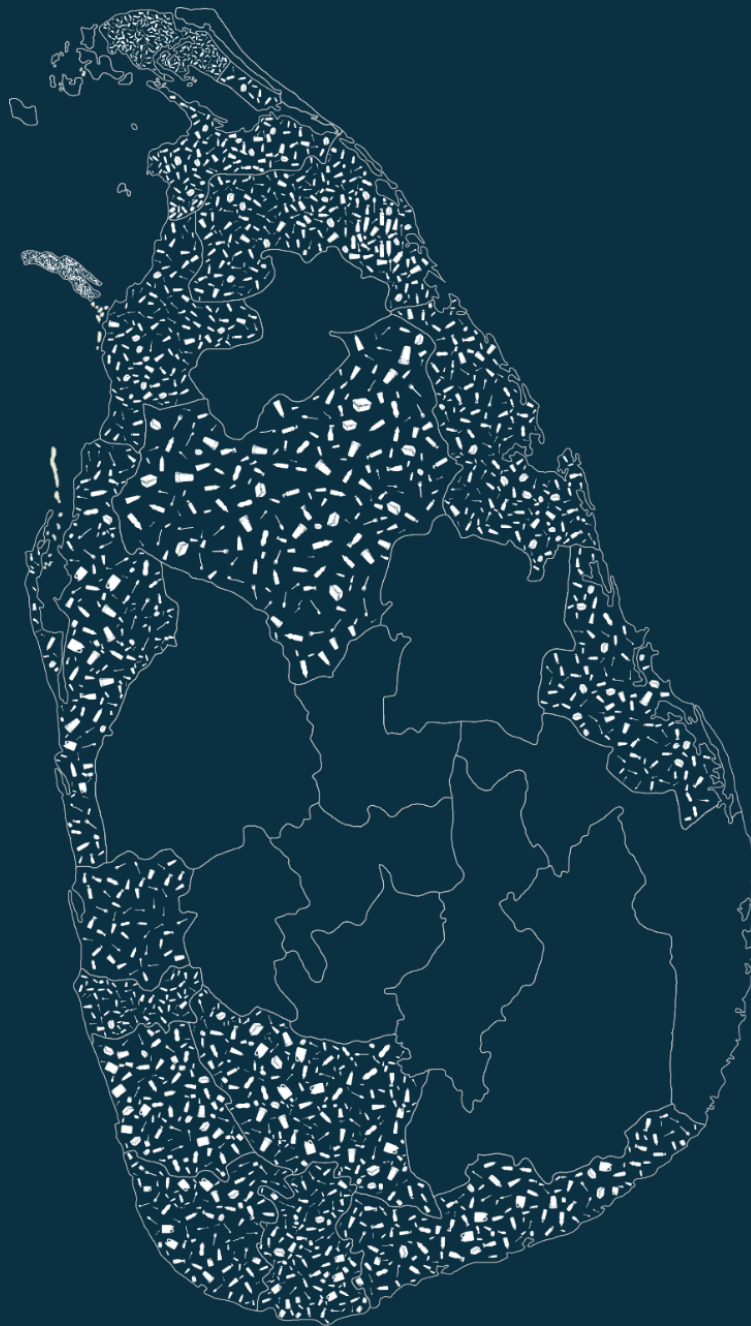




Survey of Plastic Waste Generating Hotspots

Survey Report

Building a Blue Lanka by Uplifting Communities

August 2024



Implemented by:



Supported by:



BLUECAP project is implemented by Negombo Recycling Club (Pvt) Ltd in partnership with Janathakshan GTE Ltd and Eco Spindles (Pvt) Ltd and funded under the PLEASE Project. The PLEASE Project is a pioneering regional initiative addressing the critical issue of plastic pollution in South Asia. It is funded by the World Bank and implemented by the South Asia Co-operative Environment Programme, with implementation support from UNOPS.

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DISCLAIMER

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ABBREVIATIONS

BLUECAP	Building a Blue Lanka by Uplifting Communities
DSD	Divisional Secretariat Division
F&B	Food and Beverage
FO	Field Officer
GPS	Global Positioning System
LA	Local Authority
MC	Municipal Council
MMT	Million Metric Ton
MRF	Material Recovery Facility
NRC	Negombo Recycling Club
PLEASE	Plastic Free Rivers and Seas for South Asia
PS	Pradeshiya Sabha
RBG	Regional Competitive Block Grant
SACEP	South Asia Cooperative Environment Program
SBC	Social and Behavioral Change
UC	Urban Council
UNOPS	United Nations Office for Project Services

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EXECUTIVE SUMMARY

This report outlines the findings of the survey on plastic waste generating hotspots covering fifteen (15) districts in Sri Lanka under the project, title, Building a Blue Lanka by Uplifting Communities (BLUECAP) which is implemented by the Negombo Recycling Club (NRC) in partnership with the Janathakshan GTE Ltd and Eco Spindles PVT Ltd. The project is implemented by the South Asia Cooperative Environment Program (SACEP), supported by the World Bank and the United Nations Office for Project Services (UNOPS)

This survey exercise was led by Janathakshan GTE Ltd by mobilizing 15 Field Officers (FOs) in respective project districts. Survey covered 15 districts, covering 60% out of 25 districts in Sri Lanka. Within the respective districts, the survey was focused on highly urbanized areas, city centers, water ways and river mouths.

The main objective of the study is to identify the plastic waste generating and accumulating hotspots in the respective project districts enabling the project to plan the plastic waste collection strategies and setting up of material recovery facilities (MRF).

The intercept survey methodology was used to identify the plastic waste generating hotspots in the respective districts, through observation of field officers and involving respondents, or multiple respondents scoping out a specific waste generating hotspot.

The limitation for the survey was that the selection of a hotspot and quantity estimations were based on visual observation hence the selection was subjective therefore inter district comparison is not possible, specific location mapping was through onsite GPS location acquiring via the survey tool administered through the Kobo toolbox. Due to the GPS and network connectivity issues, certain hotspot locations GPS points were not updated in the database. Out of the 2777 hotspots identified, GPS locations are available for 2449 hotspots. However, this limitation has not affected the overall analysis of the survey.

KEY FINDINGS

- A total of 2777 plastic waste generating hotspots were identified across the 15 districts, an average of 185 hotspots per district.
- Local Authorities (LA) collect 40% of the plastic waste generated at 2777 hotspots. This finding is consistent with the national figure of 32% of plastic waste received by LAs as outlined in the National Action Plan for Plastic Waste Management- 2021-2030¹. Of the 2777 hotspots, 22% of the generators burn their waste plastic, and 19% illegally dump their plastic waste.
- The food and beverage sector generates the majority of plastic waste, accounting for 44%. This includes hotels, restaurants, dining points, pubs and bars. Hotspots where fisheries activities are carrying out, contribute 12% and locations relevant to the transport sector contribute 7% as major plastic waste contributors.
- The majority of the hotspots were identified in the city centers and urbanized areas in the respective districts.

¹ https://env.gov.lk/web/images/pdf/policies/National_Action_Plan_on_Waste_Management.pdf

- Sri Lanka has a radial network of rivers begins in the central highlands. There are about 103 distinct river basins covering 90 percent of the island. And as per this map number 05 and 06, majority of the plastic waste generating hotspots are overlapping with the major rivers, streams, canals and other water ways, it is clearly visible the high risk of water pollution if safe disposal doesn't take place. Also, Sri Lanka being a country that receives high rainfall during North- East and South-West monsoons, risk of water pollution from the waste plastic will aggravate due to the runoff can take the waste into water ways. Ultimately this ends up causing ocean pollution.
- The major challenge for proper disposal of plastic waste is the public behaviors, this is recorded as 47% from the responses received. Respectively, inadequate space for waste collection is 28% and commingling of plastic waste with other waste streams is 27% identified as other major challenges.

RECOMMENDATIONS

- The survey findings and plastic waste generating hotspot data should be disseminated among the respective Material Recovery Facilities (MRFs) supported by the project.
- MRF can utilize the survey findings for their plastic waste collection planning and collection network development as a quantity estimate is given this will support effective collection route planning.
- The respective Material Recovery facilities in the districts can continue to identify and update the district level plastic waste generating hotspots data by using the survey data as a baseline.
- Plastic waste generating hotspots should be prioritized based on the volume of plastic waste accumulating with the respective field officers before setting up the collection infrastructures.
- Waste collection strategy and tools and equipment to be employed should be decided based on the majority hotspots categories. For an example If it is community, project can develop community-based collection clusters.
- Since majority is F&B, housing schemes/condominiums and bus stops/railway stations - they can be prioritized in bin placements.
- It's recommended to have consultations with the respective Local Authorities and validate the survey findings before project investments on district level plastic waste collection infrastructure development, in particularly placing the plastic waste collection bins and bags.
- District wise strategy development should be done - since district wise prominent disposal methods vary. Also, in districts where the majority of hotspots or waste generators practice "handing over to local authorities", the project can build rapport with LAs and link the local authority plastic waste supply to the project's MRFs or collectors.
- The districts which show the most hotspots around communities (fisheries, residential, polluted waterways and beach areas) are niches for conducting E&A programs.
- The most prominent challenges in proper plastic waste management are due to the Public Behavior. This can be addressed through proper Education and Awareness (E&A) and the Social Behavioral Change (SBC) programme.

- It is clearly seen in the findings, the rest of the major challenges are Inadequate spaces for waste Collection, commingling of plastic waste with other waste streams and limited knowledge of waste segregation. These factors are the main causes for negative public behavior - E&A along with resource and facility provision can be the solution.
- Unavailability of required resources for public is one of the key factors that lead to negative behavior - Provision of education and awareness along with resources/facilities will encourage public to shift from improper disposal/negative behavior to safe disposal/positive behavior.
- Project education and awareness programs² (E&A) need to be prioritized in the locations for those who practice improper plastic waste disposal methods. (Map 2 Plastic waste generating hotspots currently practice improper disposal methods)
- More education and awareness focus should be given to the plastic waste hotspots identified in the Food and Beverage (F&B) sector since they are major contributors to the plastic waste generated as identified in the key findings.
- E&A programs should incorporate the unique riverine system and climatic conditions of the country, reflecting the waste plastic accumulation risk identified from the mapping exercise.
- Districts where the majority of hotspots or waste generators practice improper disposal can be encouraged to handover their plastic waste to collectors or MRFs.
- The hotspots mapped around can be used to determine the networks of waste collection employees across the district.
- Analyzing the waste generation and hotspots clusters, there is more space for new waste collectors to come into the sector to engage in plastic waste management as a livelihood. This recommendation can be further consolidated with secondary sources, CEA records, and prior project findings, to highlight the existence of more unidentified potential waste collectors.
- Since female engagement in waste collection has identified from the key findings, E&A can also include a component to point up the importance and potential space for women to engage in the plastic waste management sector. This can be supported with the success stories of prior projects as well. This component should be customized in accordance with the target community.
- Since the number of identified waste collectors is less (115), this has been identified as a survey gap. Therefore, it's recommended to identify more active waste collectors in the 15 project districts. The community E&A can be utilized to collect information / find active waste collectors.
- The findings of the survey should not be used to generalize the waste collection and management mechanism of each district as due to the resource and time limitation of the project the survey focused on identifying most important preliminary hotspot locations to initiate the conducting of E&A program and the setting up of MRF's

² Project Education and Awareness programs are developed based on the AIR strategy and on proper disposal of plastic waste

BACKGROUND

South Asia is the second largest contributor to global plastic waste. It generates 334 million metric tons of solid waste every year. Nearly 70 to 80 % of this waste ends up in the ocean- 12 % is plastic. (World Bank). The region's waste is estimated to double by 2050 unless urgent and drastic action is taken. The menace of plastic waste that pollutes land, flows into river systems and into the region's connecting seas poses national, regional, and global threats to development, including far-reaching economic, ecological and health impacts. Therefore, a partnership formed by the World Bank, and the South Asia Cooperative Environment Programme (SACEP) together launched the Plastic Free Rivers and Seas for South Asia (PLEASE) project, creating a blueprint for strengthening regional cooperation and sustainable development. The main objective of the PLEASE project is to strengthen innovation and coordination of circular economy solutions to plastic pollution flowing into South Asian Seas.

The Plastic Free Rivers and Seas for South Asia (PLEASE)

The Plastic Free Rivers and Seas for South Asia (PLEASE) Project is the first and largest project of its kind to combat plastic pollution ending up in South Asian rivers and seas. The Project includes all eight nations of South Asia: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The main objective is to strengthen innovation and coordination of circular economy solutions to plastic pollution flowing into South Asian Seas. The PLEASE project is funded by the World Bank and implemented by the South Asia Cooperative Environment Program (SACEP), with the support of United Nations Office for Project Services (UNOPS).

The program is leveraging public-private partnerships, investing in innovation on circular economy solution through competitive block grants, and supporting the development of National Action Plans by member countries to fight plastic pollution.

The call for proposals of the PLEASE Project Regional Competitive Block Grant (RBG) to eligible organizations in South Asia (Eligible RBG Beneficiaries) was launched on 11 September 2023. Under the RBG, it provides investment support up to US\$1.5 million from eligible, registered organizations in eligible nations (private sector, social enterprises, nongovernmental organizations, community-based organizations) that can demonstrate that with the use of project grant proceeds the entity could accelerate toward a more circular plastic economy that would otherwise not be possible.

As responding to the RBG PLEASE project call, Negombo Recycling Club (PVT) Ltd (NRC) submitted a proposal named 'Building a Blue Lanka by Uplifting Communities'(BLUECAP) to the SACEP. Upon the submission SACEP undertook a competitive selection process, through which the Negombo Recycling Club (PVT) Ltd was selected as the Grantee and provided a total grant of USD 1,485,000.00 to implement the BLUECAP project over time period of 12 months.

Building a Blue Sri Lanka by Uplifting Communities (BLUECAP)

The BLUECAP project is implemented by Negombo Recycling Club (PVT) Ltd (in partnership with Janathakshan Gte Ltd and Eco Spindles Pvt Ltd. The overall objective of the BLUECAP project is to recurrent reduction of plastic waste accumulated in major rivers in Sri Lanka and the Indian Ocean around Sri Lanka. The specific objectives of the project are.

- To improve the consciousness of the community and school children regarding plastic pollution and the proper management of plastic waste.
- To establish and strengthen a sustainable plastic waste collection network and mechanism.
- To develop eco-innovative low carbon materials that ensure the circular economy process.

To achieve the aforementioned main objectives, project theory of changes has designed based on the AIR strategy³(A-avoid, I-intercept, R-redesign) and intends to achieve three main outcomes through project interventions. The first outcome, "Avoid," focuses on reducing plastic consumption and environmental disposal. This involves mapping plastic hotspots, surveying waste generators and collectors, and conducting educational programs to raise awareness about plastic pollution and promote responsible waste management practices. The second outcome, "Intercept," aims to establish a sustainable plastic waste collection mechanism across 15 districts. This includes developing integrated collection systems, mobilizing waste collectors, and operationalizing new Material Recycling Facilities. The third outcome, "Redesign," introduces eco-friendly innovative materials as alternatives to conventional plastic. This involves setting up a recycling facility to produce materials for WPC products and training facility employees in production techniques, ultimately launching eco innovative products in the market. The Project is implemented in Hambantota, Matara, Galle, Kalutara, Colombo, Gampaha, Rathnapura, Puttalam, Anuradhapura, Mannar, Kilinochchi, Jaffna, Mullaitivu, Trincomalee and Batticaloa Districts.

Given this backdrop, survey on plastic waste generating hotspots carried out 15 districts in Sri Lanka to serving to achieve the project output 1.1- Increased understanding of current plastic value chain and role of plastic waste collectors.

Based on the findings of the survey BLUECAP project developed the district's awareness plan as well as other interception activities to reduce plastic pollution in Project implementation districts.

³ <https://air.parley.tv/>

OBJECTIVE OF THE SURVEY

The main objective of the plastic waste generating hotspots survey and mapping is to identify the plastic waste generating hotspots in the respective project districts enabling the project to plan the plastic waste collection strategies. The specific objectives of the survey were to:

- Identify the plastic waste disposal methods in the project locations.
- Identify the challenges in plastic waste management.
- Identify the major plastic waste generators.
- Identify the local level informal plastic waste collectors.
- Identify communities and entities that require education and awareness interventions for proper disposal of plastic waste.

DEFINITIONS

Hotspot Locations: A hotspot is a location or an entity with high waste generation or waste accumulation. The “high” was defined as more than 25 kg of plastic waste accumulated/ generated per month based on visual observation. Hotspot areas include households, business entities, commercial entities, small scale industries, schools, religious places, government entities dump sites, river mouths and water ways.

Waste Generators is an individual, group, or an entity where plastic is used for a particular purpose and an amount of plastic waste is accumulated after the usage.

