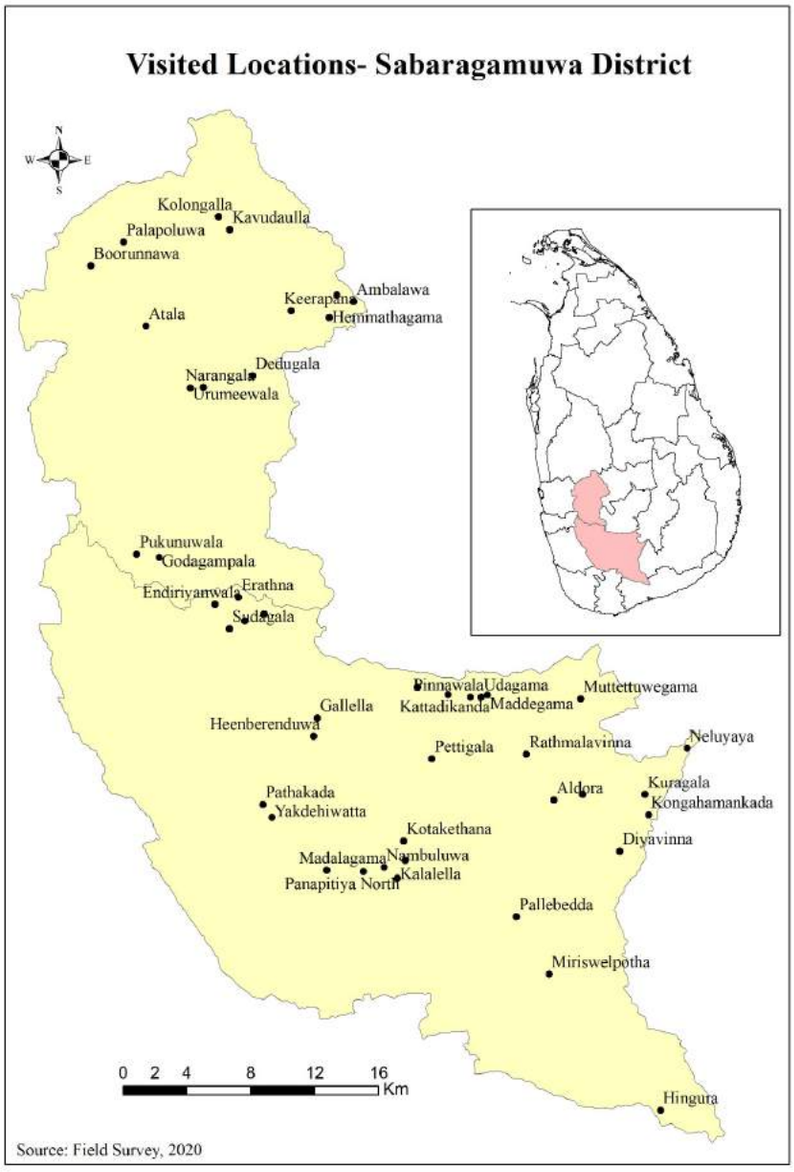



Map 104: Physical Profile- Sabaragamuwa Province




Map 105: Road Network- Sabaragamuwa Province

The Gammadda team has visited 46 GN divisions and interviewed 319 people in the Sabaragamuwa Province during the field survey and these visited locations are illustrated in the following map. Next sections of the chapter will discuss the issues identified at these visited locations in detail.




Map 106: Visited Locations- Sabaragamuwa Province

# Rathnapura District

Rathnapura is the capital city of Sabaragamuwa province with a land extent of 3275 sq. kilometers which is 5% of the island's total land area. The Rathnapura district is located in the southwest direction and this location is both geographically and historically efficient in the life and economic development of the people who live in the area. Rathnapura is bordered to the north by the regions of Kegalle and Nuwara Eliya, to the south by the regions of Galle, Matara and Hambanthota, to the west by the districts of Colombo and Kaluthara and to the east by the districts of Badulla and Monaragala. According to archaeological facts, which have been discovered so far, the fossilized bones of Balangoda man, a prehistoric man, have been found in places in the Rathnapura region such as Batadomba Lena and Bellan Bendi Pelessa. Stone inscriptions, which are considered as belonging to the Brahmi script during the time of Anuradhapura, have been found in this region. Meanwhile, monuments from regions such as Empilipitiya, Kalutara also attest to the historical value of Rathnapura. The region appears to have been divided into 6 korales (divisions) during the Kandyan period. Kuruvita, Nawadun, Atakalan, Kukulu, Kadawathmeda and Kolonna Korales. The color of the flag of Rathnapura is yellow. This flag, designed to be a model of the old Sabaragamuwa flag, has a decorated red frame on a yellow background. Yellow is the sacred color of the goddess Sumana Saman. Sripada is the main and most important place of worship in the region. Another important place of worship of historical value is Saman Devala Rathnapura.

Rathnapura district is home for 1,088,000 people and the sectorial population distribution in urban areas is 9.1%, the rural sector 81.7% and 9.2% in the estate sector. The ethnic distribution of the population is as follows; Sinhalese 87.1%, Sri Lanka Tamils 5.0%, Indian Tamils 5.7%, Sri Lanka Moors 2.1%, and other ethnic groups 0.1% (Department of Census and Statistics, 2012).

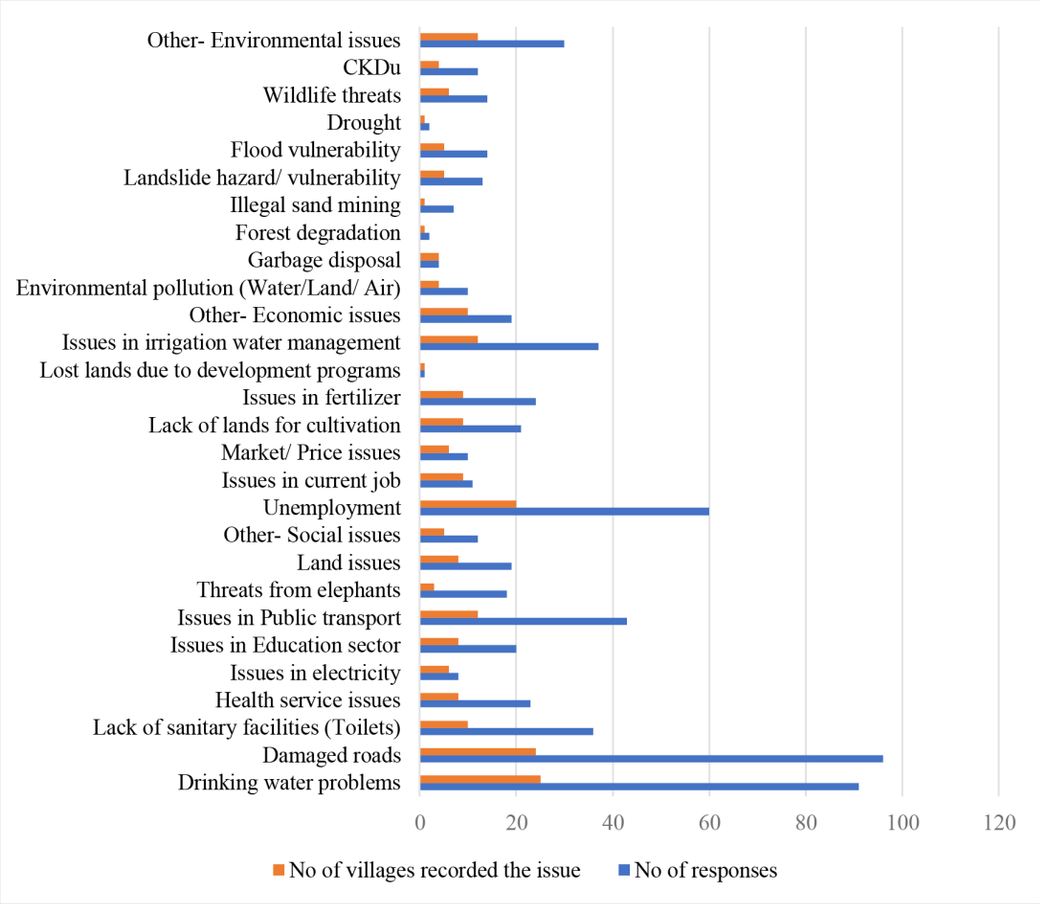
Considering the statistics from the Education sector, 13,000 teachers were serving 223,000 pupils in 601 government schools in 2019. Further, 470 schools function with less than 500 students, 74 schools with 501-1,000 students, 30 schools with 1,001-1,500 students, 14 schools with 1,501-2,000 students, 11 schools with 2,001-3,500 students and 2 schools have above 3,500 students (Central Bank of Sri Lanka, 2020).

