



# 12th HIGH LEVEL SEMINAR ON SUSTAINABLE CITIES

*Circular Economy : Wastes and Marine Plastic Debris in Nakhon Si Thammarat*



*Presented by*

*Dr. Vongvachira Ovararin, Vice-Mayor, Nakhon Si Thammarat City Municipality*



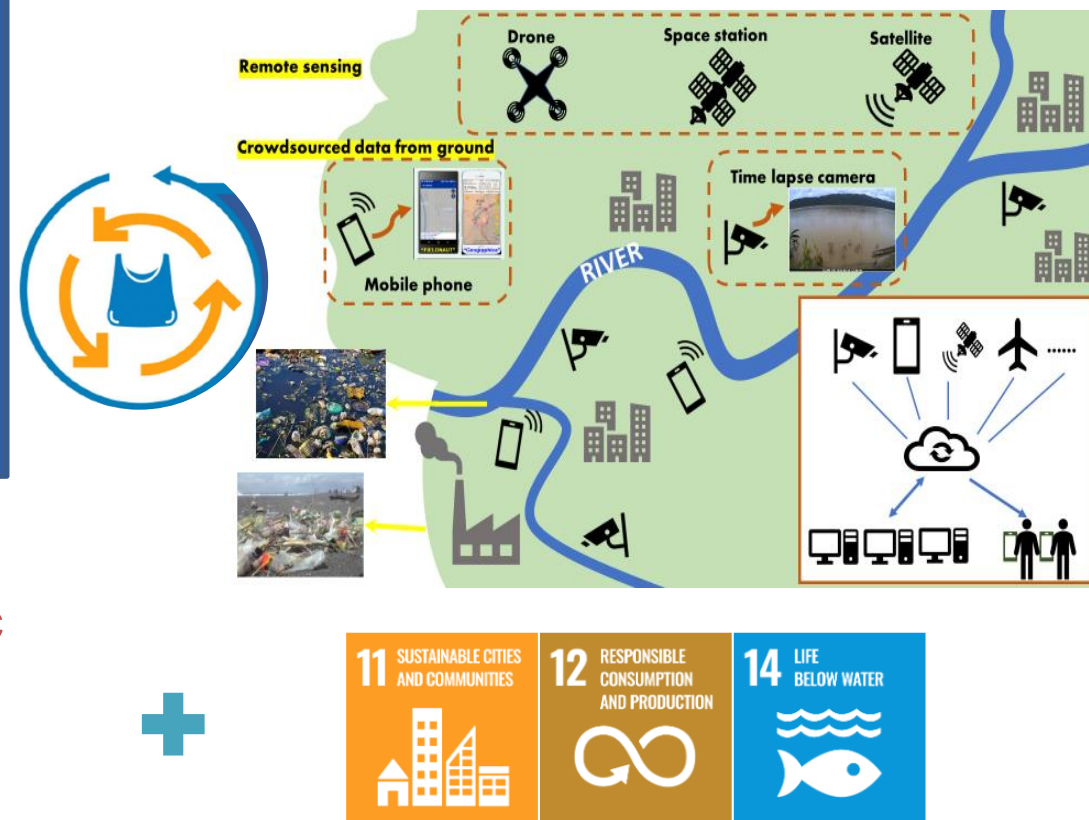








# Closing the Loop

Nakhon Si Thammarat City Municipality received support from IGES and UNESCAP with the support of the Government of Japan in implementing **Closing the Loop Project on Scaling up Innovation to Tackle Marine Plastic Pollution in ASEAN Cities**

Royal Government of Thailand's Roadmap on Plastic Waste Management and Plastic Action Plan  
Bangkok Declaration on Combatting Marine Debris  
ASEAN Framework of Action on Marine Debris