Collectors: individuals, groups or societies that engage in collection of plastic waste with the objective of supplying to another entity.

Aggregator: is an individual or an entity that collects and stocks plastic waste obtained from one or more plastic collectors with the objective of supplying to a MRF or a recycling facility.

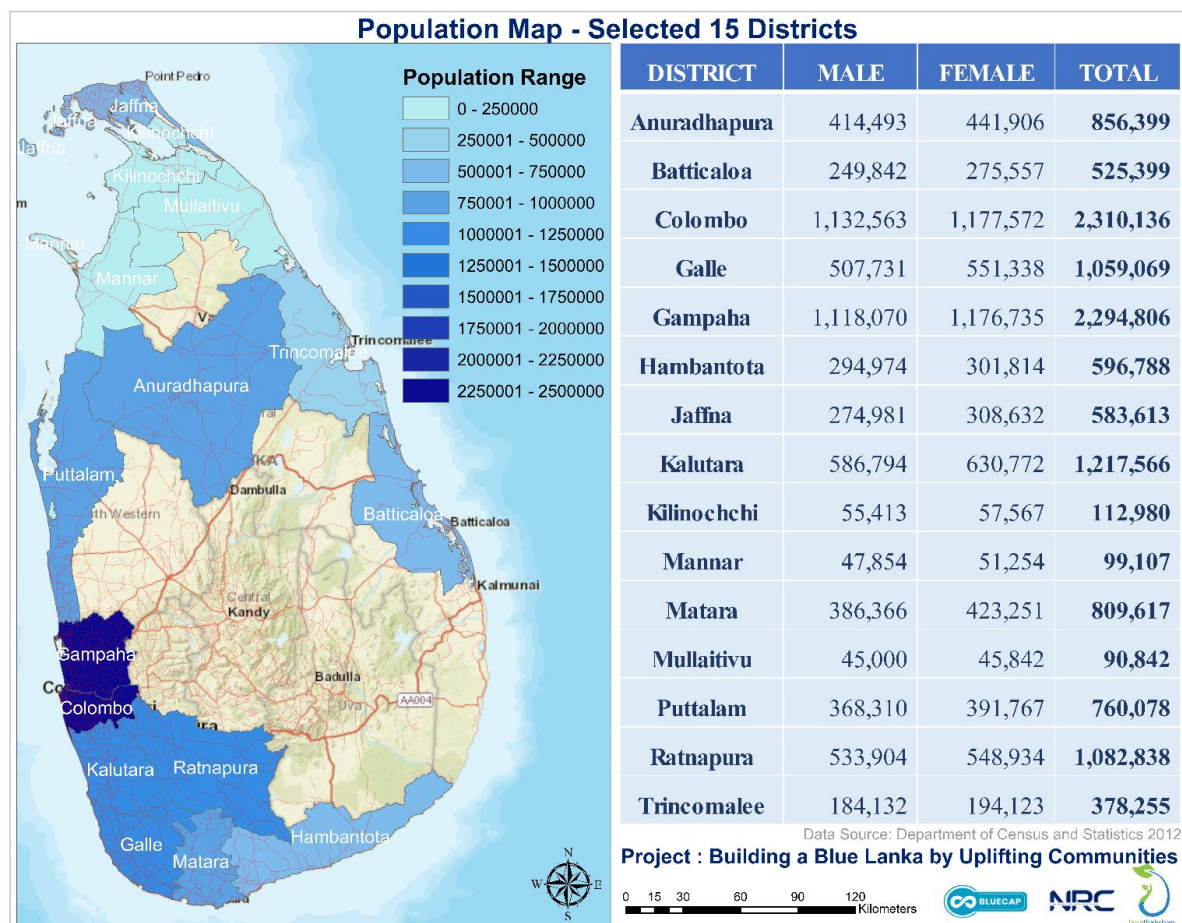
Mapping: mapping is a process where a hotspot/generator is identified, and its GPS coordinates are marked in a district or country Map. Or the name/ address/ quantity is recorded in a tabulated format.

Waterways: a water way is identified as a large drain (drain serving more than one household or institution) or Canal (irrigation or otherwise) that ultimately connects to a river.

River mouths: is a location where a water way falls into a river, or a river falls into the sea.

METHODOLOGY

Geographical Scope



Map 1 Population Map (2012) - Selected Districts

This survey was conducted in all project-implementing districts, including 13 coastal districts and 2 inland districts. Within each district, the project focused on coastal areas and major urban centers known for generating substantial amounts of plastic waste.

Survey Methodology

The intercept survey methodology was used to identify the plastic waste generating hotspots in the respective districts, through observation and involving respondents, or multiple respondents scoping out a specific waste generating hotspot. The data collection was carried out by the 15 BLUECAP project Field Officers recruited from the respective project districts by using an open-source field data collection suite. Data collection and recording will be done by mobile phones. Plastic waste generating hotspot's location GPS points and photos will be captured during the survey exercise.

Data Collection Tools

A structured questionnaires were administered by using Kobo Toolbox survey suit, an open-source suite of tools designed for field data collection. The survey questionnaires are attached as annexes to this report.

Data Analysis and Mapping

The data and analysis of the information gathered from the questionnaire survey will be recorded digitally by using MS Excel. Descriptive Statistics will be used to analyze the quantitative data of the questionnaire survey. Maps will be developed by using ArcGIS for spatial analysis.

Data Collection Challenges and Limitations

During our data collection efforts, Field Officers encountered several technical and environmental obstacles that hindered the accurate capture of GPS coordinates. These challenges included:

- The main limitation was the establishment of a uniformity of defining the hotspot since the hotspot was selected based on visual observations this had a subjective element from each field officer and based on local features of each district. (eg: a average polluted location in a very clean surrounding might appear more visually disturbing than a high polluted location in an unclean environment) but this was overcome by field officers trying to estimate a quantification through information obtained from respondents and observation.
- Device Limitations: Some devices experienced difficulties with GPS functionality due to weak signal strength.
- Network Connectivity Issues: Poor network coverage in certain areas limited the ability to obtain GPS locations.

The absence of GPS coordinates has led to discrepancies between the values analyzed on maps and those reported. This inconsistency in geospatial analysis has resulted in the absence of hotspots in the plotted maps of each district and national level country map. Despite these challenges, the report included all identified hotspots in the overall analysis to ensure comprehensive coverage.

ANALYSIS

Current Disposal Method of Plastic Waste in 15 project districts

The objective of this survey question is to identify the district wise plastic waste generators disposal method of waste plastic. Therefore, several pre identified plastic waste generators were surveyed to identify the district wise plastic waste disposal methods. By integrating the data collected in 15 project districts i.e. Anuradhapura, Batticaloa, Colombo, Galle, Gampaha, Hambantota, Jaffna, Kalutara, Kilinochchi, Mannar, Matara, Mullaitivu, Puttalam, Ratnapura and Trincomalee, an analysis was carried out to identify the plastic waste disposal methods comprising 15 districts in Sri Lanka. The following figure elaborates the methods of waste plastic disposal in 15 project districts in Sri Lanka.

Out of the 2777 plastic waste generating hotspots surveyed covering 15 project districts, 40% is collected or handed over to the local authorities i.e. Municipal councils, Urban Councils and Pradeshiya Sabha. Burning (22%) is the second most common disposal method and 19% of plastic waste is dumped illegally.

The figures are validated by the comparison to the National Action Plan on Plastic Waste Management 2021 -2030 (page iv) as 32% of plastic waste is received by local authorities as a national average.

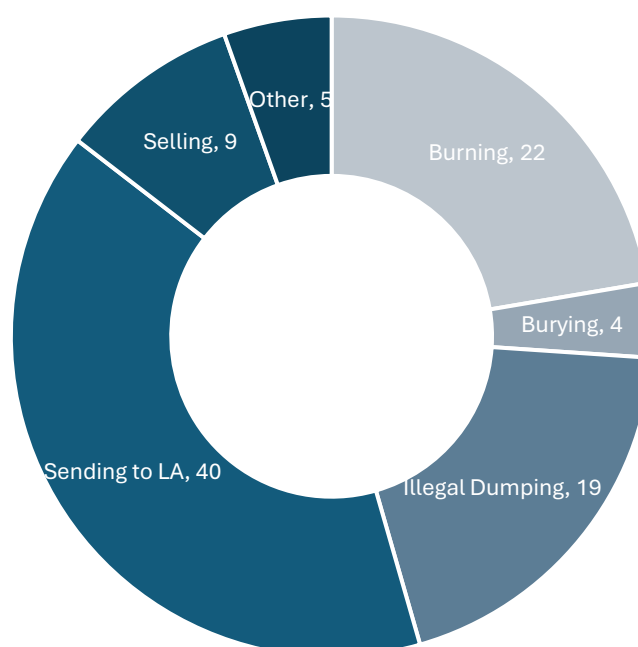


Figure 1 Current Disposal Method of Plastic Waste - Selected 15 Districts

District-wise plastic waste disposal method

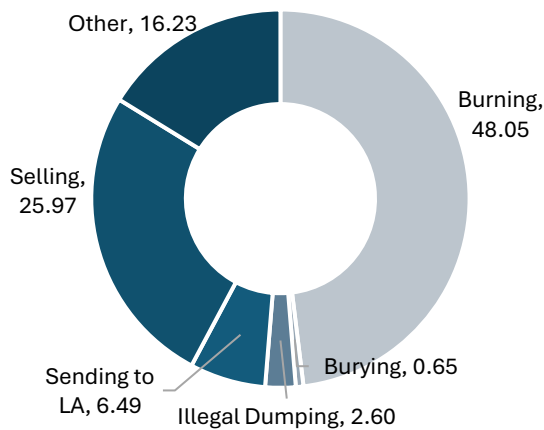


Figure 2 Current Plastic Waste Disposal Method - Anuradhapura District

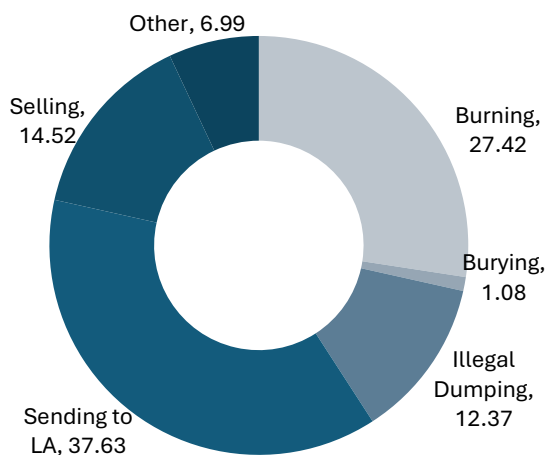


Figure 3 Current Plastic Waste Disposal Method - Batticaloa District

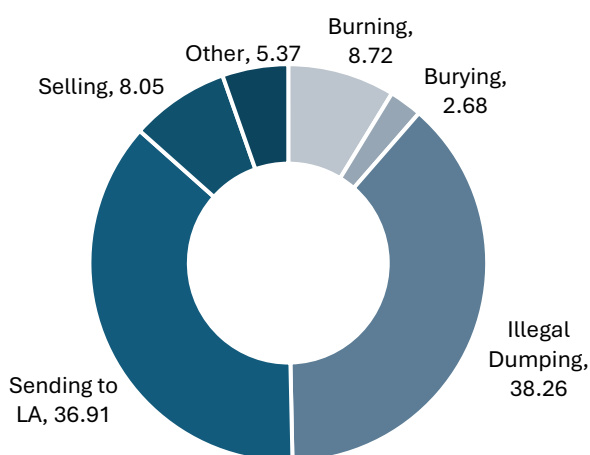


Figure 4 Current Plastic Waste Disposal Method - Colombo District

Anuradhapura District

A total of 154 plastic waste generating hotspots were identified, out of that, a majority (48%) of hotspots are burning their plastic waste. The majority of the hotspots are food and beverage sector generators.

Batticaloa District

A total of 186 plastic waste generating hotspots were identified, out of that, a majority (38%) of hotspots are sending their waste to local authorities. The majority of the hotspots are food and beverage sector generators.

Colombo District

A total of 149 plastic waste plastic generating hotspots were identified, out of that, a majority (38%) of hotspots do illegal dumping. Also, 37% of the hotspots hand over their plastic waste to respective local authority. The majority of the hotspots are generators in the communities (households).

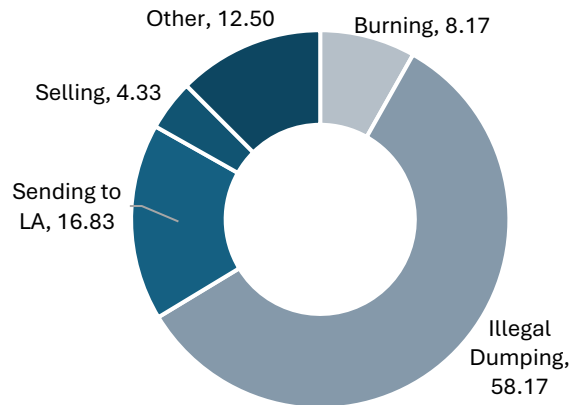


Figure 5 Current Plastic Disposal Method - Galle District

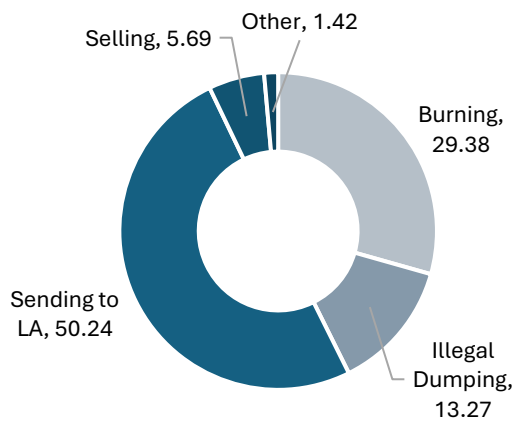


Figure 6 Current Plastic Waste Disposal Method - Gampaha District

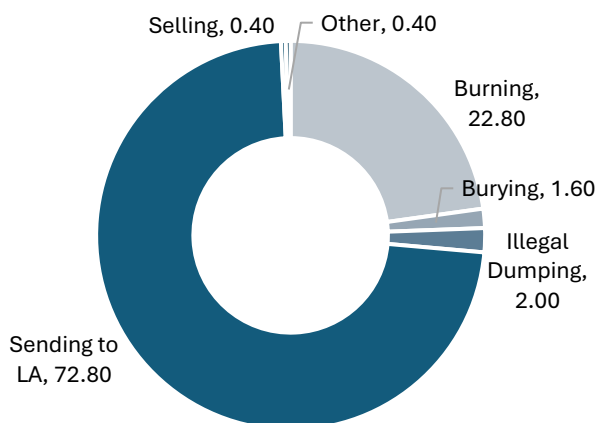


Figure 7 Current Plastic Waste Disposal Method - Hambantota District

Galle District

A total of 208 plastic waste plastic generating hotspots were identified, out of that, that 58% of hotspots are Illegal dumping locations. The majority of the generators are in the transport sector.

Gampaha District

A total of 211 plastic waste plastic generating hotspots were identified, out of that, 50% of waste generators send their waste to local authorities. The majority of the generators are in the food and beverage sector.

Hambantota District

A total of 250 plastic waste plastic generating hotspots were identified, out of that, that 73% of generators send the waste to local authorities. The majority of the generators are in the food and beverage sector.