The labour force participation rate of the total district population is recorded as 57%. Participation rate of both males and females are 75.7% and 40.4% respectively. Percentage distribution of employed population in agriculture is 39.6%, industry 28.7% and 31.7% in the service sector (2019). Further, 54.5% of the employed population is recognized as employees and the rest identified as self-employees which was further categorized as 3.3% employer, 32.9% Own Account Workers and 9.3% as contributing family workers. The unemployment rate in 2019 was recorded as 4.2% which was higher than the average island unemployment rate in 2019 (Department of Census and Statistics, 2020).

By evaluating the socio-economic position of the Rathnapura district, it is possible to conclude that the district is in a moderate socio-economic position. However, regional disparities are observed during the Gammadda field survey 2020. Gammadda team has visited 32 GNDs and interviewed 186 people. The following table and graph summarize the issues identified during the field visits.

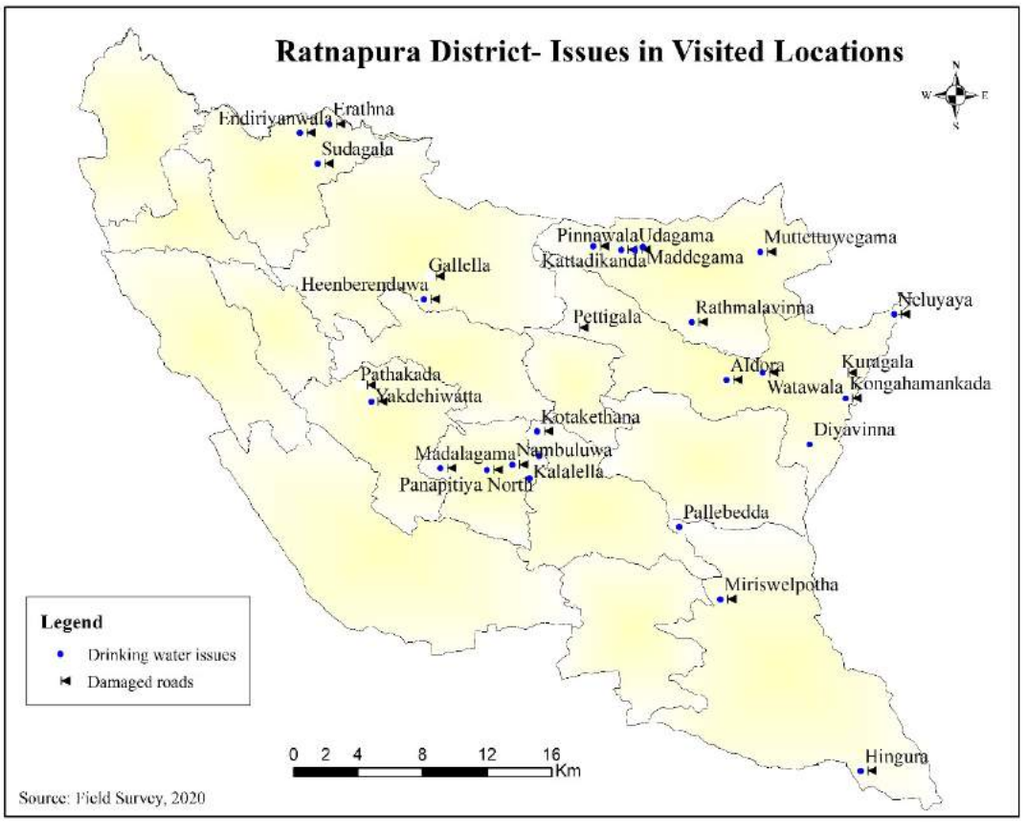
| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 91 | 25 |
| Damaged roads | 96 | 24 |
| Lack of sanitary facilities (Toilets) | 36 | 10 |
| Health service issues | 23 | 8 |
| Issues in electricity | 8 | 6 |
| Issues in Education sector | 20 | 8 |
| Issues in Public transport | 43 | 12 |
| Threats from elephants | 18 | 3 |
| Land issues | 19 | 8 |
| Other Social issues | 12 | 5 |
| Unemployment | 60 | 20 |
| Issues in current job | 11 | 9 |
| Market/ Price issues | 10 | 6 |
| Lack of lands for cultivation | 21 | 9 |
| Issues in fertilizer | 24 | 9 |
| Lost lands due to development programs | 1 | 1 |
| Issues in irrigation water management | 37 | 12 |
| Other Economic issues | 19 | 10 |
| Environmental pollution (Water/Land/ Air) | 10 | 4 |
| Issues in garbage disposal | 4 | 4 |
| Forest degradation | 2 | 1 |
| Illegal sand mining | 7 | 1 |
| Landslide hazard/ vulnerability | 13 | 5 |
| Flood vulnerability | 14 | 5 |
| Drought | 2 | 1 |
| Wildlife threats | 14 | 6 |
| CKDu | 12 | 4 |
| Other Environmental issues | 30 | 12 |

Table 26: Summary of Responses.



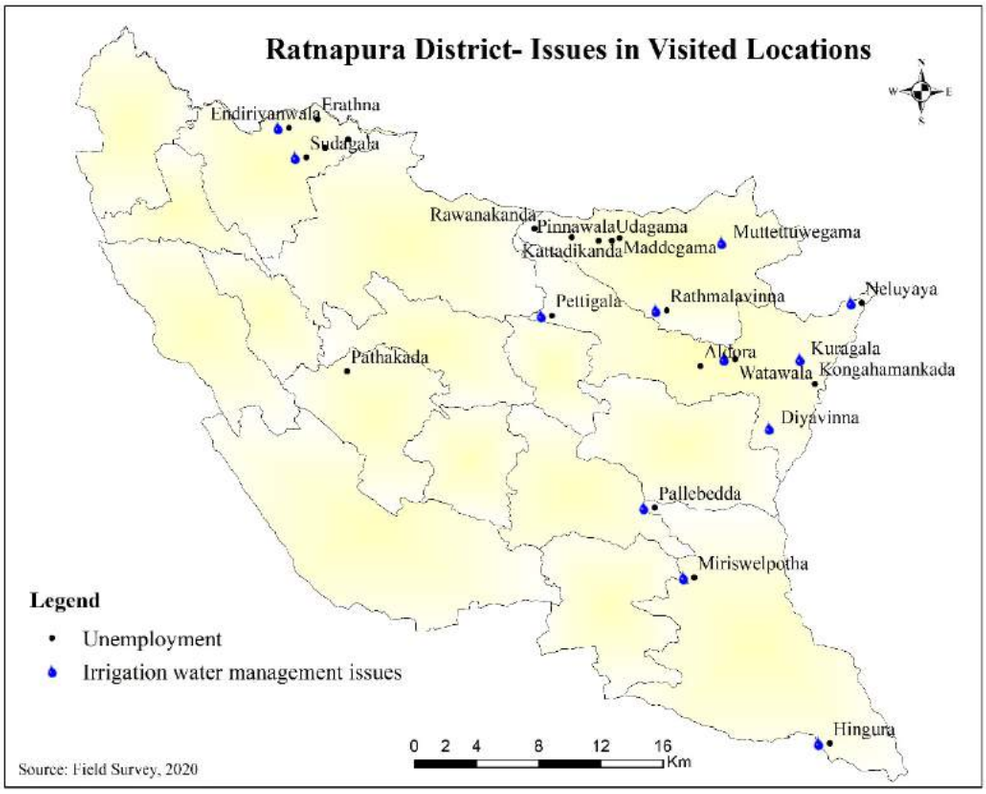

Graph 25: Identified Issues in Rathnapura (Based on Visited Locations)

Damaged roads and drinking water are highly reported issues in visited locations. Sloppy landscape can be identified in the visited locations and roads to enter the villages are either not well paved or not paved at all. In such conditions, it is a challenge to travel to the village, especially by a vehicle. On the other hand, a permanent water supply is not available in some locations such as Watawala, Diyawinna, Neluyaya and Kongahamankada. Even though these villages are in the wet zone, ground water levels fluctuate rapidly once the precipitation declines. Thus, a permanent water source is a mandatory utility to be established either through small scale community water projects or by connecting to the existing large scale water supply schemes. The following map shows the locations of the major issues recorded.