# NST Waste Overview

<p>WASTE GENERATION</p> 	<p>= 39,000 tonnes/year</p> <p>= 1.05 kg/capita/day      (<i>national average = 1.08 kg/capita/day</i>)<sup>4</sup></p> <p>= 383 kg/capita/year</p>
<p>PLASTIC COMPOSITION</p> 	<p>= 9,000 tonnes of plastic waste is generated each year</p> <p>= 23% of MSW is plastic      (<i>national average = 17.6%</i>)<sup>5</sup></p> <p>= Plastic bags make up 48% by mass of all plastic waste</p>
<p>WASTE TO THE ENVIRONMENT</p> 	<p>= 448 tonnes/year of plastic is emitted into the environment</p> <p>= Leakage whilst waiting for collection is the largest source of plastic pollution (47%) followed by littering (34%) and emissions from the dumpsite (8%).</p>
<p>PLASTIC TRANSPORTATION TO WATERWAYS</p> 	<p>= 87 tonnes/year of plastic enters waterways</p> <p>= Whilst only 0.96 % of MSW, this is equivalent to many millions of plastic items</p> <p>362 tonnes / year of plastic waste is retained uncontrolled on land or in drains</p>

## NST Landfill Site

### NST Municipality

- 39,000 tonnes/year

### Others

- 99,380 tonnes/year

**Accumulated Waste of over 2 million tonnes.**



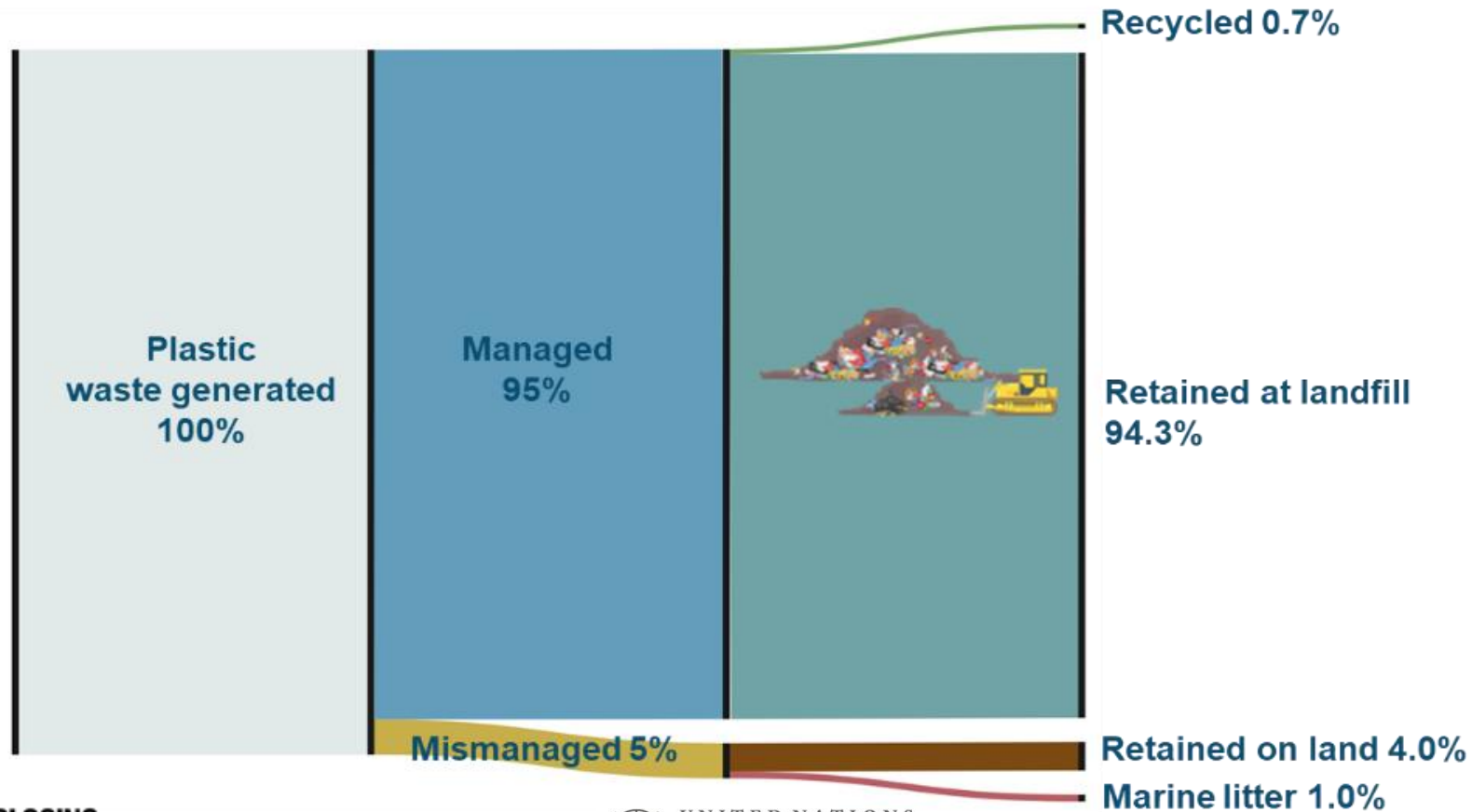
**CLOSING  
THE LOOP**

# What Percentage of Plastic Waste Enters the Water?

95% of plastic is managed

Recycling rate is low, at 0.7%

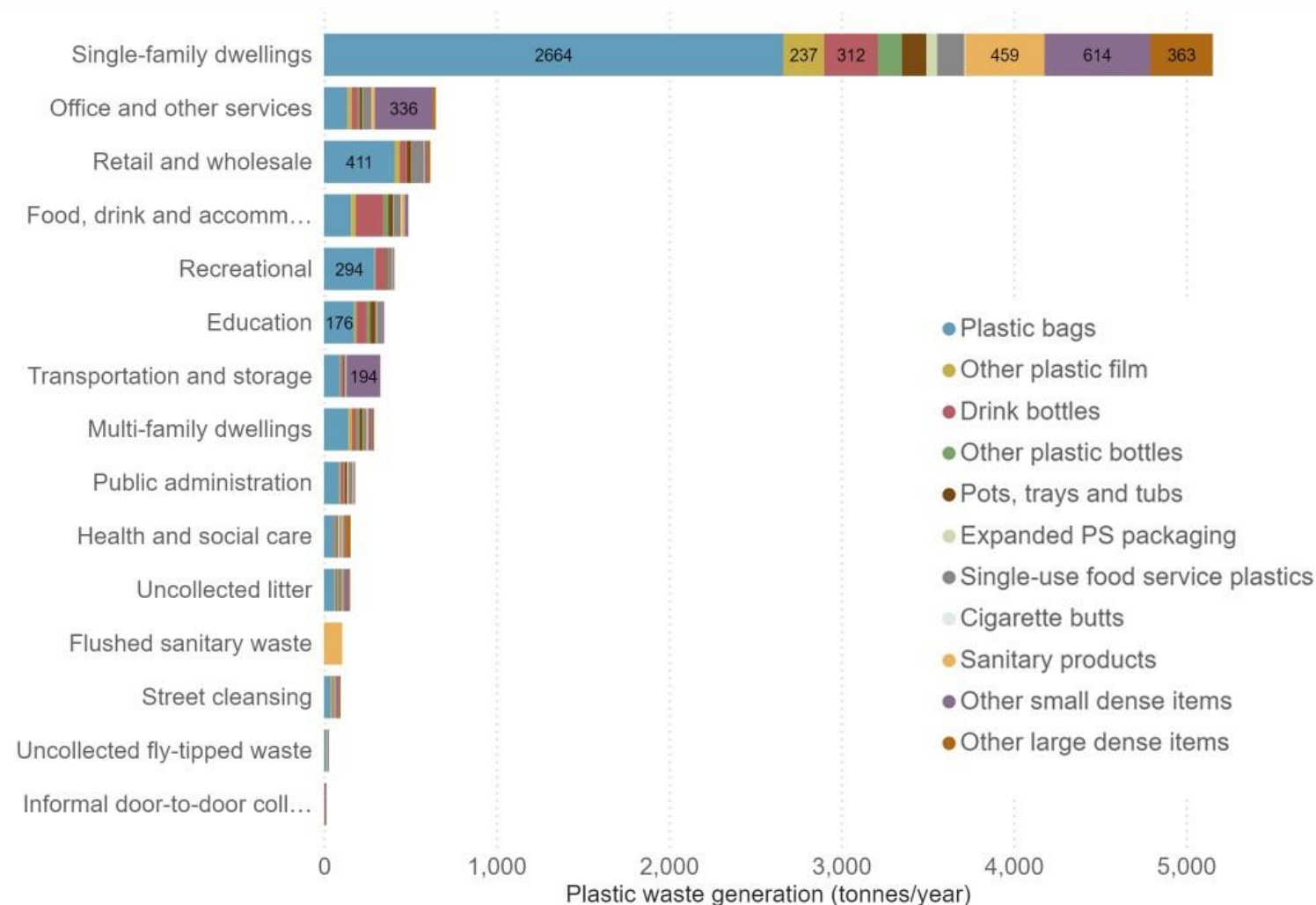
5% of plastic waste is leaked to the environment