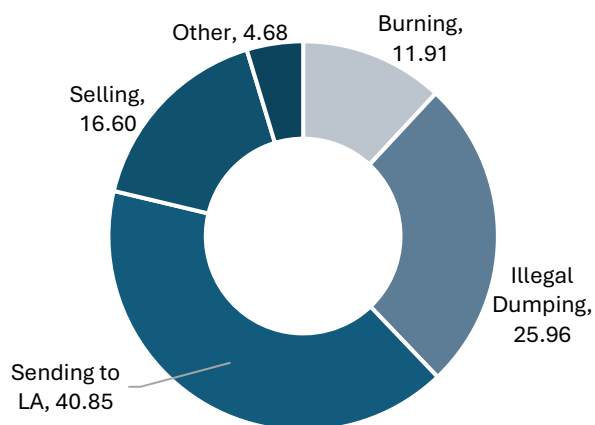


Figure 8 Current Plastic Waste Disposal Method - Jaffna District

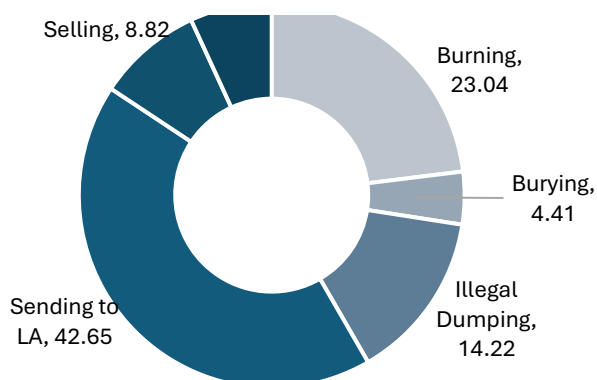


Figure 9 Current Plastic Waste Disposal Method - Kalutara District

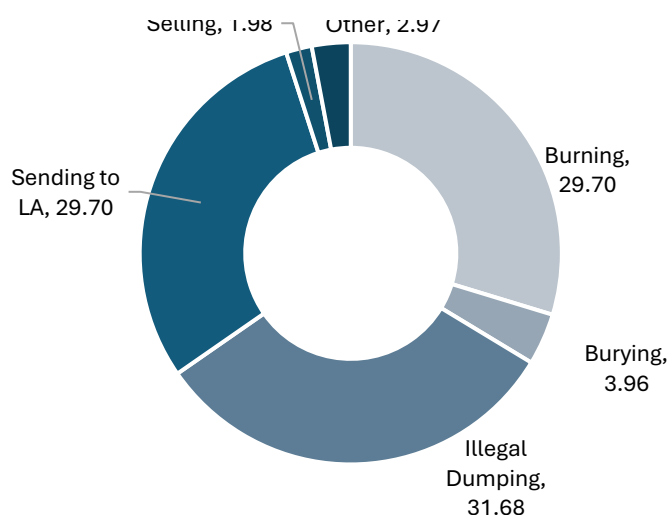


Figure 10 Current Plastic Waste Disposal Method - Kilinochchi District

Jaffna District

A total of 235 plastic waste plastic generating hotspots were identified, out of that, that 41% of generators send the waste to local authorities. The majority of the generators are in the food and beverage sector.

Kalutara District

A total of 204 plastic waste plastic generating hotspots were identified, out of that, 43% of generators send the waste to local authorities. The majority of the generators are in the food and beverage sector.

Kilinochchi District

A total of 101 plastic waste plastic generating hotspots were identified, out of that, that 32% of hotspots are Illegal dumping locations. The majority of the generators are in the food and beverage sector.

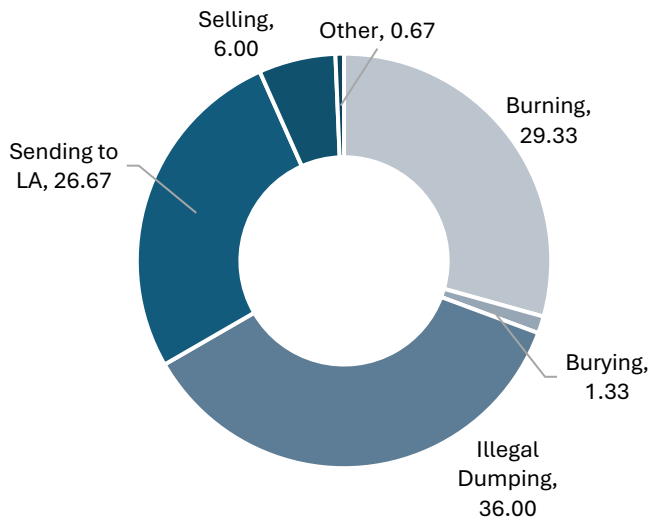


Figure 11 Current Plastic Waste Disposal Method - Matara District

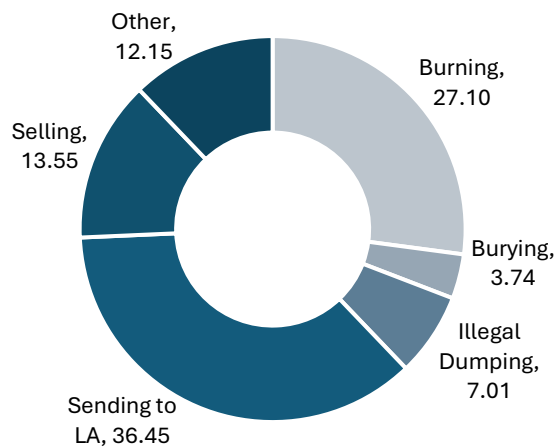


Figure 12 Current Plastic Waste Disposal Method - Matara District

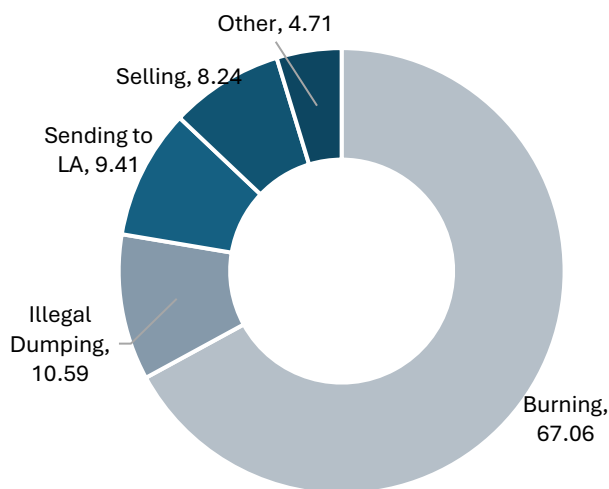


Figure 13 Current Plastic Waste Disposal Method - Mullaitivu District

Mannar District

A total of 150 plastic waste plastic generating hotspots were identified, out of that, that 38% of hotspots are Illegal dumping locations. The majority of the generators are in the food and beverage sector.

Matara District

A total of 214 plastic waste plastic generating hotspots were identified, out of that, that 36% of generators send the waste to local authorities. The majority of the generators are in the community.

Mullaitivu District

A total of 85 plastic waste plastic generating hotspots were identified, out of that, that 67% of hotspots are burning plastic waste. The majority of the generators are in the food and beverage sector.

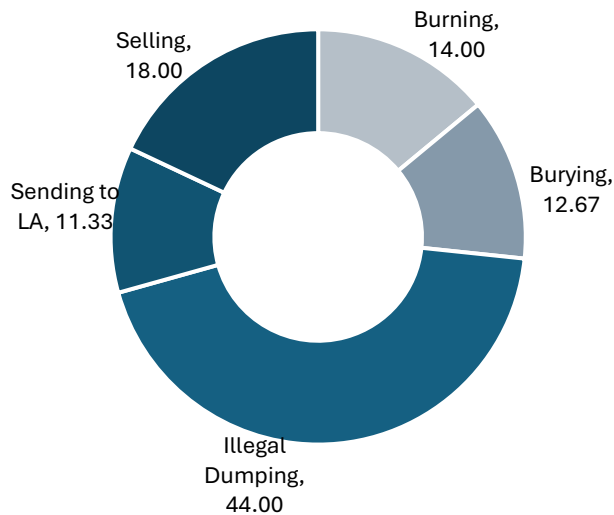


Figure 14 Current Plastic Waste Disposal Method - Puttalam District

Puttalam District

A total of 150 plastic waste plastic generating hotspots were identified, out of that, that 44% of hotspots are Illegal dumping locations. The majority of the generators are in the community.

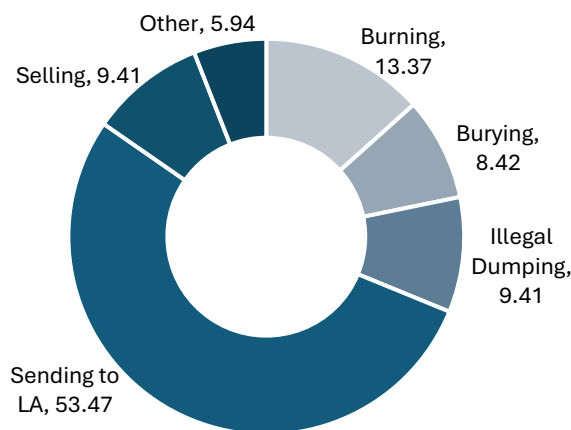


Figure 15 Current Plastic Waste Disposal Method - Ratnapura District

Ratnapura District

A total of 202 plastic waste plastic generating hotspots were identified, out of that, that 53% of generators send the waste to local authorities. The majority of the generators are in the food and beverage sector.

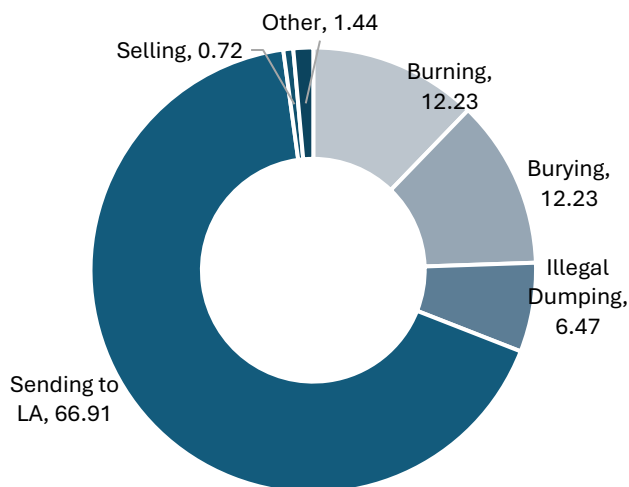


Figure 16 Current Plastic Waste Disposal Method - Trincomalee District

Trincomalee District

A total of 278 plastic waste plastic generating hotspots were identified, out of that, that 67% of generators send the waste to local authorities. The majority of the generators are in the food and beverage sector.

Major Plastic Waste Generating Hotspots -Sectors

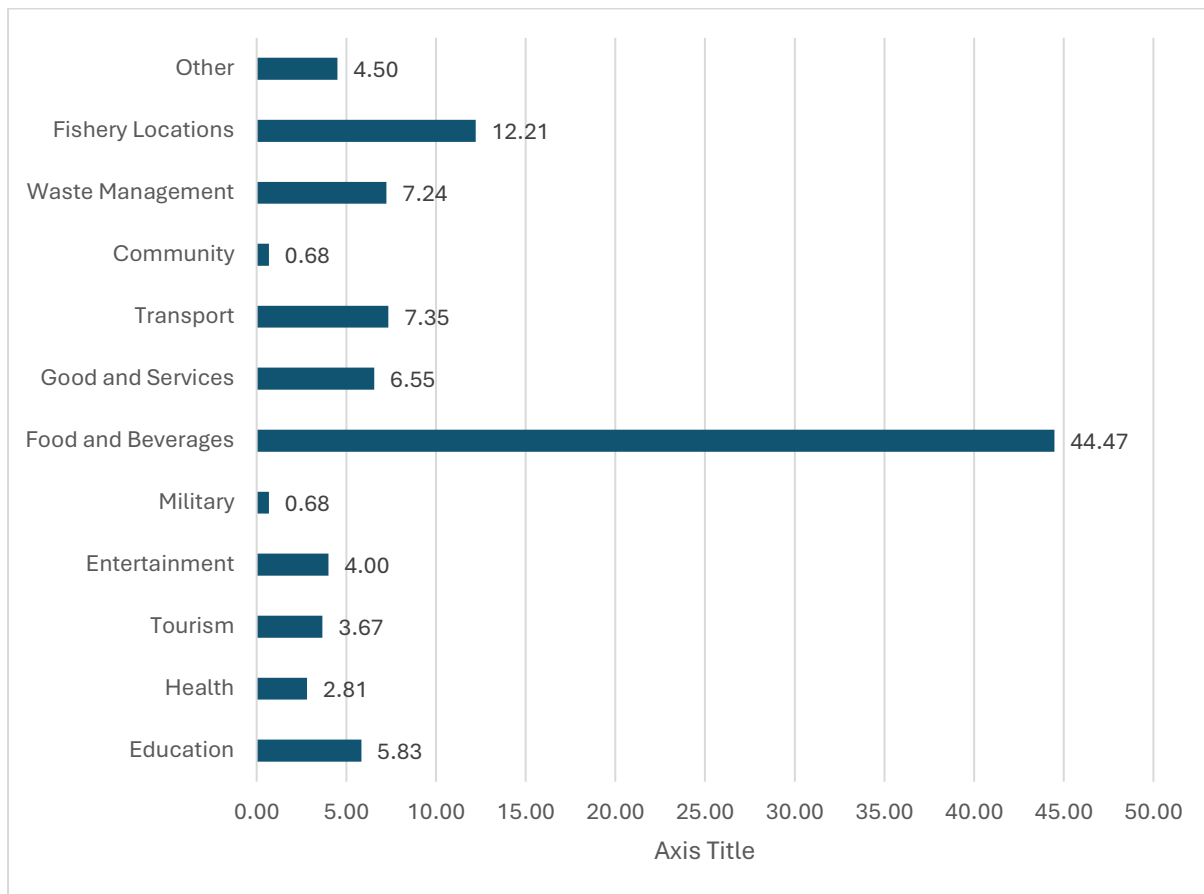


Figure 17 Major Plastic Waste Generating Hotspots -Sectors

44% of hotspots were mapped around the premises in the food and beverages sector such as restaurants, dining points, cafes etc. Hotspots around locations where fisheries activities are carrying out contributes 12% and locations relevant to the transport sector contributes 7 % as major plastic waste contributors.

Challenges in Plastic Waste Management

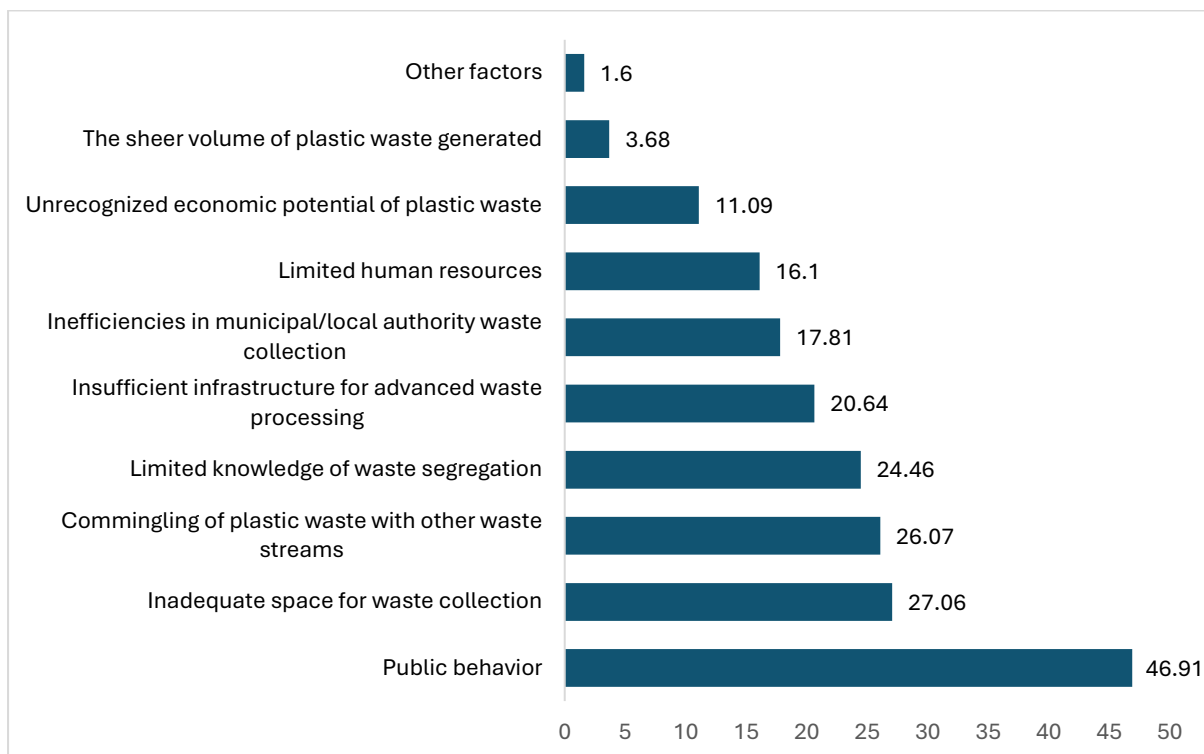
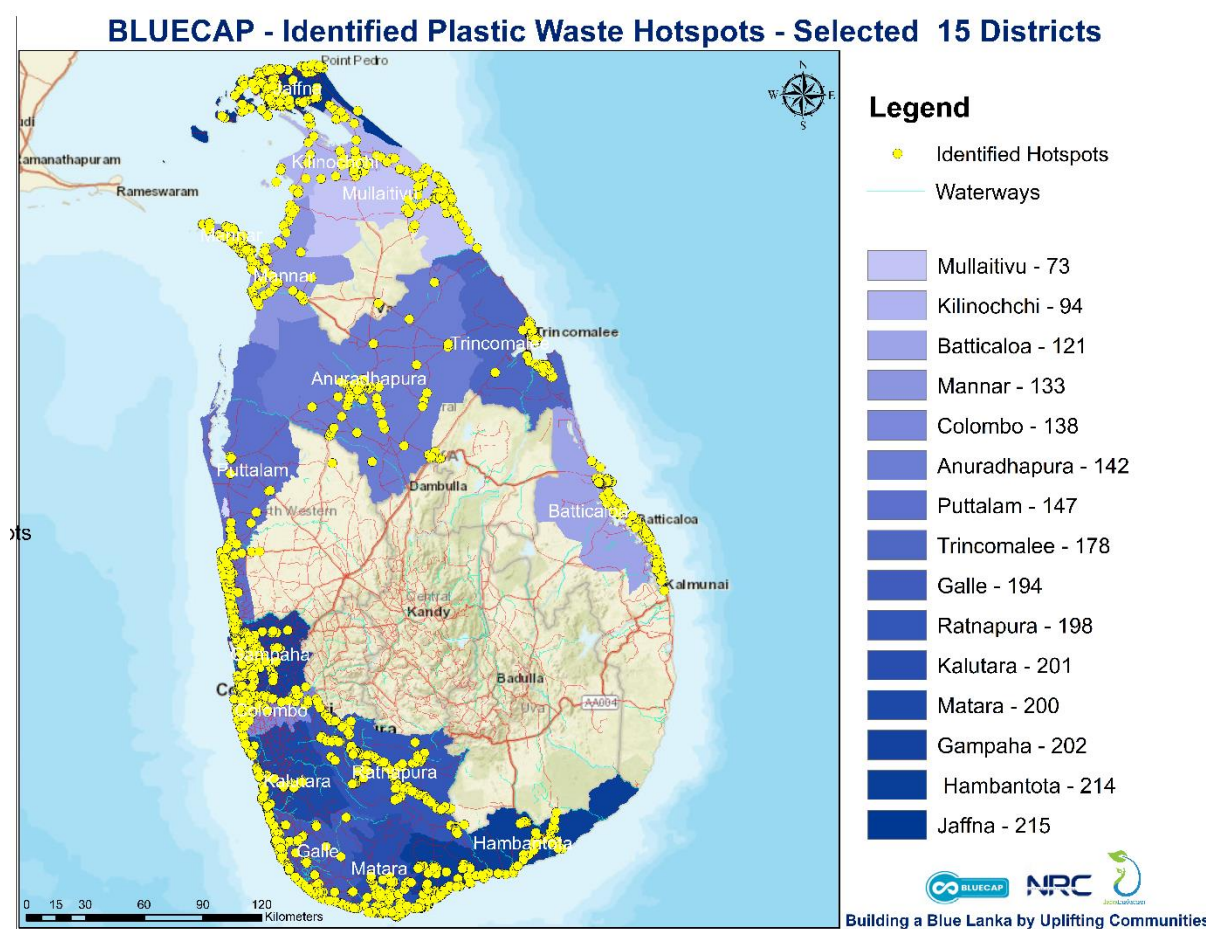