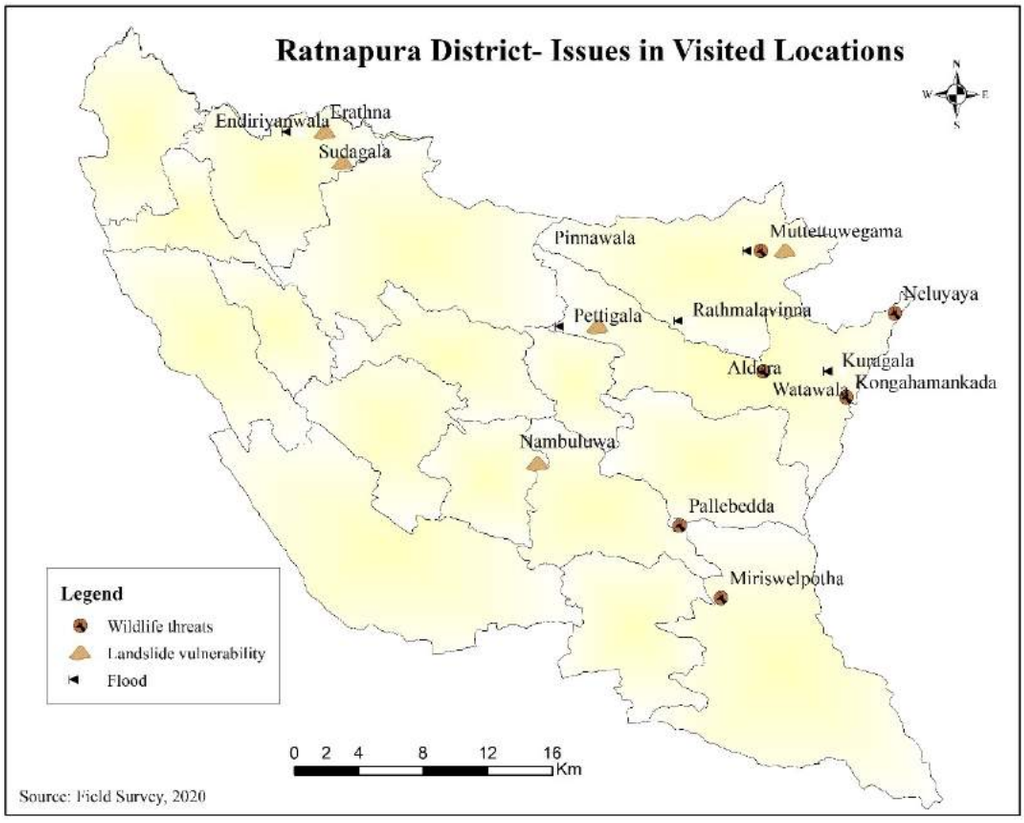

Map 107: Main Issues- Rathnapura District

Most of the farmers depend on rain water for their cultivation but, water for cultivation is not sufficient when the region is not getting enough rainfall. Thus, most of the farmers in some visited villages urged to establish an irrigation scheme to overcome this issue. Unemployment is the other dominant economic issue reported in the visited locations of Rathnapura. Locations of these issues are illustrated in the map below.




Map 108: Identified Issues in Rathnapura

The slope gradient is relatively low in Rathnapura and during torrential rains a slow water flow can be experienced. Consequently stagnated water in and around the streams and human factors such as garbage disposal and mining combine to cause severely adverse results in a few visited locations. Landslide vulnerability over the district is much higher than the other districts. Some visited locations as indicated in the below illustrated map, possess higher exposure increasing vulnerability compared to the other visited locations. Threats from monkeys, wild boars and elephants in some locations make a considerable impact on the crops. The following map shows the issues in visited locations.




Map 109: Identified Issues in Rathnapura

# Kegalle District

The Kegalle district is a picturesque region located between the Central Highlands and the south-western plains of Sri Lanka. This is an area belonging to the historical Maya Rata according to the division into the names Ruhunu, Maya and Pihiti. The region is bounded to the north by the Kurunegala district, to the south by the Rathnapura district, to the east by the districts of Kandy and Nuwara Eliya, and to the west by the districts of Gampaha and Colombo. The total area of the district, which stretches 48 kilometers from north to south, is 1,692.8 sq. kilometers. Considering the historical, political, economic, social, religious and cultural aspects, it seems that only the districts of Polonnaruwa and Anuradhapura are more significant than the district of Kegalle. The best graphite deposits are found at Bogala in the Kegalle district which belongs to the humid southwestern region and receives heavy rainfall and registers high temperatures. Since the region receives precipitation due to monsoons, convection and hurricanes, one can observe a pattern of precipitation that spreads throughout the year.

Further, the Kegalle district has been a very affirmative contributor of several natural resources to Mother Sri Lanka. Among them the water resource has been a lasting comfort to the citizens of Kegalle. It has been fortunate enough to be blessed by both seasonal monsoon rains and the cyclones. The city is mainly nourished by Kelani River and Ma Oya. Both the Gurugoda Oya and Seethawaka stream flow into the Kelani River and Higul Oya and Rambukan Oya flow into the Ma Oya flow from Kegalle district. The annual rainfall of Kegalle is 2500 mm to 3000 mm. The temperature varies from 25°C to 30°C.

Land has become another fertile facilitator of agriculture that has contributed to the needs of the citizens of Kegalle. Being a primarily agricultural community, rubber, tea, and coconut are cultivated as its main crops. In addition to this, cloves, pepper, coffee, and cocoa are also grown as a by-product. Regarding the cultivation of rubber, 33% of the agricultural land has been used for this. About 29,000 acres of land has been used for rice cultivation and rainwater is the main resource for agriculture in Kegalle. Minerals are another lucrative contributor to the economy of the Kegalle region, and Bogala graphite is one of the best known mines in the Kegalle region and accounts for half of Sri Lanka's total mineral exports, and stone distribution. Gems near the Kelani River further boost the economy and prosperity of the district (http://www.kegalle.dist.gov.lk/).

The Kegalle district is home for 840,600 people and 91.3% of them live in the rural sector while, 6.8% live in the estate sector and 1.9% in the urban sector. According to the ethnic population distribution, the Sinhalese population is recorded as 85.5%, 2.1% of the district population are Sri Lankan Tamils, 5.2% are Indian Tamils and 7.1% are Sri Lankan Moors (Department of Census and Statistics, 2012). Kegalle population density is recorded as 526 persons per sq. kilometer.