**CLOSING  
THE LOOP**

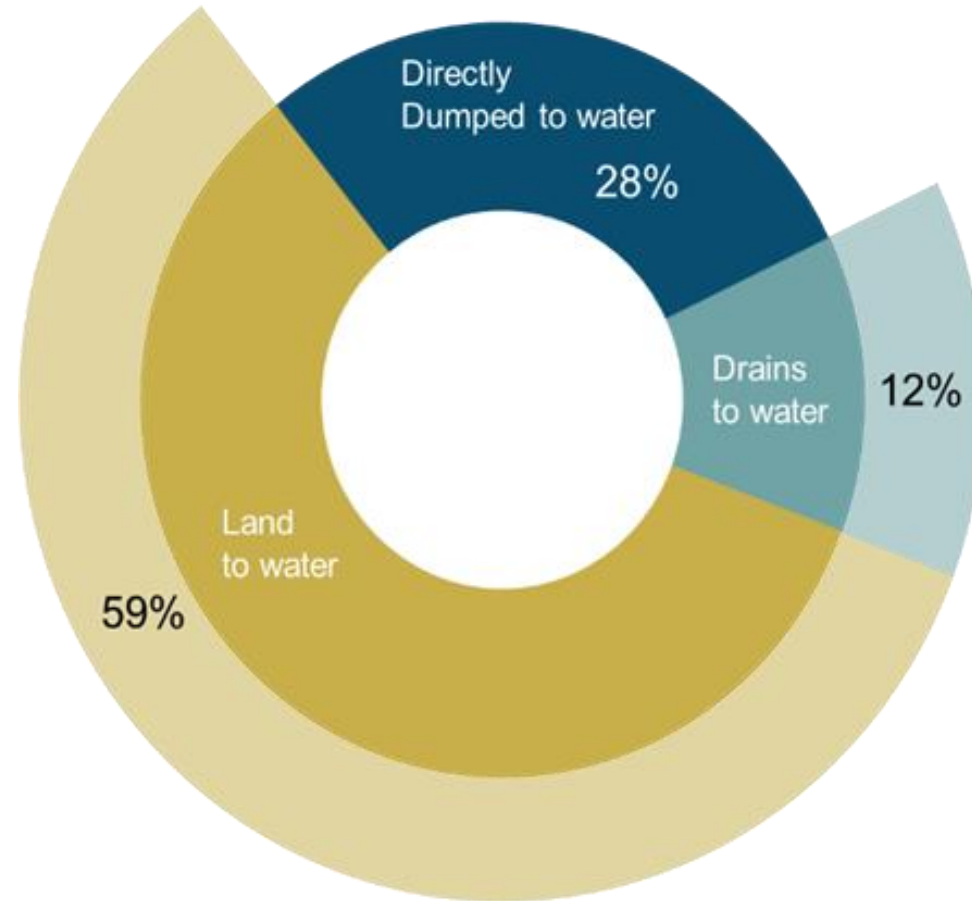
# What Is the Composition of Plastic Waste, by Source?