Figure 18 Challenges in Plastic Waste Management

Most hotspots show multiple challenges in proper management of plastic waste. The behaviors of the public are the most challenging factor (46.91%) for proper management of plastic waste in mapped hotspots. Inadequate spaces for waste Collection (27.06%) and commingling of plastic waste with other waste streams (26.07%) are the next most challenging factors, and limited knowledge of waste segregation is also in fourth but not much different (24.46%) with above two challenges.

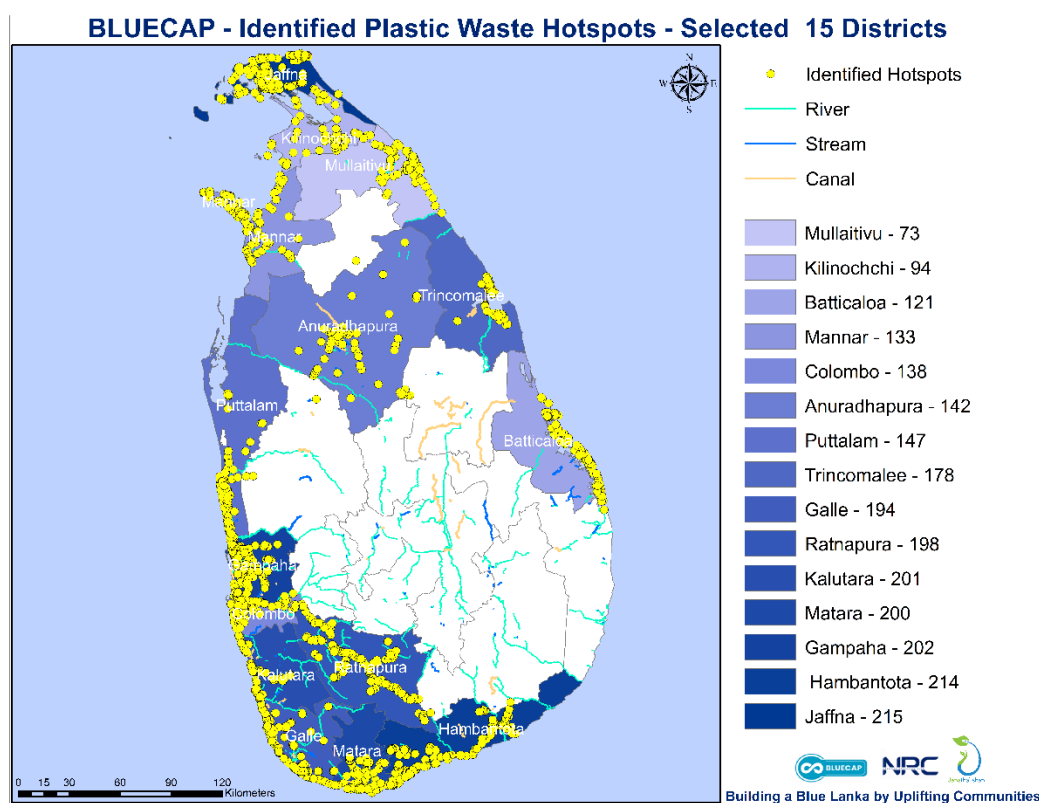
Identified plastic waste generating hotspots in the 15 project districts



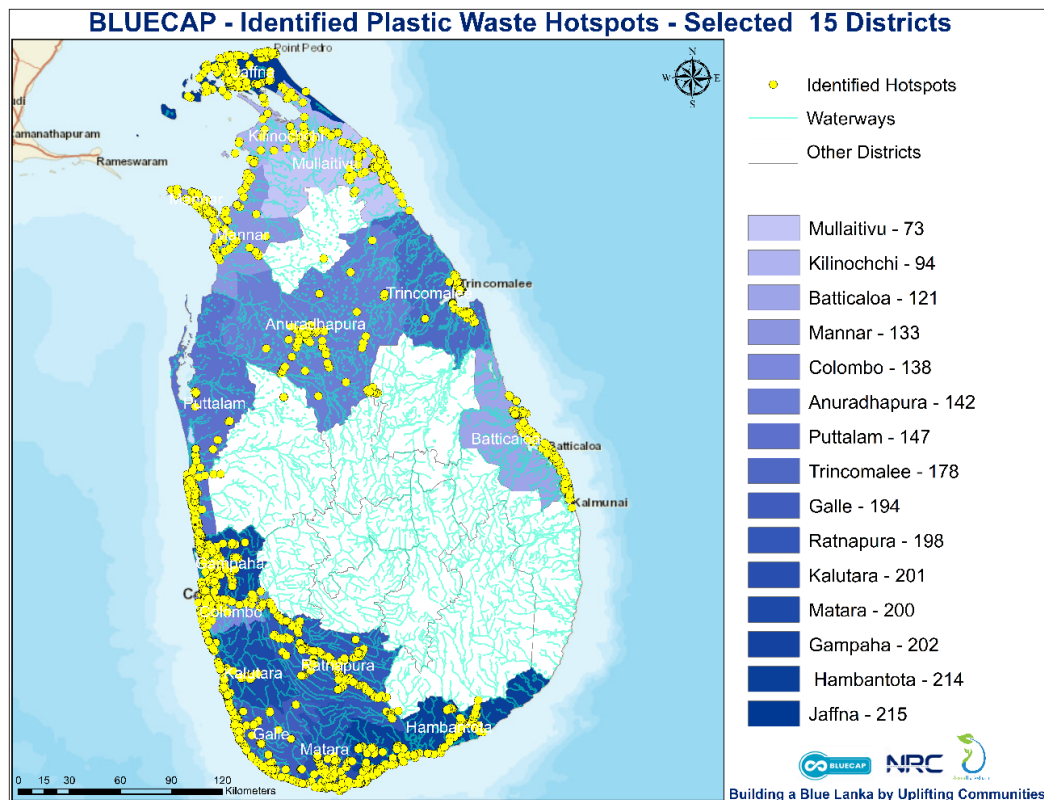
Map 2 Identified Plastic Waste Hotspots - Selected 15 Districts

The project surveyed 15 districts in Sri Lanka, which 13 are coastal districts and 02 districts are in the inland. A total of 2777 plastic waste generating hotspots were identified across the 15 project districts. The majority of the hotspots were located in the urban areas, specifically in the main cities of the respective districts. The majority of the waste plastic generators are in the Food and Beverage (F&B) sector including the hotels, restaurants, dining points, snack bars and clubs and pubs. This is accounted as 43% from the identified plastic waste generating hotspots.

Hotspots overlapping with waterways



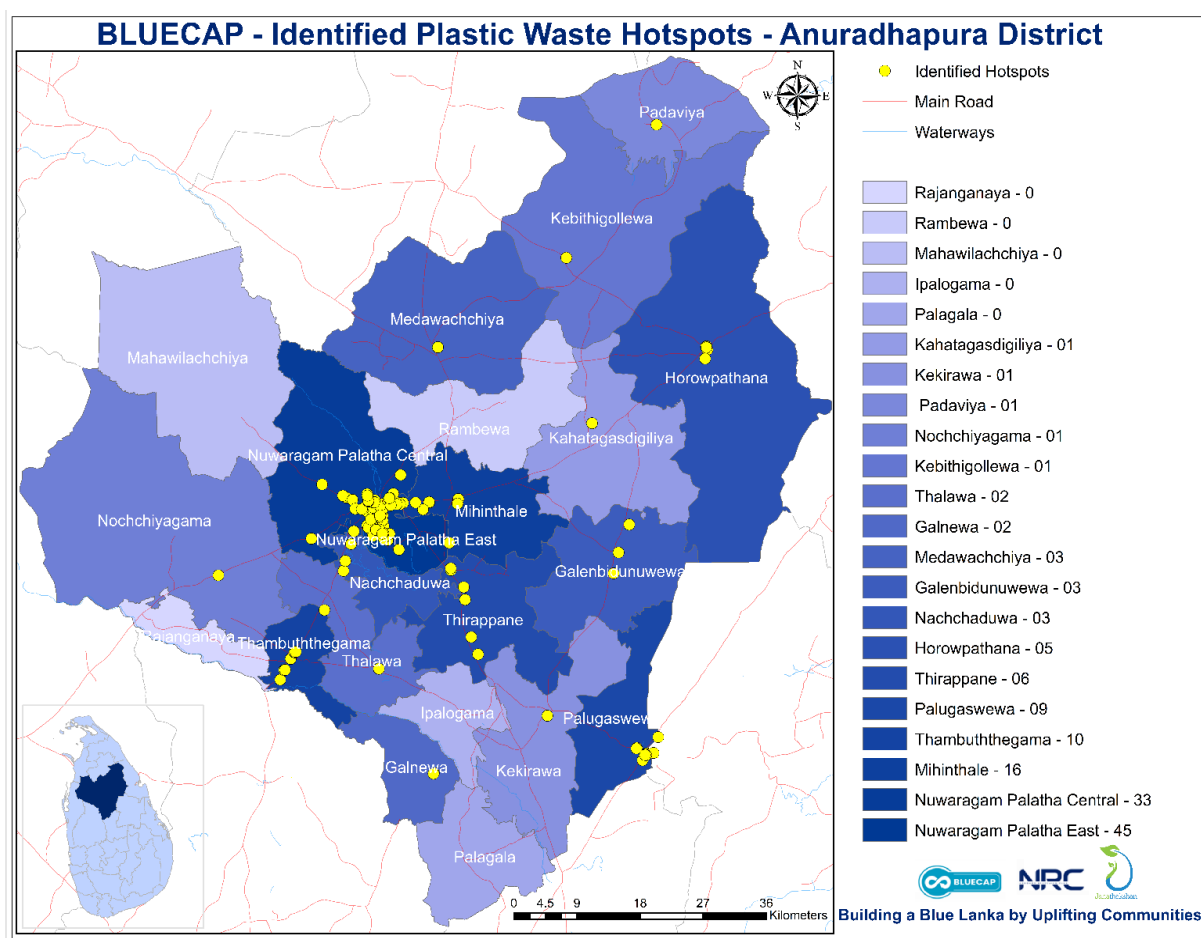
Map 4 3 Identified Plastic Waste Hotspots with waterways - Selected 15 Districts



Map 5 Hotspots overlapping with major rivers, streams and Canals

Sri Lanka has a radial network of rivers begins in the central highlands. There are about 103 distinct river basins covering 90 percent of the island. And as per this map number 05 and 06, majority of the plastic waste generating hotspots are overlapping with the major rivers, streams, canals and other water ways, it is clearly visible the high risk of water pollution if safe disposal doesn't take place. Also, Sri Lanka being a country that receives high rainfall during North- East and South-West monsoons, risk of water pollution from the waste plastic will aggravate due to the runoff can take the waste into water ways. Ultimately this ends up causing ocean pollution.

Identified plastic waste generating hotspots – Anuradhapura District



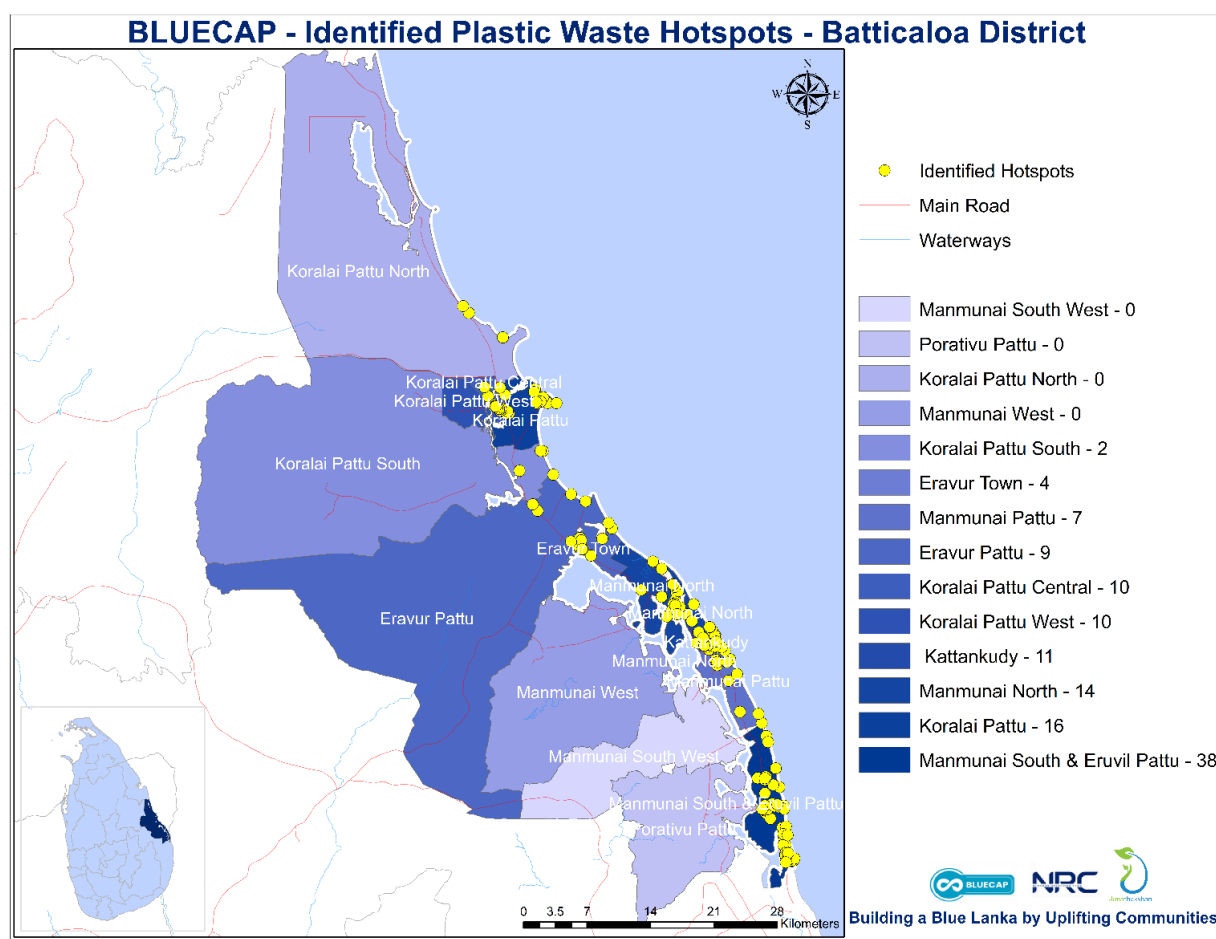
Map 4 Identified Plastic Waste Hotspots - Anuradhapura District

District Overview – Anuradhapura					
Population	856,399	Male	414,493	Female	441,906
Area (km ²)	7,179	Population density ⁴	129	Number of DSDs	22
Number of MCs	01	Number of UCs	-	Number of PSs	18

A total of 154 plastic waste generating hotspots were identified in the Anuradhapura district. The majority of the hotspots are in the Nuwaragam Palatha Central and Nuwargam Palatha East divisional secretariat divisions (DSDs). These DSDs cover the main cities and urbanized areas of the district. Especially, the major tourist attraction hotspots and hotels are in these two DSDs. The majority of waste generators are from the F&B sector, 90 out of the total 154 plastic waste generating hotspots reported.