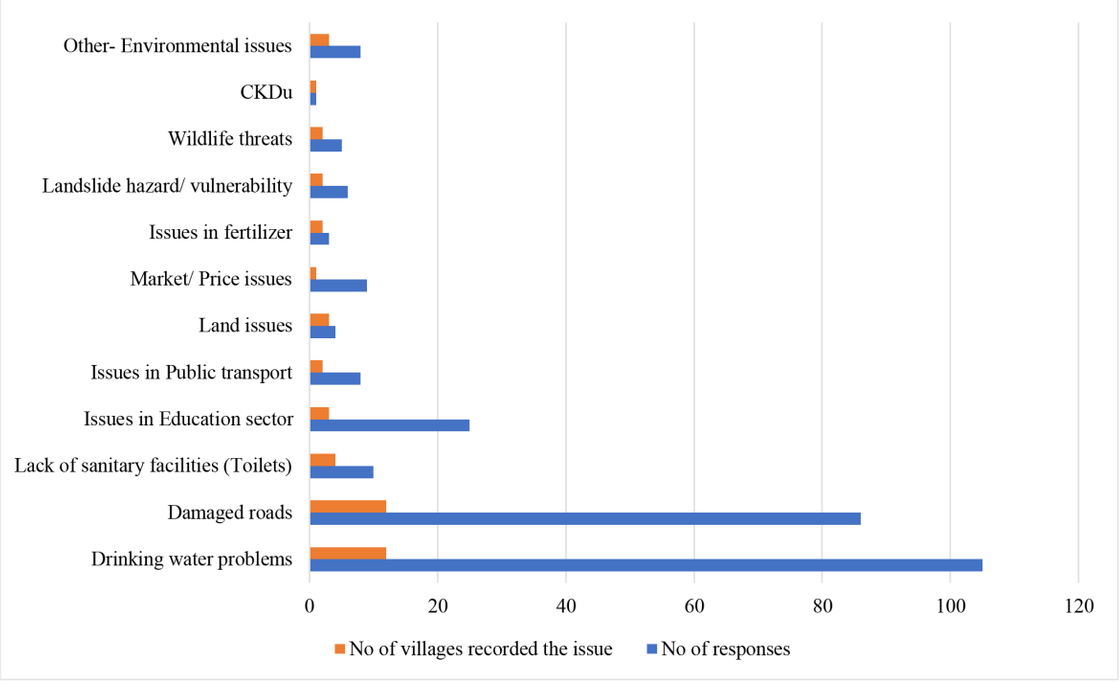
Within the district, 525 government schools function and 12,000 teachers are serving 168,000 students. Out of the total schools, 346 schools function with below 500 students, 45 schools have 501-1000 pupils, 44 schools with 1001-2000 students, 11 schools with 2001-3500 students and 2 schools have more than 3500 students (Central Bank of Sri Lanka, 2020).

The Kegalle district labour force participation rate was 53.3% in 2019. The labour force participation in the agricultural sector is 23.6%, industrial sector 33.4% and service sector is recorded as 43%. The employment status of the employed population can be divided as follows in the Kegalle district; 61% are employees, 1.4% employers, 32.9% Own Account Workers and 4.7% contributing as family workers. The unemployment rate of the Kegalle district was recorded as 4.7% in 2019 (Department of Census and Statistics, 2019).

The research team visited 14 GNDs and interviewed 139 villagers over the district. Results of the interviewed villagers can be summarized as follows.

| Issues | No. of responses | No. of villages the issue was recorded in. |
|---|---|---|
| Drinking water problems | 105 | 12 |
| Damaged roads | 86 | 12 |
| Lack of sanitary facilities (Toilets) | 10 | 4 |
| Issues in Education sector | 25 | 3 |
| Issues in Public transport | 8 | 2 |
| Land issues | 4 | 3 |
| Market/ Price issues | 9 | 1 |
| Issues in fertilizer | 3 | 2 |
| Landslide hazard/ vulnerability | 6 | 2 |
| Wildlife threats | 5 | 2 |
| CKDu | 1 | 1 |
| Other Environmental issues | 8 | 3 |

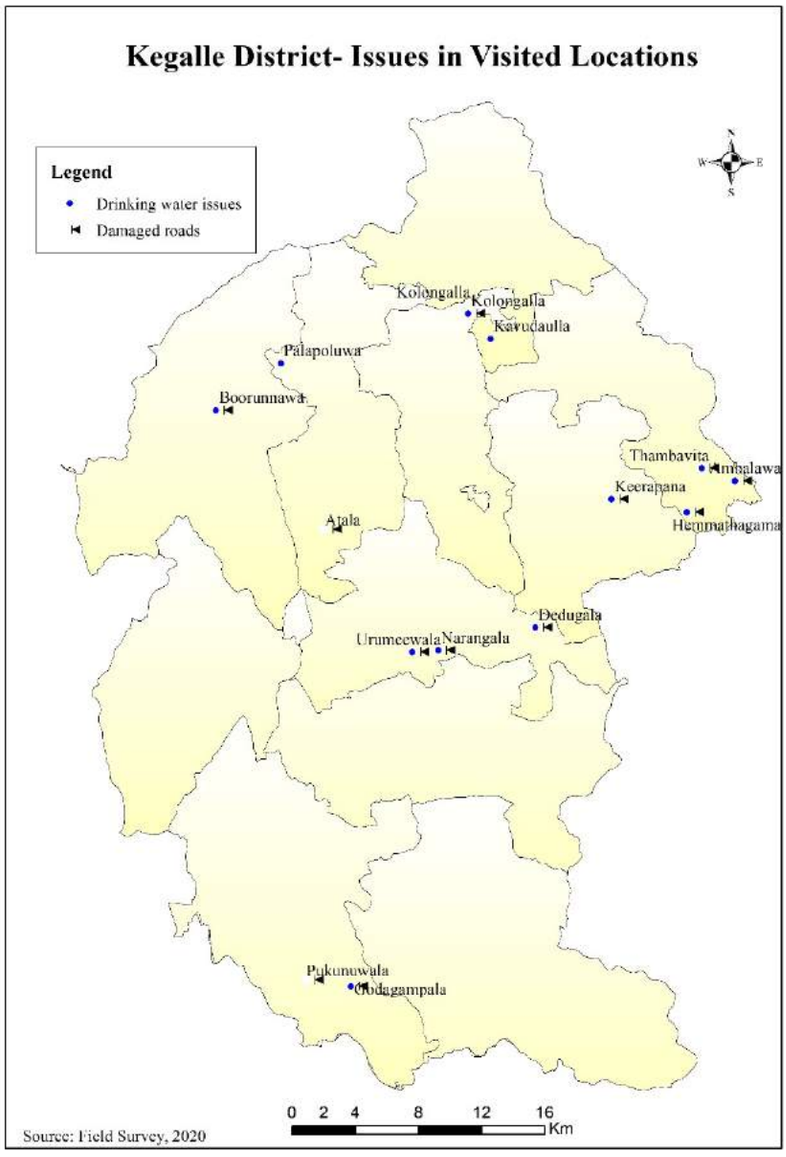
Table 27: Summary of Responses




Graph 26: Identified Issues in Visited Locations- Kegalle District

As recorded in the Rathnapura district, damaged roads and drinking water issues are the most prominent issues over the vistied locations of the Kegalle district. Most of the visited locations possess regional water sources such as springs and spring wells. Majority of the villagers in visited locations stated that the water level is declining rapidly during the dry months and getting drinking water becomes more problematic during this season.