Local communities are the largest contributor of plastic waste, and plastic bags dominate the composition



# Pathways of Plastic Leakage

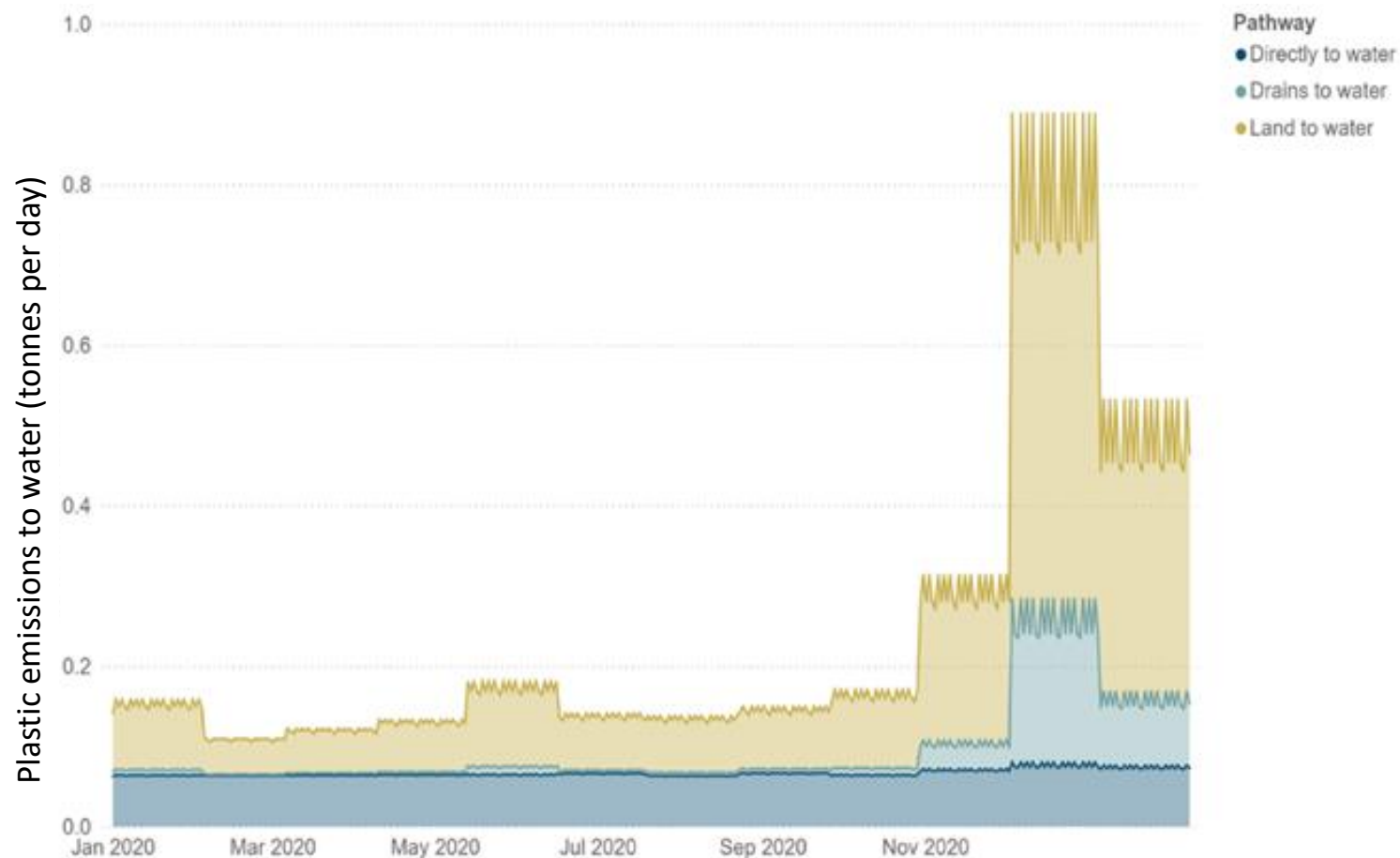
While the largest pathway is from land to water, a significant amount is dumped into water and drains