⁴ Persons per KM²

Identified plastic waste generating hotspots – Batticaloa District

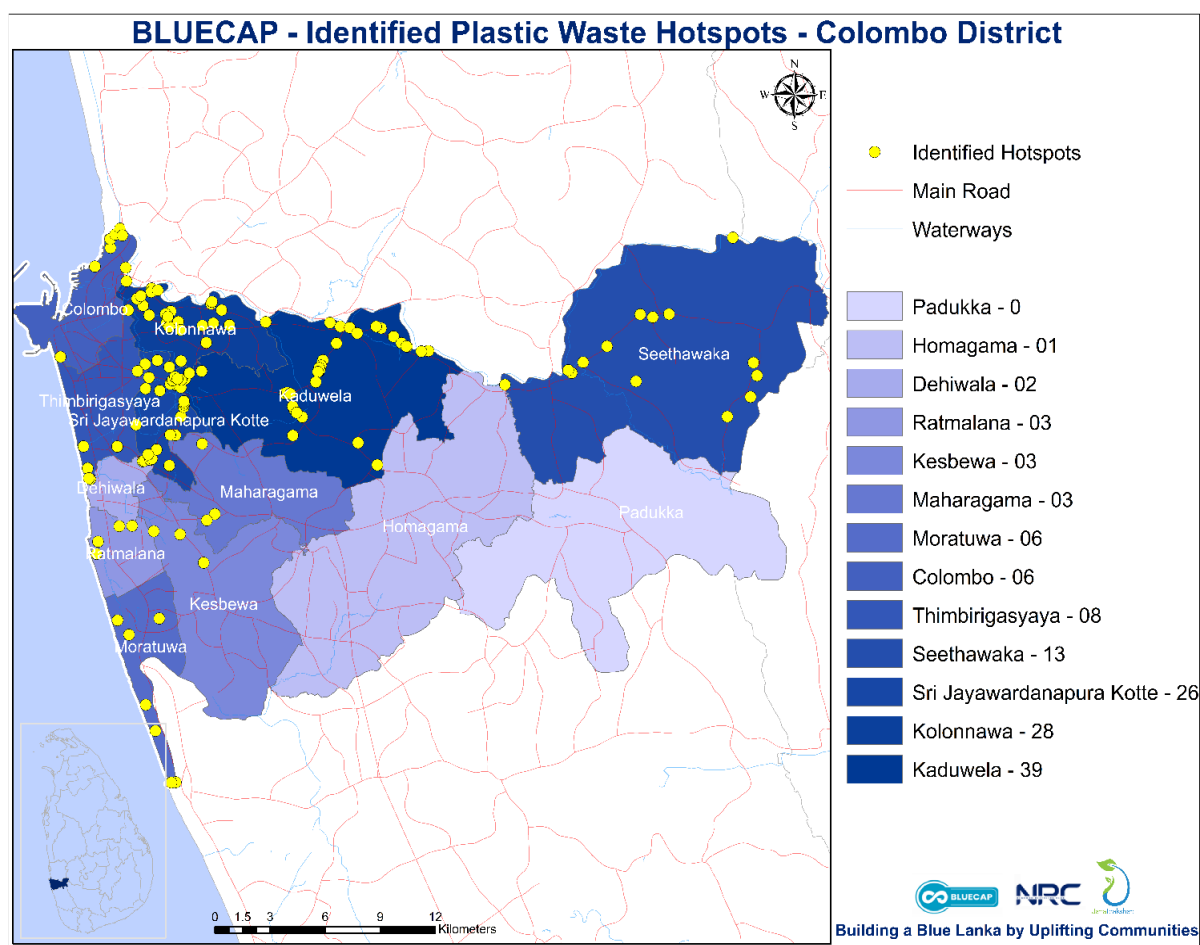


Map 5 Identified Plastic Waste Hotspots - Batticaloa District

District Overview – Batticaloa					
Population	525,399	Male	249,842	Female	275,557
Area (km ²)	2,854	Population density	201	Number of DSDs	14
Number of MCs	01	Number of UCs	02	Number of PSs	09

A total of 186 plastic waste generating hotspots were identified in the Batticaloa district. The majority of the hotspots are in the Manmunai South and Eruvil Pattu, Koralai Pattu and Manmunai North divisional secretariat divisions (DSDs). These DSDs cover the main cities and urbanized areas of the district around the lagoon. The majority of waste generators are from the F&B sector, reported 51 out of the total 186 plastic waste generating hotspots.

Identified plastic waste generating hotspots – Colombo District

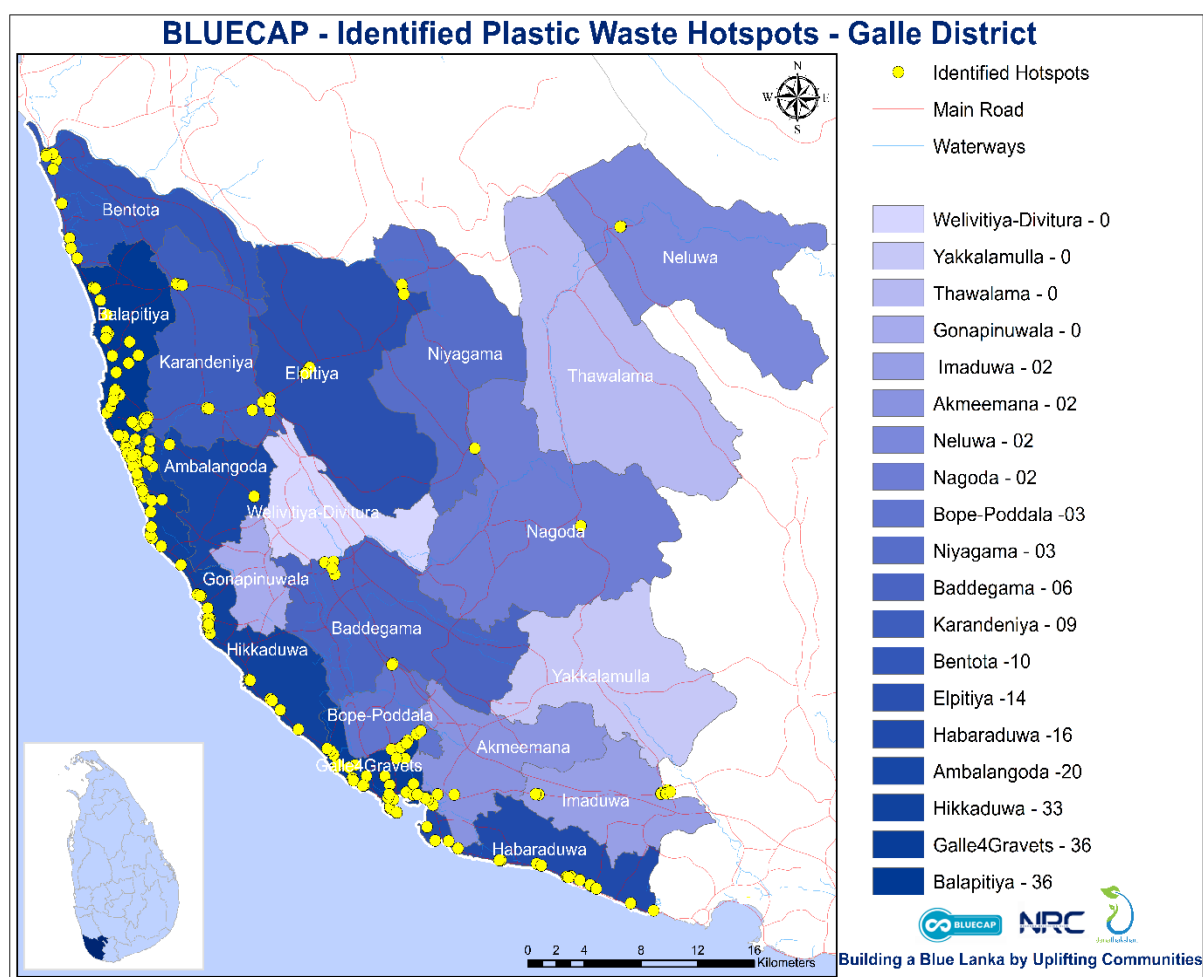


Map 6 Identified Plastic Waste Hotspots - Colombo District

District Overview – Colombo					
Population	2,310,136	Male	1,132,563	Female	1,117,52
Area (km ²)	699	Population density	3,417	Number of DSDs	13
Number of MCs	05	Number of UCs	05	Number of PSs	03

149 plastic waste generating hotspots were identified in the Colombo district. The majority of the hotspots are in the Kaduwela, Kollonawa and Sri Jayawardanapura Kotte divisional secretariat divisions (DSDs). These DSDs cover the main cities and urbanized areas of the district. The majority of waste generators are from the communities, 77 out of the total 149 plastic waste generating hotspots reported.

Identified plastic waste generating hotspots – Galle District

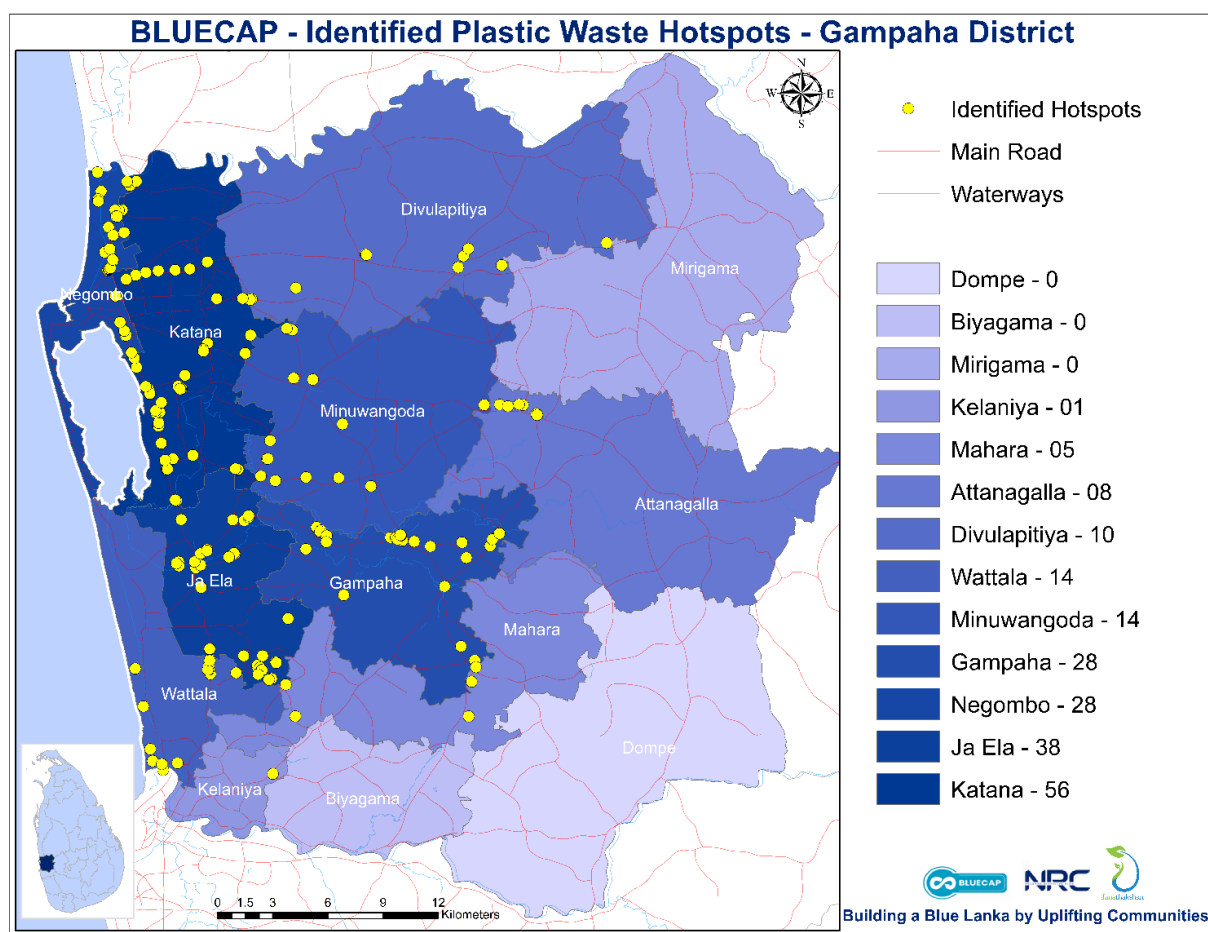


Map 7 Identified Plastic Waste Hotspots - Galle District

District Overview – Galle					
Population	1,059,069	Male	507,731	Female	551,338
Area (km ²)	1,652	Population density	655	Number of DSDs	19
Number of MCs	01	Number of UCs	02	Number of PSs	17

A total of 208 plastic waste generating hotspots were identified in the Galle district. The majority of the hotspots are in the Balapitiya, Galle Four Gravets, Hikkaduwa and Ambalangoda divisional secretariat divisions (DSDs). These DSDs cover the main cities and urbanized areas of the coastal belt of the district. Especially, the major tourist attraction hotspots and hotels are in these DSDs. The majority of waste generators are from the transport sector, 52 out of the total 208 plastic waste generating hotspots reported.

Identified plastic waste generating hotspots – Gampaha District

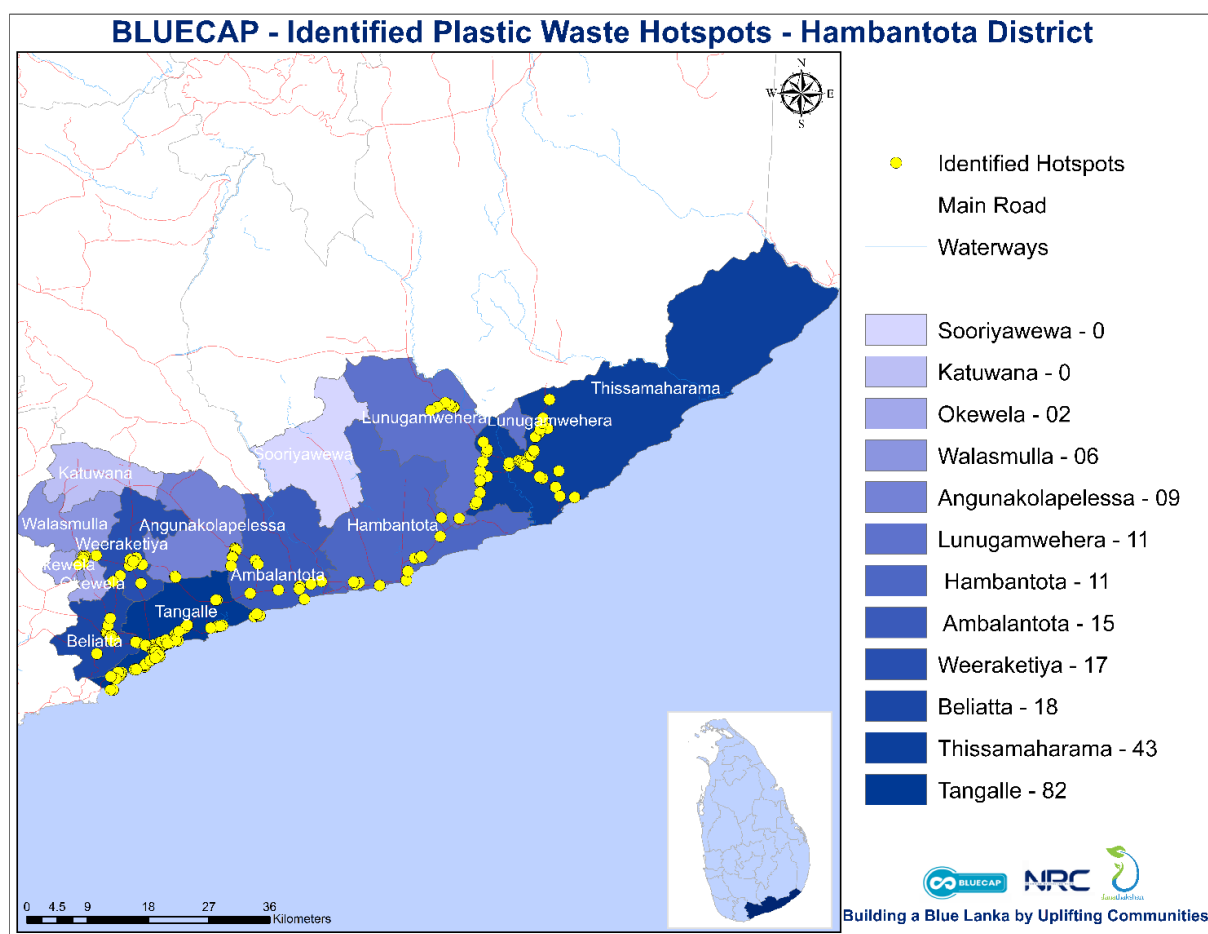


Map 8 Identified Plastic Hotspots - Gampaha District

District Overview – Gampaha					
Population	2,294,806	Male	1,118,070	Female	1,176,735
Area (km ²)	1,387	Population density	1,711	Number of DSDs	13
Number of MCs	02	Number of UCs	05	Number of PSs	12

211 plastic waste generating hotspots were identified in the Gampaha district. The majority of the hotspots are in the Katana, Ja-Ela, Negombo and Gampaha divisional secretariat divisions (DSDs). These DSDs cover the main cities and highly urbanized areas of the district. The majority of waste generators are from the F&B sector, reported 134 out of the total 211 plastic waste generating hotspots.