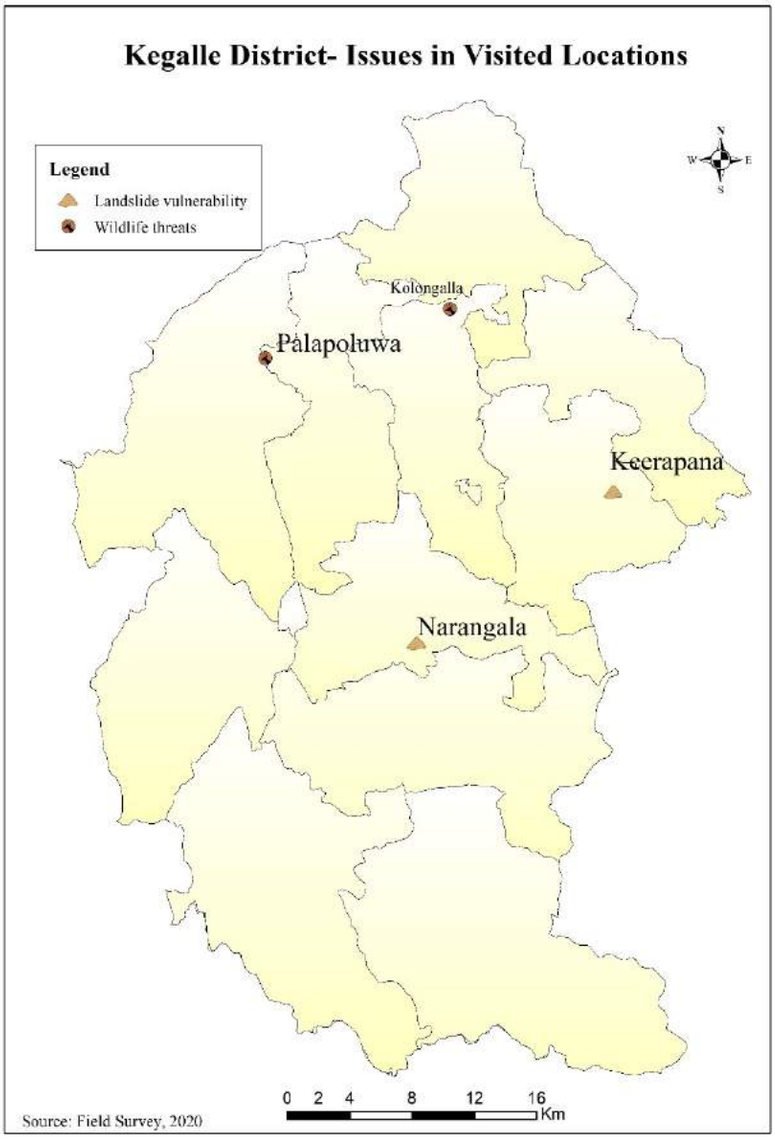
Village roads have been constructed by different rural development projects and the full length of the roads are not developed and patches in the same road has not been renovated. In such instances, villagers are unable to get the maximum benefit even from the renovated roads. The following map illustrates the distribution of these issues in the visited locations.




Map 110: Major Issues of Kegalle

Kegalle is a high hazard district for landslides in Sri Lanka. Large scale catastrophic landslides to small scale slope failure incidents occur in the Kegalle district frequently. Due to land unavailability and other practical issues people cannot move away even though they live in high hazard areas. Some villagers emphasized that they have to live with this hazard but they do not have the capacity to cope. Thus, they have to have external support to manage their risk.

Wildlife threats especially from monkeys, wild boars and porcupines are terrible issues faced by some of the villages that were visited. Villagers emphasized that they cannot maintain their home gardens and crop lands because of this issue. The following map illustrates the distribution of these issues.




Map 111: Issues in Visited Locations- Kegalle District

# Conclusions and Recommendations

## Conclusions

The contemporary socio-economic setting of Sri Lanka was shaped with divergent sources of influences such as Buddhism, foreign invasions both regional and European, and with economic alliances with liberal regional and global partnerships. Regional disparities are yet still widening with massive development projects implemented over the regional hubs of Sri Lanka as they do not trickle down the benefits from top level to bottom. Even though numerous infrastructure development efforts have taken place, some of the rural areas have been further marginalized by being inaccessible physically as well as socio-economically as they were not productively internalized into the so called "development projects". Different research projects have been carried out to reveal this ground reality in the Sri Lankan context but the Gammadda socio-economic research is remarkably connected with five major steps such as, identifying the problem, visiting locations and deeply studying selected issues, addressing the issue with government and private partnerships and strengthening the community by creating new community organizations.

Gammadda socio-economic research has been carried out with the intention of identifying the striking issues in contemporary rural Sri Lanka. Field survey for data collection was completed within 30 days all over the island and research participants and locations were selected through the Purposive Sampling method. Structured questionnaires, interviews and observations were used to collect data during the field study. Totally, the research teams visited 470 locations and 3344 people were interviewed over these visited locations in order to identify the predominant issues over the locations.

Drinking water is a major issue adversely affecting 75% of the sites visited. Some sites have adequate water sources but villagers do not have access to them or do not have access to clean, safe water due to pollution. Denial of access is important especially in wet and intermediate areas. The other dimension of the problem of drinking water, especially in the estate sector, is practically up to hydraulic projects, the quantity of water circulating in the pipes is insufficient for all the inhabitants. As a result, some residents must either rely on natural water sources or on communal pipes located far from their homes. The end effect of these uncertainties is health problems, especially kidney failure and other diseases of the urinary system. Ultimately, this creates a dominant impact on the economy and society.

Most of the rural roads have been upgraded by various rural development projects over the past decades. However, most villages in need have not received sufficient funds to expand or renew their entry points. Village roads lacking bridges to cross over streams have also been a frequent problem. Farmers and other small business owners have to bear a considerably high transportation cost that ultimately reduces their profits. On the other hand, the absence of public transport sources is another prominent problem recorded in the sites visited. This is due to either lack of a suitable road for the villages or the insufficiency of public transportation options like buses to remote villages. However, all this leads to a deterioration of the social capital of the villagers.

Land issues and threats from elephants are the next notable issues faced by rural villagers. An analysis of land ownership data emphasizes that rural villagers still do not own the land in which they live. Even though various land policies and reforms are mainstreamed into the development agenda, land ownership has not been distributed at a satisfactory level.

A mosaic land use pattern of settlements, forest reserves and agricultural area is the general

landscape that can be observed at the sites visited. Elephants are used to moving through patchy forest areas for grazing. However, the spots mainly belong to agricultural and settlement areas. On one hand, human encroachments on remaining forest areas have obstructed traditional elephant corridors. In the end, it ended up with a huge conflict between elephants and humans. According to the responses of the affected villagers, they cannot attain any progression their lives or agriculture and this endless question brings them uncertainty.

Lack of human and physical resources such as, laboratories, well-equipped libraries, play grounds and IT laboratories are still considered as dreams to some of the schools in visited locations. Thus, the expected quality of education has become a challenge with these regional disparities. Lack of awareness, low affordability and uneven distribution of resources contribute to denying accessibility to vocational training and skill development programs by the youth. Eventually they are pushed towards easy and informal short-term profits recruitment. As a result, the majority of them do not have a permanent income source which matches their education level and the skills they possess. Thus, unemployment arises among most of the people in the visited locations.

Irrigation systems have been developed to store water to be used during the dry season, especially in dry zone areas. As noted during the research, irrigation water management systems operate well to achieve maximum benefit for the nation. In some of the sites visited, the irrigation canals are not well maintained or renewed depending on the water capacity of the reservoirs. Additionally, in some cases, the small tanks do not function well and collide in the opposite direction to the whole chain. Due to fluctuations in the rainy season and the severe impact of climate change, farmers in wetlands also struggle to get enough water for cultivation.

Other wild animals such as wild boars, porcupines, monkeys and peacocks have become an emerging threat to farmland and vegetable gardens since the recent past. As a result, the farmers were not able to get the maximum output from agriculture, which resulted in a decrease in their income. In some cases, these wild animals become a serious threat to home gardens as they use the production for home consumption, reducing the yield obtained from the garden.

Apart from these issues, garbage disposal in highly congested areas, environmental pollution and other severe issues and kidney failure are the next set of problems identified over the locations.

Damaged roads and transportation related issues are other striking issues over the visited locations which have deprived the rural villagers from gaining access to essential goods and services.

In conclusion, it is imperative to keep in mind that state run programs and other rural development projects do not address the fundamental grass root level problems of Sri Lanka's rural communities. It was evident that during the field visits, not all of these projects responded to the core of these problems. Therefore, most of the basic issues, such as water, infrastructure, and income problems are pervasive. On the other hand, it is not only about project failure but also ideas/concepts in understanding a community of people because society itself has a responsibility to protect and act accordingly. If the inclusive mechanism does not act according to the needs of society, the ultimate goal of "sustainable" development will forever remain a dream. Therefore, every person in the country should "work for the people, with the people".

**Recommendations**

Considering the nature of the issues in rural areas of Sri Lanka it is obvious that most of the issues can be addressed through holistic planning and coordination among the responsible village level authorities and communities who are professionally bound to initiate actions that are deemed essential. Community level isolated organizations will not be able to address the issues sustainably. Hence, the line institutions should maintain proper coordination and function as one in order to achieve the regional development goals.

The drinking water problem, as the most frequently reported issue in visited locations needs to be addressed acknowledging context specific opportunities and challenges. Community issues like unequal distribution of water and malfunctioning community schemes could be regulated through the village level coordination officers and government servants such as, Gramaniladari, development officer and agrarian service officer. Temporal drinking water issues could be identified in wet zone due to the declining ground water table during the dry months. In such instances sustainable water storage and integrated water management systems need to be installed and maintained with active community participation.

Transport related issues shows that it is essential to construct the roads up to the accepted standards. Furthermore, village roads located in hilly areas which experience torrential rain need to upgrade the quality and introduce new techniques to tolerate the intense rainfall and runoff. Village level road maintenance needs to be coordinated with the community support and the relevant responsible officials. To address the issue of the absence of public transportation, harmonization between private and public transportation is mandatory and important to maintain it in the focus on "service" rather than only an income generation activity.

Integrated irrigation water management systems need to be utilized and the existing systems need to be upgraded to overcome irrigation water management issues. Regulating the irrigation water system is mandatory with community participation. Furthermore, expansion of the tank capacities according to the average rainfall and water availability during the wet season would be a relief during the dry spell. Siltation removal and tank rehabilitation supported by local community or community-based organization would be advantageous in this regard. On the other hand, flood levee systems need to be installed and the existing systems should be upgraded to control the floods during the rainy seasons.

To overcome unemployment in the rural youth, reforms need to be introduced to expand the skills and capacity development of the rural youth, extending awareness towards vocational and tertiary level education. Moreover, strengthening the community to develop small scale village based cottage industries could absorb the unemployed in surrounding rural areas. Government support is mandatory to start and establish these industries for a short run. Monetary assistance can be provided by state-run banks lending seed money at the startup stage and continuous monitoring and guidance is of even greater importance to uplift small-scale entrepreneurship among enthusiastic individuals.

In order to reduce the elephant-human conflicts in identified areas, strategies need to be introduced by incorporating both aspects of human and animals. Sufficient actions should be taken efficiently to save the life and property of people as well as to protect the natural habitat for elephants. Mosaic landscapes need to be rearranged in a way to avoid elephants entering crop lands and forest patches are needed to be maintained for sustainability by incorporating bio fences. Moreover, elephant corridors need to be maintained without any disturbances of legal or illegal crop lands and settlements. Environmentally sound management practices need to be incorporated by both community and authority.

Apart from elephant threats, some of the villagers reported the crop and garden damages that are caused by peacocks, porcupines, monkeys and wild boars. Either biological or technical strategies need to be adapted to control these threats. Innovative strategies and studies are mandatory to be implemented in this regard.

CKDu/ kidney disease distribution can be identified even beyond the established hotspots. These locations might show the potential areas where kidney issues may be distributed in the future. Thus, this finding would be a sign to reorient agricultural practices in order to avoid further spread of the disease.

Disaster awareness, preparedness plans and precautionary measures need to be executed and community-based disaster management programmes should be expanded until the last mile covering every step of the disaster management cycle.

Furthermore, initiating counseling programs and awareness centers in the villages is essential to aid the community when in need. These established centers should provide a continuous service to the rural community.

In conclusion, to overcome the issues identified, community based strategic plans are mandatory. Further, these plans should incorporate the sustainable coordination between the community and the authority. The Gammadda socio-economic project has taken the initial step towards catalyzing awareness and strengthening the community but it should go a long way to achieve its ultimate benefit to the community.

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# Annexure I

| Province | District | GND Name | GN No. |
|---|---|---|---|
| Western | Colombo | Angulana North | 547 |
| | | Diddeniya North | 439 |
| | | Digana | 442F |
| | | Gurulana | 458B |
| | | Halpe | 454B |
| | | Katubadda | 551 |
| | | Kiriwandala North | 431B |
| | | Kiriwandala South | 431E |
| | | Koswatta | 442E |
| | | Kotuvila | 509 |
| | | Mawalgama | 437 |
| | | Narahenpita | 184 |
| | | Nawagampura | 85 |
| | | Pagngnagula | 442A |
| | | Pahathgama | 443A |
| | | Rawathawatta East | 557 |
| | | Sedawatta | 509A |
| | | Udagama | 458 |
| | | Wanathamulla | 177 |
| | | Welangalla | 125/A |
| | | Welikada West | 514A |
| | | Wella Street | 87 |
| | | Weragolla South | 431F |
| | | Weralupitiya | 432H |
| | | Weralupitiya | 432H |
| | Gampaha | Andagalakanda | 14G |
| | | Angurukaramulla | 161A |
| | | Embaraluwa South 02 | 242C |
| | | Hapitigama | 25 |
| | | Heenatiyana South | 153B |
| | | Heenatiyana West | 153 |
| | | Ihala Biyanvila Central | 269 B |
| | | Makola North Central | 270 A |
| | | Makola North Pahala | 270 B |
| | | Millawala | 20D |
| | | Munnakkaraya East | 156B |
| | | Palmada | 18 |
| | | Polwatta East | 120 |
| | | Polwatta West | 120/1 |
| | | Bollunna | 841C |
| | | Bombuwala North Central | 728B |
| | | Bombuwala South Central | 728 |
| | | Bopitiya West | 802A |
| | | Deshasthra West | 717D |
| | | Diggoda | 839C |
| | | Eladoowa | 799A |
| | | Galahitiya | 836F |
| | | Galhena | 759A |
| | | Helamba | 828A |
| | | Horawala | 794 |
| | | Horawala | 794 |
| | | Kadurugasmulla | 745A |
| | | Kankanamgoda | 749 |
| | | Malegoda | 733 |
| | | Meegahathenna | 849 |
| | | Mestiya | 700 |
| | | Paragoda West | 825C |
| | | Pelenda | 836 |
| | | Pelenda West | 836E |
| | | Polgampola | 844D |
| | | Potupitiya East | 708B |
| | | Pussalamulla | 797A |
| | | Tudugala West | 808 |
| | | Udawela | 828 |
| | | Walakada | 836K |
| | | Yatiyana East | 830A |
| Centra | Kandy | Aluthkanda | 116 |
| | | Angammana East | 1163 |
| | | Bobuwa Puwathpitiya | 73 |
| | | Dumbaragama | 881 |
| | | Gallenawatta | 364 |
| | | Gonangoda | 1040 |
| | | Handabowa | 341 |
| | | Hanwella | 882 |
| | | Hiddavulla East | 91 |
| | | Hiddavulla West | 92 |
| | | Hondiyadeniya | 51 |
| | | Kotaligoda North | 215 |
| | | Madolkele | 731 |
| | | Medagama Pallegama | 997 |
| | | Nawaneliya | 1026 |
| | | Nilawala | 1020 |
| | | Pallewela | 878 |
| | | Patithalawa | 1048 |
| | | Polkumbura | 1112 |
| | | Thalagune | 875 |
| | | Uduwa | 312 |
| | | Bambaragahawatta | 404B |
| | | Dambagolla | 404A |