Identified plastic waste generating hotspots – Hambantota District

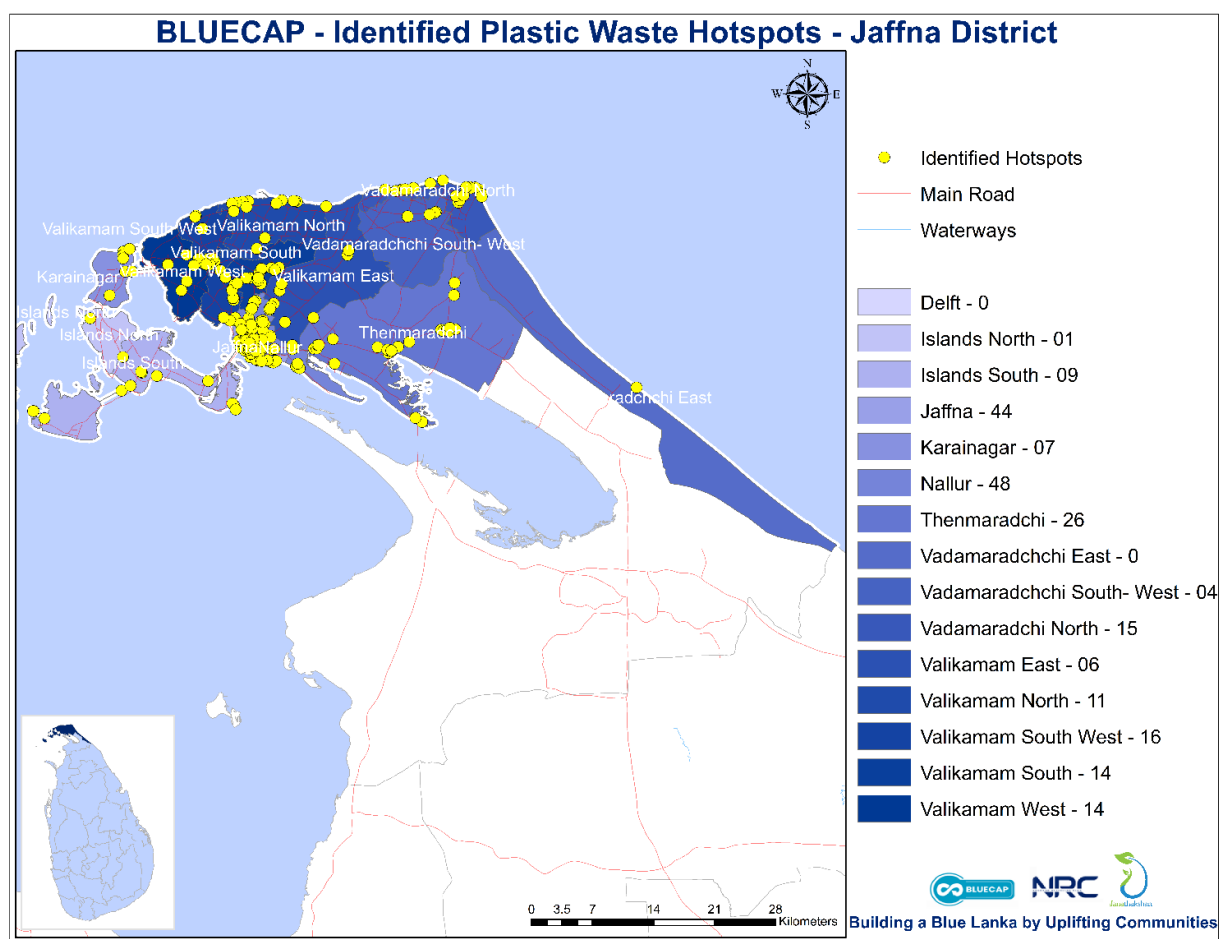


Map 9 Identified Plastic Waste Hotspots - Hambantota District

District Overview – Hambantota					
Population	596,788	Male	294,974	Female	301,814
Area (km ²)	2,609	Population density	239	Number of DSDs	12
Number of MCs	01	Number of UCs	01	Number of PSs	10

250 plastic waste generating hotspots were identified in the Hambantota district. The majority of the hotspots are in the Tangalle and Tissamaharama divisional secretariat divisions (DSDs). These DSDs cover the urbanized main cities in coastal and inland areas of the district and densely populated. The majority of waste generators are from the F&B sector, 189 out of the total 250 plastic waste generating hotspots reported.

Identified plastic waste generating hotspots – Jaffna District

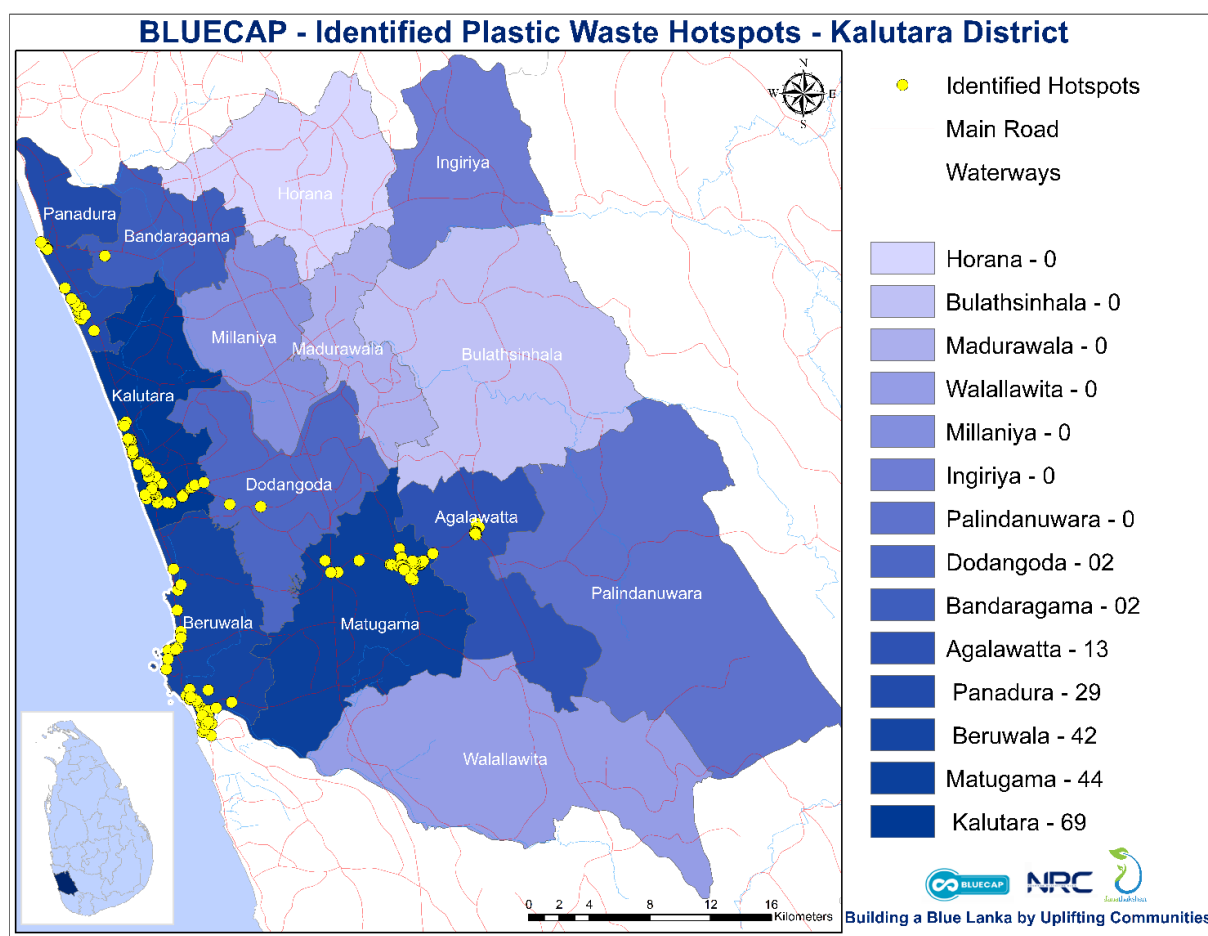


Map 10 Identified Plastic Waste Hotspots - Jaffna District

District Overview – Jaffna					
Population	583,613	Male	274,981	Female	308,632
Area (km ²)	1,025	Population density	628	Number of DSDs	15
Number of MCs	01	Number of UCs	03	Number of PSs	13

A total of 235 plastic waste generating hotspots were identified in the Jaffna district. The majority of the hotspots are in the Nallur and Jaffna divisional secretariat divisions (DSDs). These DSDs cover the main cities and urbanized areas of the coastal belt of the peninsula, with the major tourist attraction due to historical and cultural value and highly populated. The majority of waste generators are from the F&B sector, 62 out of the total 235 plastic waste generating hotspots reported.

Identified plastic waste generating hotspots – Kalutara District

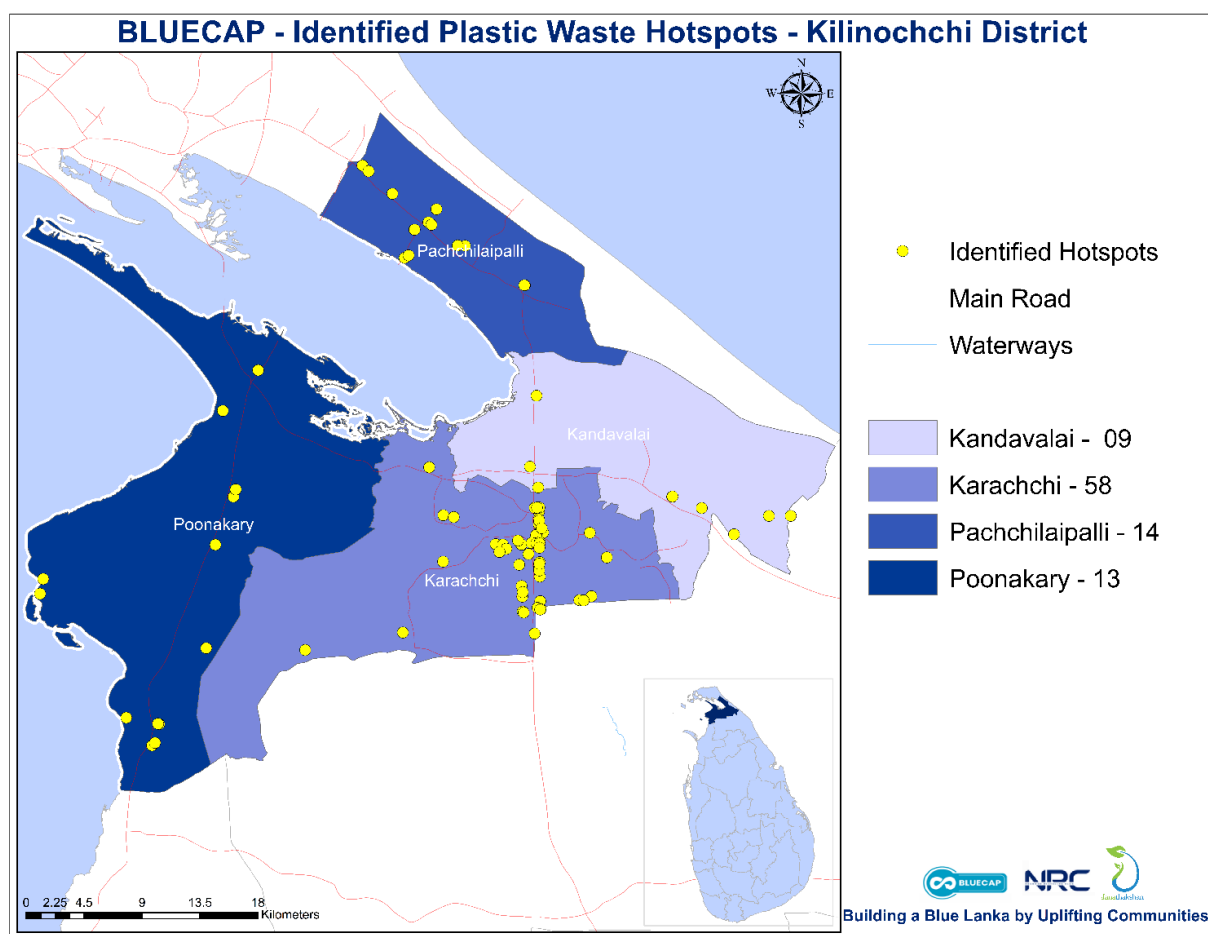


Map 11 Identified Plastic Waste Hotspots - Kalutara District

District Overview – Kalutara					
Population	1,217,566	Male	586,794	Female	630,772
Area (km ²)	1,598	Population density	773	Number of DSDs	
Number of MCs	01	Number of UCs	03	Number of PSs	13

A total of 204 plastic waste generating hotspots were identified in the Kalutara district. The majority of the hotspots are in the Kalutara, Matugama, and Beruwala divisional secretariat divisions (DSDs). These DSDs cover the main coastal areas which are highly populated and inland surrounded area of 'Kalu Ganga' river in the district. The majority of waste generators are from the F&B sector, reported 98 out of the total 204 plastic waste generating hotspots.