| | | | |
|---|---|---|---|
| Centra | Matale | Helambagahawatta | 404 |
| | | Ikirigolla | 371D |
| | | Kandalama | 449 |
| | | Kumbukkandanwala | 448 |
| | | Madakumbura | 375F |
| | | Maussagolla | 375 |
| | | Opalgala | 383 |
| | | Pallegama | 450 |
| | | Pubbiliya | 406A |
| | | Senagama | 383B |
| | | Viharagama | 371C |
| | Nuwara Eliya | Kotagala | 475 |
| | | Nanu Oya | 476 |
| | | Mount Vernon | 475 Q |
| | | Perakumpura | 476 B |
| | | Rosella | 320 E |
| | | Rosella | 320E |
| | | Watagoda | 475 D |
| | | Welioya | 320 P |
| Northern | Jaffna | Arali Centre | J161 |
| | | Arali West | J160 |
| | | Delft Centre East | J05 |
| | | Eluthumadduval North | J334 |
| | | Kapputhu | J382 |
| | | Karampaham | J330 |
| | | Karaveddy West | J363 |
| | | Ketpeli | J332 |
| | | Kovilkudyiruppu | J301 |
| | | Madduvil East | J314 |
| | | Meesalai South | J321 |
| | | Nunavil West | J308 |
| | | Palai Vemankamam Souh | J237 |
| | | Part of Kerudavil East | J387 |
| | | Puttur West | J273 |
| | | Ramavil | J320 |
| | | Sarasalai South | J316 |
| | | Sillalai South | J149 |
| | | Thaiyiddy East | J247 |
| | | Urumpirai South | J265 |
| | | Vaddukkoddai West | J167 |
| | | Varuthalaivilan | J241 |
| | Kilinochchi | Barathypuram | KN08 |
| | | Konavil | KN06 |
| | | Soranpattu | KN82 |
| | | Uttupulam | KN36 |
| | | Arippu East | J161 |
| | | Kayanagar | J160 |
| | | Koolankulam | J05 |
| | | Mathoddam | J334 |
| | | Naruvilikkulam | J382 |

| | | | |
|---|---|---|---|
| Northern | Mannar | Olaiththoduvai | J330 |
| | | Palaiyadiputhukulam | J363 |
| | | Parappankandal | J332 |
| | | Periyamadhu West | J301 |
| | | Pesalai North | J314 |
| | | Poomalarnthan | J321 |
| | | Saveriyarpuram | J308 |
| | | Silavathurai | J237 |
| | | Siruthoppu | J387 |
| | | Talaimannar Station | J273 |
| | | Thalaimannar North | J320 |
| | | Thalaimannar Pier East | J316 |
| | | Thekkam | J149 |
| | | Thullkudiyiruppu | J247 |
| | | Umanagari | J265 |
| | | Valkaipattankandal | J167 |
| | | Vidalaiteevu Central | J241 |
| | Mullaitivu | Kallapadu South | KN08 |
| | | Keppapulavu | KN06 |
| | | Kumulamunai West | KN82 |
| | | Mamoolai | KN36 |
| | | Manikapuram | MN 135 |
| | | Mathavalasingankulam | MN 15 |
| | | Mulliyawalai Center | MN 147 |
| | | Silavattai | MN 93 |
| | | Sivanagar | MN 101 |
| | | Suthanthirapuram | MN 60 |
| | | Thannimurippu | MN 34 |
| | | Theravil | MN 96 |
| | | Valluvarpuram | MN 16 |
| | Vavuniya | Andiyapuliyankulam | MN 57 |
| | | Asikulam | MN 130 |
| | | Echchankulam | MN 145 |
| | | Kalmadu | MN 144 |
| | | Kandupuram | MN 58 |
| | | Kiristhavakulam | MN 52 |
| | | Madukanda | MN 48 |
| | | Mahakachchakodiya | MN 51 |
| | | Mamaduwa | MN 131 |
| | | Marekkarampalai | MN 54 |
| | | Periyapuliyalankulam | MN 103 |
| | | Rajendrankulam | MN 109 |
| | | Samalankulam | MN 12 |
| | | Sasthirikoolankulam | MUL 90 |
| | | Ambagaswewa | 667 |
| | | Angunochchiya | 71 |
| | | Dunumadalawa | 356 |
| | | Galenbidunu Wawa | 186 |
| | | Galpottegama | 305 |
| | | Gambirigaswewa | 309 |

| | | | |
|---|---|---|---|
| North Central | Anuradhapura | Habarana | 589 |
| | | Isinbessagama | 58 |
| | | Keeriyagaswewa | 607 |
| | | Kuda Rambawewa | 595 |
| | | Kuda Rambawewa | 595 |
| | | Medawewa | 633 |
| | | Moragoda | 606 |
| | | Nelawagama | 349 |
| | | Olombewa | 638 |
| | | Pandulagama | 293 |
| | | Ralapanawagama | 338 |
| | | Thimbiriwewa | 328 |
| | | Thittagonewa | 33 |
| | | Vijithapura | 493 |
| | | Walpola | 65 |
| | | Wannamkulama | 185 |
| | | Yakalla | 186 |
| | Polonnaruwa | Atharagallewa | 2 |
| | | Dalukana | 210 |
| | | Kottapitiya South | 10 |
| | | Kumaragama | 72 |
| | | Madurangala | 269 |
| | | Millana | 212 |
| | | Monarathenna | 280 |
| | | Nidanwala | 244 |
| | | Pahala Ellewewa | 215 |
| | | Sevanapitiya | 261 |
| | | Sinhapura | 286 |
| | | Sirikanduruyaya | 12 |
| | | Sungavila | 137 |
| | | Susirigama | 277 |
| | | Ulkatupotha | 77 |
| | | Wadigawawa | 120 |
| | | Wadigawewa | 121 |
| | Kegalle | Ambalawa | 40C |
| | | Atala | 63C |
| | | Boorunnawa | 84 |
| | | Dedugala | 131C |
| | | Godagampala | 121C |
| | | Hemmathagama | 38A |
| | | Kavudaulla | 13D |
| | | Keerapana | 42C |
| | | Kolongalla | 14D |
| | | Narangala | 128C |
| | | Palapoluwa | 70A |
| | | Pukunuwala | 122C |
| | | Thambavita | 36A |
| | | Urumeewala | 129C |
| | | Adavikanda | 161B |
| | | Aldora | 261A |

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|---|---|---|---|
| Sabaragamuwa | Rathnapura | Atakalanpanna | 225 |
| | | Diyavinna | 260A |
| | | Endiriyanwala | 160 |
| | | Erathna | 161 |
| | | Gallella | 164 |
| | | Heenberenduwa | 165E |
| | | Hingura | 215 |
| | | Kalalella | 228 |
| | | Kattadikanda | 266D |
| | | Kongahamankada | 260F |
| | | Kotakethana | 232A |
| | | Kuragala | 258F |
| | | Lassakanda | 161C |
| | | Madalagama | 227 |
| | | Maddegama | 269 |
| | | Miriswelpotha | 208A |
| | | Mudunwela | |
| | | Muttettuwegama | 276 |
| | | Nambuluwa | 228A |
| | | Neluyaya | 258E |
| | | Pallebedda | 224 |
| | | Panapitiya North | 226A |
| | | Pathakada | 174E |
| | | Pettigala | 254C |
| | | Pinnawala | 268A |
| | | Rathmalavinna | 263 |
| | | Rawanakanda | 266B |
| | | Sudagala | 161A |
| | | Udagama | 268 |
| | | Watawala | 258D |
| | | Yakdehiwatta | 174A |
| Uva | Badulla | Ekiriya | 17 |
| | | Ella | 68B |
| | | Galkanda | 64E |
| | | Hangiliella | 53A |
| | | Haputhalegama | 63C |
| | | Hettipola | 69G |
| | | Kithal Ella | 69E |
| | | Mahawattagama | 82C |
| | | Malwattegama | 39A |
| | | Manthenna | 156B |
| | | Metigahathenna | 18 |
| | | Pitamaruwa | 16A |
| | | Polwatta | 16D |
| | | Poonagala | 155P |
| | | Roberiya | 18F |
| | | Ulugala | 53B |
| | | Viharakele | 63F |
| | | Wewegama | 38 |
| | | Ambelanda | 100C |