Identified plastic waste generating hotspots – Kilinochchi District

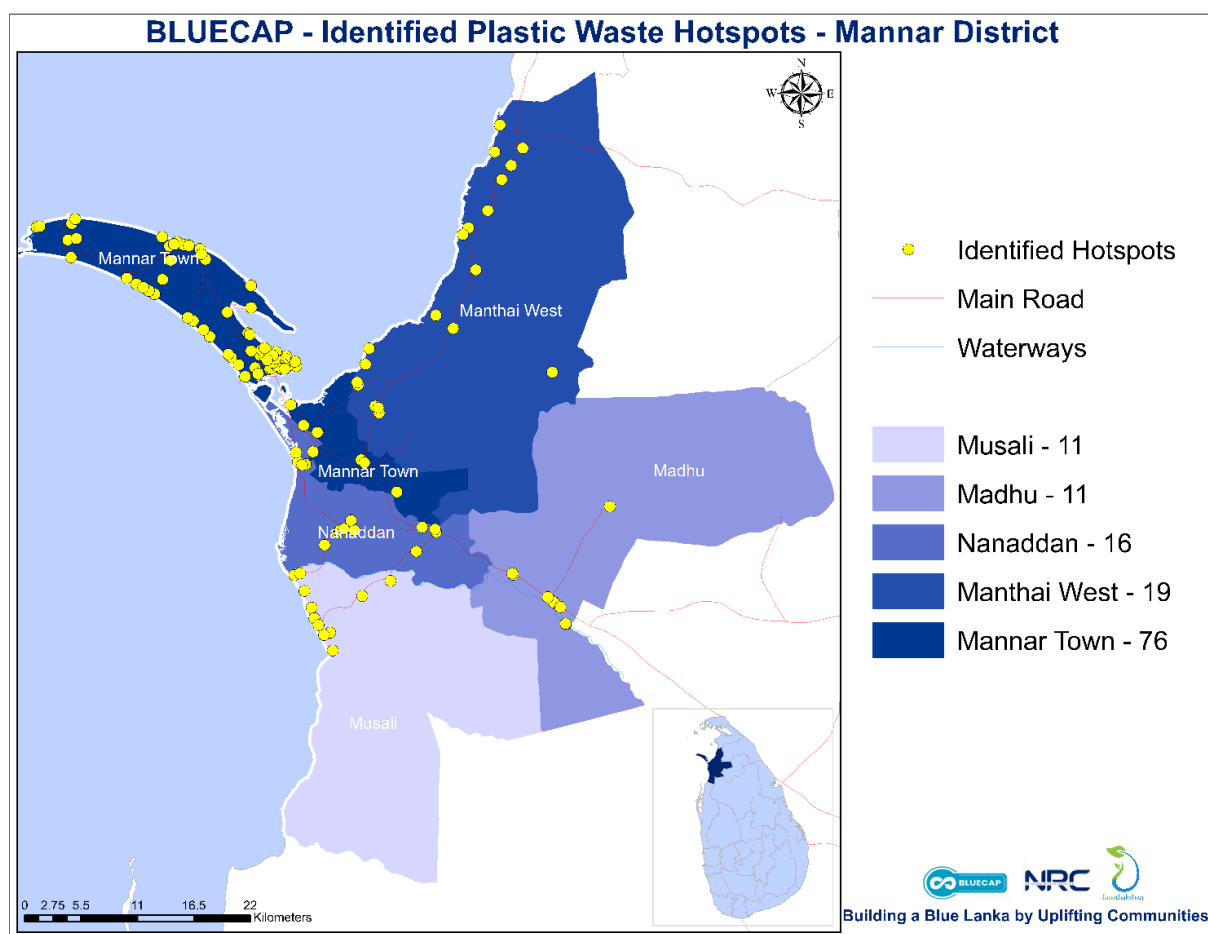


Map 12 Identified Plastic Waste Hotspots - Kilinochchi District

District Overview – Kilinochchi					
Population	112,980	Male	55,413	Female	57,567
Area (km ²)	1,279	Population density	94	Number of DSDs	04
Number of MCs	-	Number of UCs	-	Number of PSs	03

A total of 101 plastic waste generating hotspots were identified in the Kilinochchi district. The majority of the hotspots are around Karachchi divisional secretariat division (DSD). The DSD is around the lagoon, and most of the land is used for agriculture. The majority of waste generators are from the Waste Management sector, reported 26 out of the total 101 plastic waste generating hotspots.

Identified plastic waste generating hotspots – Mannar District

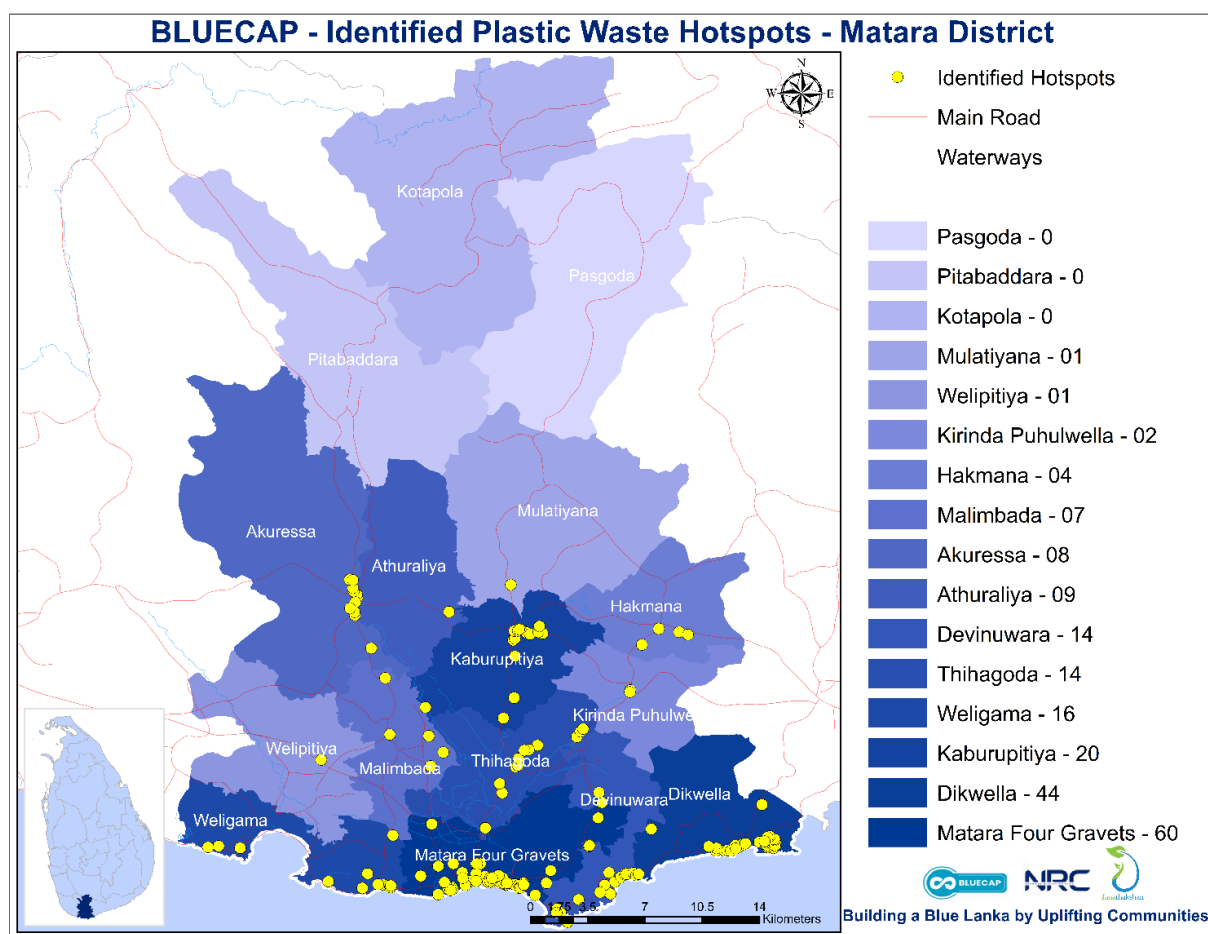


Map 13 Identified Plastic Waste Hotspots - Mannar District

District Overview – Mannar					
Population	99,107	Male	47,584	Female	51,254
Area (km ²)	1.996	Population density	53	Number of DSDs	05
Number of MCs	-	Number of UCs	01	Number of PSs	04

A total of 150 plastic waste generating hotspots were identified in the Mannar district. The majority of the hotspots are around Mannar Town divisional secretariat division (DSD). The DSD covers the main city located on Mannar Island overlooking the Gulf of Mannar. The majority of waste generators are from the communities, 46 out of the total 150 plastic waste generating hotspots reported.

Identified plastic waste generating hotspots – Matara District

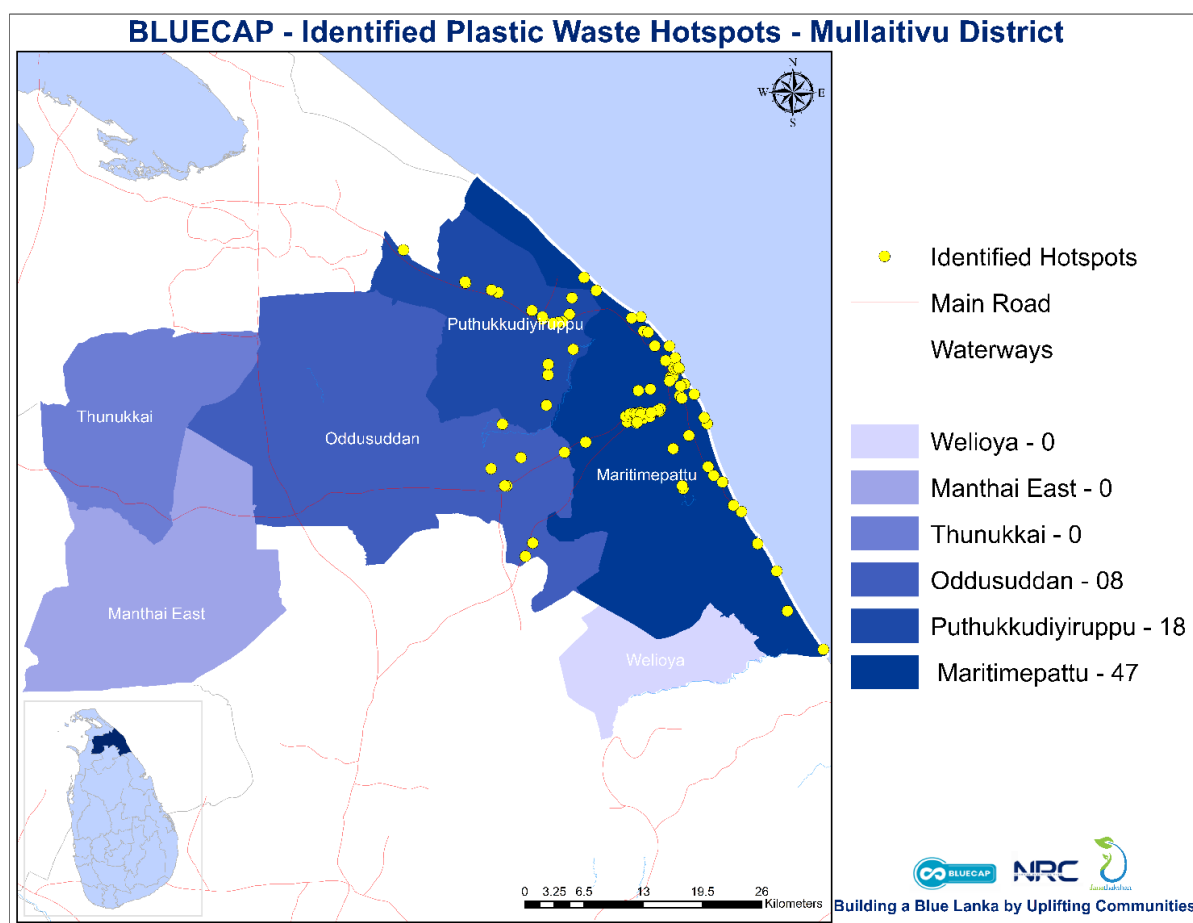


Map 14 Identified Plastic Waste Hotspots - Matara District

District Overview – Matara					
Population	809,617	Male	386,366	Female	423,251
Area (km ²)	1,258	Population density	637	Number of DSDs	16
Number of MCs	01	Number of UCs	01	Number of PSs	15

A total of 214 plastic waste generating hotspots were identified in the Matara district. The majority of the hotspots are in the Matara four Gravets and Dickwella divisional secretariat divisions (DSDs). These DSDs cover the main cities in the coastal area of the district. Especially, the major tourist attraction hotspots and hotels are in these two DSDs. The majority of waste generators are from the F&B sector, reported 165 out of the total 214 plastic waste generating hotspots.

Identified plastic waste generating hotspots – Mullaitivu District

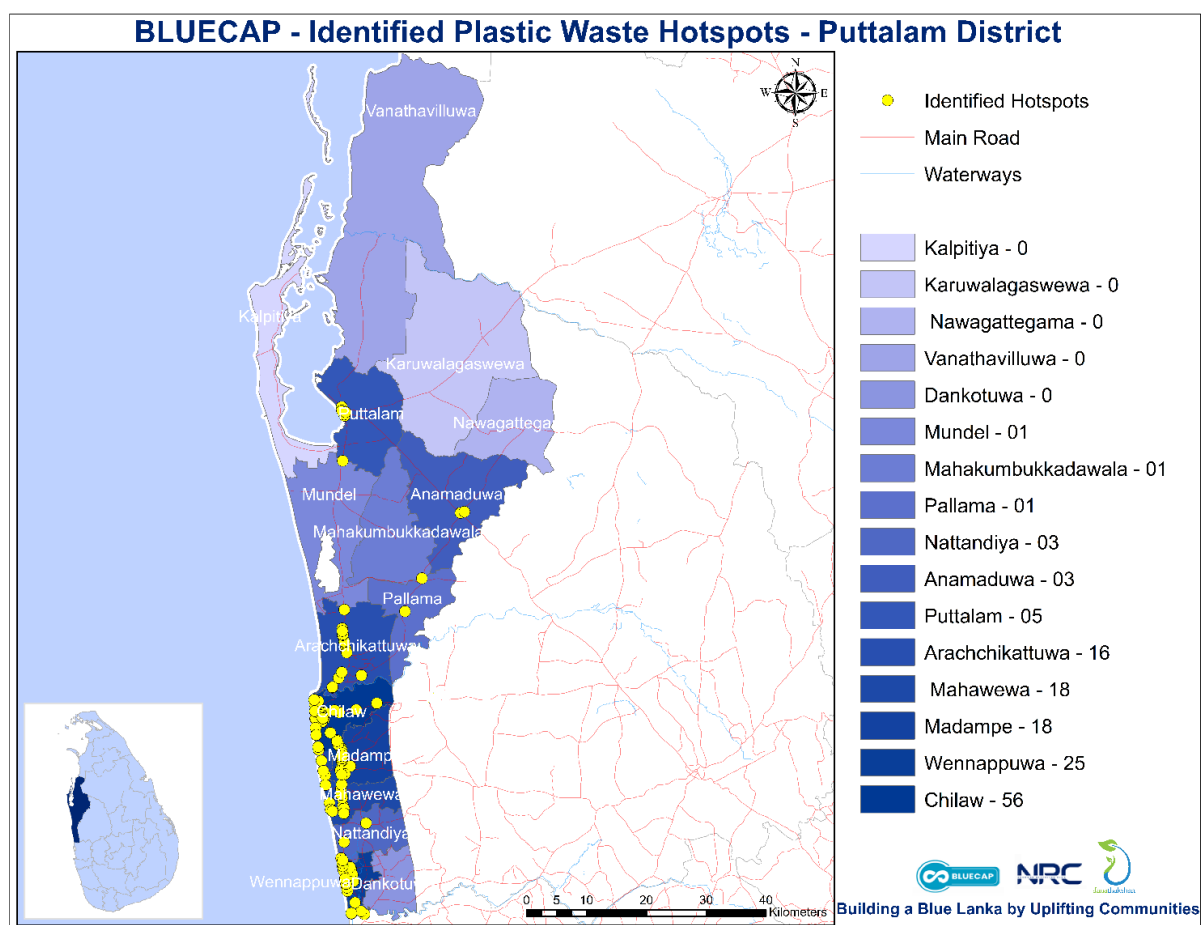


Map 15 Identified Plastic Waste Hotspots - Mullaitivu District

District Overview – Mullaitivu					
Population	90,842	Male	45,000	Female	45,842
Area (km ²)	2,617	Population density	38	Number of DSDs	06
Number of MCs	-	Number of UCs	-	Number of PSs	04

A total of 85 plastic waste generating hotspots were identified in the Mullaitivu district. The majority of the hotspots are around Maritimepattu divisional secretariat divisions (DSDs). This DSD covers most of the coastal area of the district. The majority of waste generators are from the Education sector, reported 27 out of the total 85 plastic waste generating hotspots.

Identified plastic waste generating hotspots – Puttalam District

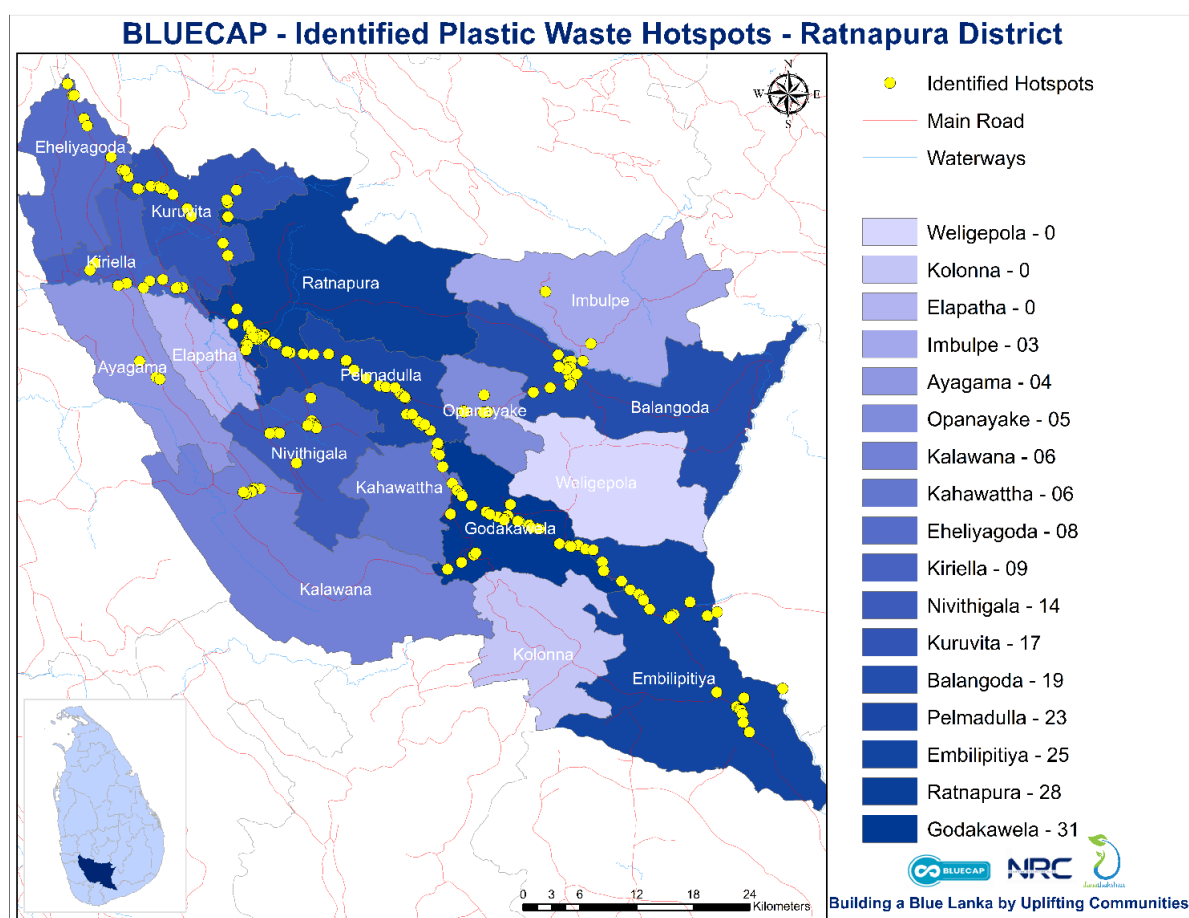


Map 16 Identified Plastic Waste Hotspots - Puttalam District

District Overview – Puttalam					
Population	760,078	Male	368,310	Female	391,767
Area (km ²)	3,072	Population density	264	Number of DSDs	16
Number of MCs	01	Number of UCs	01	Number of PSs	10

A total of 150 plastic waste generating hotspots were identified in the Puttalam district. The majority of the hotspots are in Chillaw and Wennapuwa divisional secretariat divisions (DSDs). These DSDs cover the main cities and urbanized areas in the coastal belt of the district. The majority of waste generators are from the communities, 44 out of the total 150 plastic waste generating hotspots reported.

Identified plastic waste generating hotspots – Ratnapura District

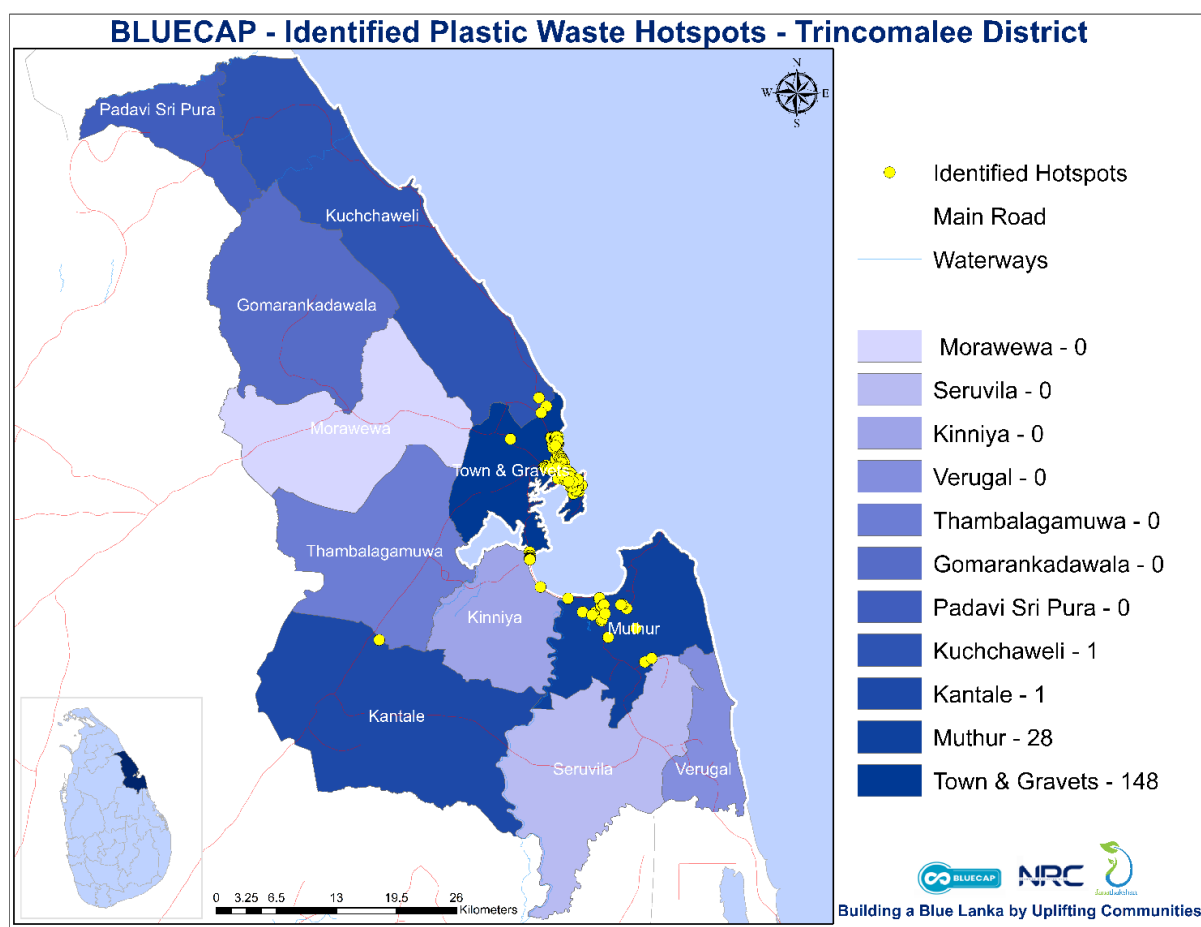


Map 17 Identified Plastic Waste Hotspots - Ratnapura District

District Overview – Ratnapura					
Population	1,082,838	Male	533,904	Female	548,934
Area (km ²)	3,275	Population density	335	Number of DSDs	17
Number of MCs	01	Number of UCs	02	Number of PSs	14

A total of 202 plastic waste generating hotspots were identified in the Ratnapura district. The majority of the hotspots are in Godakawela, Ratnapura, Embilipitiya and Pelmadulla divisional secretariat divisions (DSDs). These DSDs cover the main cities and urbanized areas consist of a few religious places in the district. The majority of waste generators are from the F&B sector, reported 114 out of the total 202 plastic waste generating hotspots.

Identified plastic waste generating hotspots – Trincomalee District



Map 18 Identified Plastic Waste Hotspots - Trincomalee District

District Overview – Trincomalee					
Population	378,255	Male	184,132	Female	194,123
Area (km ²)	2,727	Population density	150	Number of DSDs	11
Number of MCs	01	Number of UCs	01	Number of PSs	11

A total of 278 plastic waste generating hotspots were identified in the Trincomalee district. The majority of the hotspots are in Town and Gravets and Muthur divisional secretariat divisions (DSDs). These DSDs cover the coastal belt and lagoon of the district. The majority of waste generators are from the F&B sector, reported 114 out of the total 278 plastic waste generating hotspots.

Plastic Waste Collectors identified in the 15 project districts.

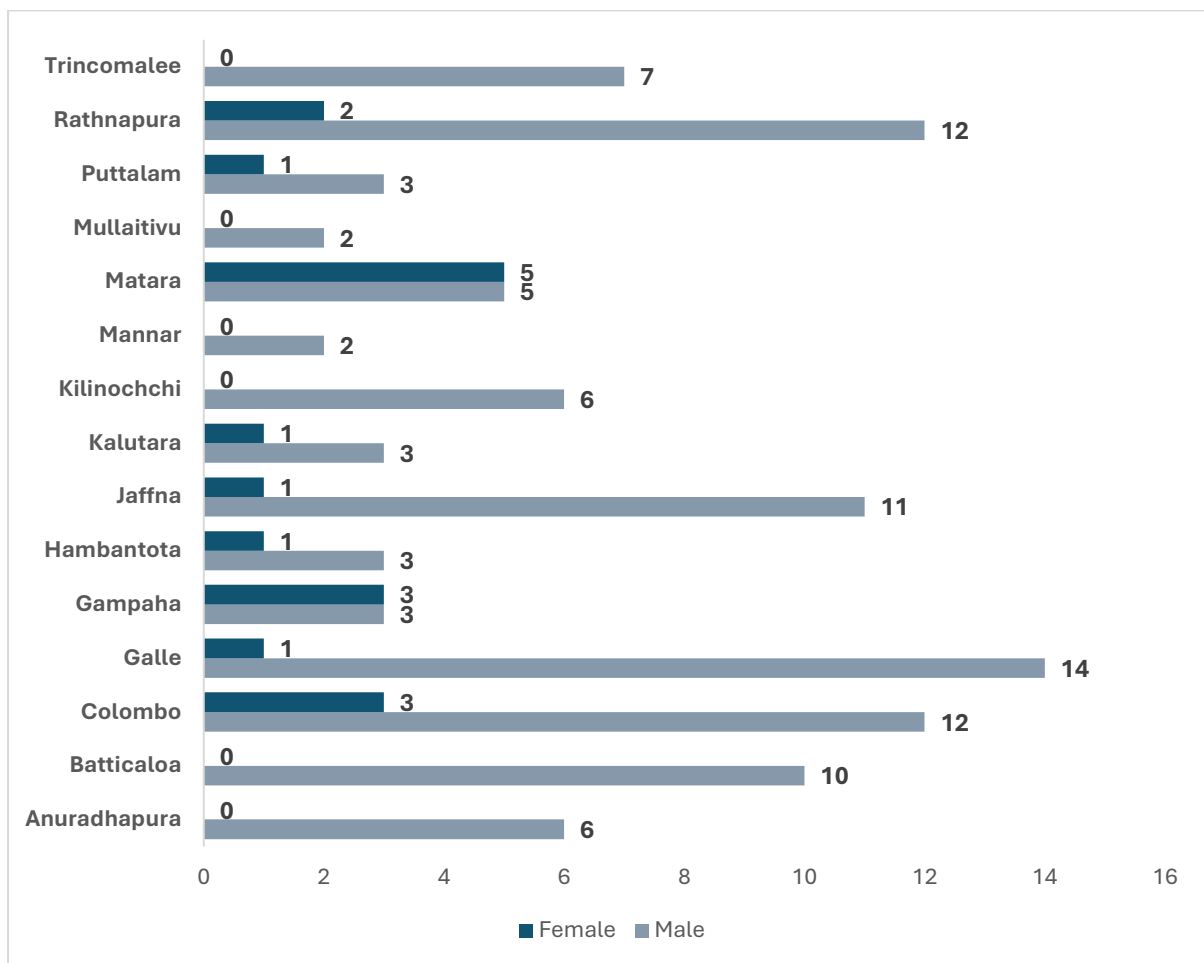


Figure 19 Plastic Waste Collectors identified in the 15 project districts

A total of 115 plastic waste collectors were identified across the 15 districts. Out of 115 plastic waste collectors, 97 collectors are men, and 18 collectors are women.

KEY FINDINGS

- A total of 2777 plastic waste generating hotspots were identified across the 15 districts, an average of 185 hotspots per district.
- Local Authorities (LA) collect 40% of the plastic waste generated at 2777 hotspots. This finding is in consistent with the national figure of 32% of plastic waste received by LAs as outlined in the National Action Plan for Plastic Waste Management- 2021-2030⁵. Of the 2777 hotspots, 22% of the generators burn their waste plastic, and 19% illegally dump their plastic waste.
- The food and beverage sector generates the majority of plastic waste, accounting for 44%. This includes hotels, restaurants, dining points, pubs and bars. Hotspots where fisheries activities are carried out, contributes 12% and locations relevant to the transport sector contributes 7 % as major plastic waste contributors.
- The majority of the hotspots were identified in the city centers and urbanized areas in the respective districts.
- Sri Lanka has a radial network of rivers begins in the central highlands. There are about 103 distinct river basins covering 90 percent of the island. And as per this map number 05 and 06, majority of the plastic waste generating hotspots are overlapping with the major rivers, streams, canals and other water ways, it is clearly visible the high risk of water pollution if safe disposal doesn't take place. Also, Sri Lanka being a country that receives high rainfall during North- East and South-West monsoons, risk of water pollution from the waste plastic will aggravate due to the runoff can take the waste into water ways. Ultimately this ends up causing ocean pollution.
- The major challenge for proper disposal of plastic waste is the public behaviors, this is recorded as 47% from the responses received. Respectively, inadequate space for waste collection is 28% and commingling of plastic waste with other waste streams is 27% identified as other major challenges.

⁵ https://env.gov.lk/web/images/pdf/policies/National_Action_Plan_on_Waste_Management.pdf

RECOMMENDATIONS

- The survey findings and plastic waste generating hotspot data should be disseminated among the respective Material Recovery Facilities (MRFs) supported by the project.
- MRF can utilize the survey findings for their plastic waste collection planning and collection network development.
- The respective Material Recovery facilities in the districts can continue to identify and update the district level plastic waste generating hotspots data by using the survey data as a baseline.
- Plastic waste generating hotspots should be prioritized based on the volume of plastic waste accumulating with the respective field officers before setting up the collection infrastructures.
- Waste collection strategy and tools and equipment to be employed should be decided based on the majority hotspots categories. For an example If it is community, project can develop community-based collection clusters.
- Since majority is F&B, housing schemes/condominiums and bus stops/railway stations - they can be prioritized in bin placements.
- It's recommended to have consultations with the respective Local Authorities and validate the survey findings before project investments on district level plastic waste collection infrastructure development, in particularly placing the plastic waste collection bins and bags.
- District wise strategy development should be done - since district wise prominent disposal methods vary. Also, in districts where the majority of hotspots or waste generators practice "handing over to local authorities", the project can build rapport with LAs and link the local authority plastic waste supply to the project's MRFs or collectors.
- The districts which show the most hotspots around communities (fisheries, residential, polluted waterways and beach areas) are niches for conducting E&A programs
- The most prominent challenges in proper plastic waste management is due to the Public Behavior. This can be addressed through proper Education and Awareness (E&A) and Social Behavioral Change (SBC) programme
- It is clearly seen in the findings, the rest of the major challenges are Inadequate spaces for waste Collection, commingling of plastic waste with other waste streams and limited knowledge of waste segregation. These factors are the main causes for negative public behavior - E&A along with resource and facility provision can be the solution.
- Unavailability of required resources for public is one of the key factors that lead to negative behavior - Provision of education and awareness along with resources/facilities will encourage public to shift from improper disposal/negative behavior to safe disposal/positive behavior.
- Project education and awareness programs⁶(E&A) need to be prioritized in the locations for those who practice improper plastic waste disposal methods. (Map 2 Plastic waste generating hotspots currently practice improper disposal methods)
- More education and awareness focus should be given to the plastic waste hotspots identified in the Food and Beverage (F&B) sector since they are major contributors to the plastic waste generated as identified in the key findings.
- E&A programs should incorporate the unique riverine system and climatic conditions of the country, reflecting the waste plastic accumulation risk identified from the mapping exercise.
- Districts where majority of hotspots or waste generators practice improper disposal can be encouraged to handover their plastic waste to collectors or MRFs

⁶ Project Education and Awareness programs are developed based on the AIR strategy and on proper disposal of plastic waste

- The hotspots mapped around can be used to determine the networks of waste collection employees across the district.
- Analyzing the waste generation and hotspots clusters, there is more space for new waste collectors to come into the sector to engage in plastic waste management as a livelihood. This recommendation can be further consolidated with secondary sources, CEA records, and prior project findings, to highlight the existence of more unidentified potential waste collectors.
- Since female engagement in waste collection has identified form the key findings, E&A can also include a component to point up the importance and potential space for women to engage in the plastic waste management sector. This can be supported with the success stories of prior projects as well. This component should be customized in accordance with the target community
- Since the number of identified waste collectors is less (115), this has been identified as a survey gap. Therefore, it's recommended to identify active waste collectors in the 15 project districts. The community level E&A can be utilized to collect information / find active waste collectors

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ANNEXES

Annex 1. BLUECAP Mapping and Scouting Survey Questionnaire

Annex 2. BLUECAP Project Waste Collectors Aggregators Mapping and Survey Questionnaire.