| | | | |
|---|---|---|---|
| | Monaragala | Bibilamulla | 107B |
| | | Dodamgolla | 99 |
| | | Kalugahawadiya | 111F |
| | | Kandasurindugama | 146C |
| | | Kanulwela | 99A |
| | | Katharagama | 146 |
| | | Konketiya | 142A |
| | | Kotabowa | 106A |
| | | Kotavehera Mankada | 149C |
| | | Mahasenpura | 143/A/1 |
| | | Medipitiya | 99C |
| | | Senapathiya | 107 |
| North Western | Kurunagala | Bayawa | 1282 |
| | | Belungala | 184 |
| | | Digana | 158 |
| | | Digankonwewa | 458 |
| | | Ginipenda | 865 |
| | | Gonagala | 667 |
| | | Hidogama | 235 |
| | | Ihalagama | 138 |
| | | Kadiharaya | 1216 |
| | | Kelegama | 77 |
| | | Koruwawa | 365 |
| | | Madatuwa | 1269 |
| | | Mahakirinda A | 245 |
| | | Mahawa West | 149 |
| | | Medagama | 225 |
| | | Medagama | 225 |
| | | Mee Pallegama West | 671 |
| | | Mee Udagama | 669 |
| | | Padipanchawa | 76 |
| | | Pahalagama | 139 |
| | | Pannawa | 446 |
| | | Thalamalgama | 381 |
| | | Thorawa | 44 |
| | | Wadugama | 71 |
| | | Yakadapatha | 236 |
| | Puttalam | Aluth Eluwankulama | 635/1 |
| | | Anawasala | 631A |
| | | Dachbe | 633 |
| | | Kawayankulama | 613 |
| | | Madurankuliya | 609 |
| | | Mangalaeliya | 610A |
| | | Mohoriya | 612 |
| | | Nagavila | 662 |
| | | Nawadankulama | 610B |
| | | Nirmalapura | 605B |
| | | Pallama | 664 |
| | | Parana Eluwankulama | 635 |
| | | Periyamaduwa | 662B |
| | | Pubudugama | 609A |

| | | | |
|---|---|---|---|
| Eastern | | Thambapanniya | 642D |
| | | Thewanuwara | 640B |
| | | Vattakandal | 637 |
| | Ampara | Alimnagar | AP/20A/4 |
| | | Deegawapie 02 | AD/35D |
| | | Dorakumbura | 139 |
| | | Galode | 141A |
| | | Malwaththa 01 | 89 |
| | | Malwaththa 02 | 89D |
| | | Manammeri | 22 |
| | | Navatkadu | AV/03 |
| | | Pothuvil 02 Unit 02 | P/07 |
| | | Ridiala Rathmalkandura | 142/2 |
| | | Sandamadulla | 142F |
| | | Sennelgramam 02 | 79H |
| | | Sinna Panankadu | AV/19 |
| | | Thandiady | TK/10C |
| | | Thangavelayuthapuram | TK/10E |
| | | Thirukkovil 1 | TK/10 |
| | | Vachchikuda | AV/01 |
| | Batticaloa | Ambalanthurai North | 127B |
| | | Kadiraveli | 213 |
| | | Kaladawalei | 4 |
| | | Kalkudah | 204 |
| | | Kaluwanchikudy North 1 | 116B |
| | | Kinnaiyady | 202B |
| | | Kiran East | 203 |
| | | Kiran West | 203A |
| | | Kirimichchi | 211F |
| | | Kithul | 185B |
| | | Koddaikallar North | 113 |
| | | Koduwamadu | 195A |
| | | Koppavely | 146A |
| | | Madurankernykulam | 211E |
| | | Narippulthoddam | 184D |
| | | Panichchankerny | 211C |
| | | Pankudahvely | 186 |
| | | Pattaapuram | 108C |
| | | Periyapullumalai | 146 |
| | | Selvapuram | 107F |
| | | Thanthamalai | 135A |
| | | Unnichchai | 184A |
| | | Vaddavaan | 211D |
| | | Vavunativu | 182A |
| | | Vellaveli | 99 |
| | | Veppavedduwan | 186A |
| | | Abhayapura | 244N |
| | | Agbopura | 227C |
| | | Andankulam | 243A |
| | | Awvainagar | 231G |
| | | Bakmeegama | 233D |

| | | | |
|---|---|---|---|
| | Trincomalee | Bhathiyagama | 227L |
| | | Illuppaikulam | 242B |
| | | Iruthayapuram | 218E |
| | | Kappalthurai | 229E |
| | | Kattaiparichchan North | 222B |
| | | Kovilady | 228K |
| | | Kuchchaveli | 239 |
| | | Lingapuram | 217E |
| | | Mahindapura | 215C |
| | | Manayaveli | 244F |
| | | Meeranagar | 228H |
| | | Muththunagar | 229F |
| | | Palalmpataru | 228 |
| | | Pallikkudiyiruppu | 219 |
| | | Pankulama | 231F |
| | | Pansalgodella | 227W |
| | | Peeliyadi | 243J |
| | | Periyakulam | 241E |
| | | Ralkully | 224D |
| | | Salli | 242A |
| | | Samapalthivu | 242 |
| | | Seenipura | 227E |
| | | Sivapuri | 244Q |
| | | Sooriyapura | 227F |
| | | Thambalagamuwa | 228A |
| | | Veerancholai | 239B |
| | | Verugal | 214A |
| | | Wanela East | 227D |
| | | Wilgama | 243E |
| Southern | Galle | Aluth Thanayamgoda Pahala | 215 |
| | | Ampegama | 192 |
| | | Annasiwathugoda | 151B |
| | | Bedipita | 154D |
| | | Duwegoda | 35C |
| | | Elathota | 21E |
| | | Gammaddegoda | 217A |
| | | Gammaddegoda South | 217C |
| | | Halpathota Central | 199A |
| | | Hikkaduwa Nagarikaya | 59A |
| | | Hikkaduwa West | 59 |
| | | Horangalla West | 37/3 |
| | | Ihalagoda East | 109A |
| | | Jayabima | 93E |
| | | Kahawa | 69 |
| | | Kappetiyagoda South | 212 |
| | | Karandeniya South | 91A |
| | | Kurundugaha Hethekma | 93 |
| | | Maddevila | 193B |
| | | Modara Patuwatha | 52 |
| | | Nanathotapalatha | 16 D |
| | | Niyagama | 38 |
| | | Niyagama South | 38B |
| | | Porawagama | 35 |
| | | Thalgaswala | 215C |
| | | Thibbotuwawa | 94J |
| | | Wathurewela | 16B |
| | | Wavulagala | 199B |
| | | Wawulagoda West | 58 |
| | | Wellawaththa | 59D |
| | | Yatalamatta | 209 |
| | | Yatalamatta East | 209A |
| | | Yatalamatta West | 209B |
| | Hambanthota | Bundala | 81 |
| | | Dangalakanda | 531 |
| | | Ketenwewa | 96 |
| | | Magama | 20 |
| | | Mahaaluthgamara | 47 |
| | | Marakolliya | 259 |
| | | Nonagama | 155 |
| | | Pahala Mattala | 49 |
| | | Rekawa East | 254 |
| | | Siriyagama | 82 |
| | | Veheragala | 46 |
| | | Welipatanvila | 150 |
| | Matara | Alapaladeniya North | 258 |
| | | Athuraliya East | 314 |
| | | Balakawala | 310B |
| | | Kalubovitiyana | 259 |
| | | Karagoda Uyangoda 2 Atha East | 316 |
| | | Kiriwelkele South | 261C |
| | | Kodikaragoda East | 262H |
| | | Maramba North | 363A |
| | | Mederipitiya | 240 |
| | | Nimalawa East | 371B |
| | | Nishshankapura | 241E |
| | | Pahala Athuraliya | 315 |
| | | Pallegama North | 241 |
| | | Pussawela | 241F |
| | | Uggashena | 313D |
| | | Viharahena | 244 |
| | | Waliwa | 262A |
| | | Wilvita East | 7 |

# Annexure II

## Pictures of Visited Locations

### Drinking water problems











## Issues in public transport








## Damaged roads





## Issues in education sector






## Wildlife threats







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