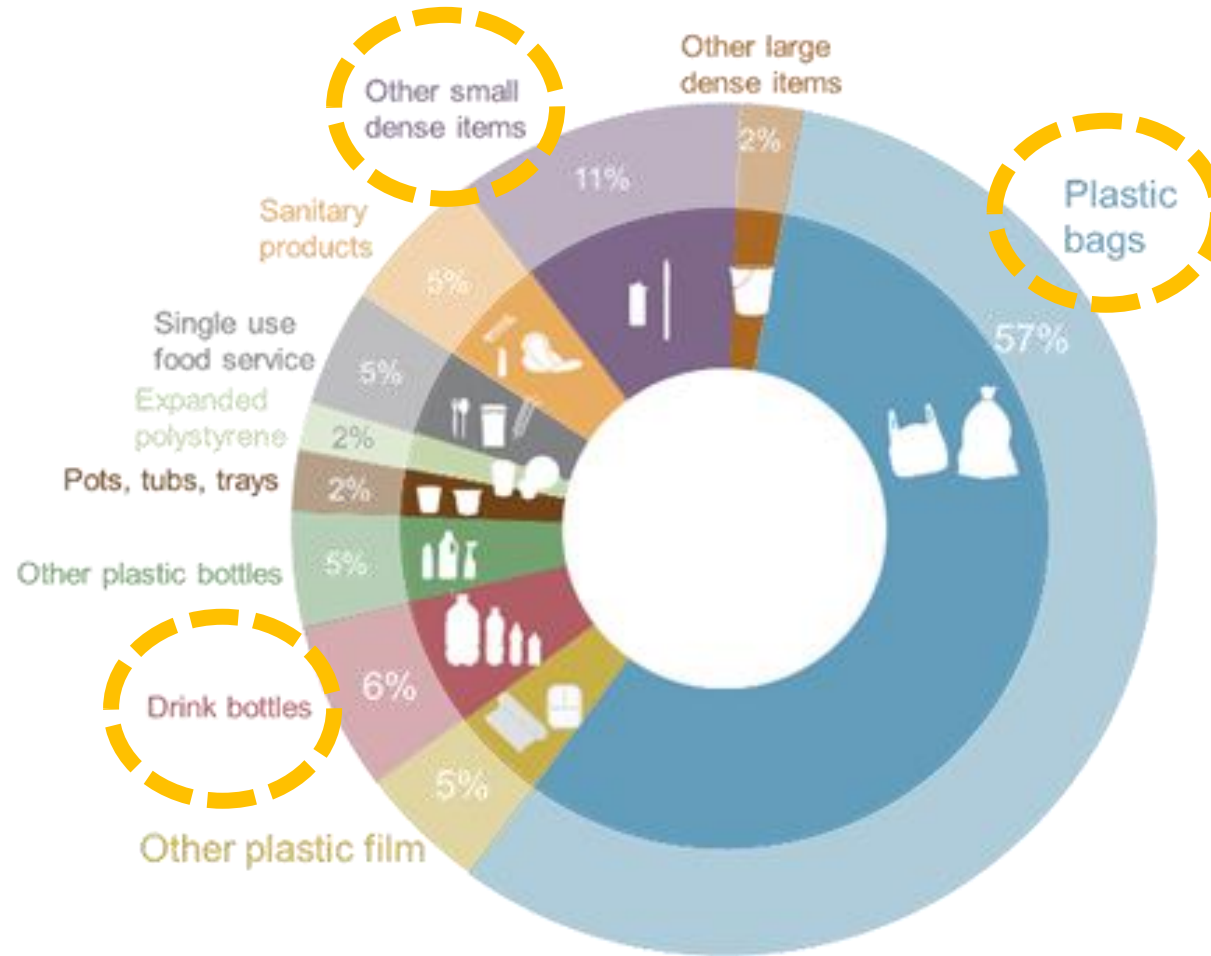
# Timeline of Plastic Leakage to Water

150-900 kg of plastic are leaked into the water per day, and peak during the monsoon season in November – December  
Flooding worsens plastic leakage



# Composition of Plastic Emissions to the Environment

Plastic bags, other small dense items and drink bottles also dominate plastic pollution





# NST Plastic Waste Management Action Plan 2023 - 2033

## Targets

Target	Short Term (Year 1)	Medium Term (Year 2-4)	Long Term (Year 5-10)
1. Public awareness and behaviour change among the public, private sector, and tourists about goods consumption and waste management at source.	10 %	20 %	50 %
2. Demand-supply chain for the recycling business and building recycling business capacity (waste collectors, salengs (scrap collectors on tricycles), junk shops, recycling plants).	10 %	60 %	60 %
3. Efficient waste collection system in line with the guidelines for waste management at source.	General waste, heavy trash, hazardous waste	All types of waste	All types of waste
4. Reducing single-use plastic waste and PET bottles.	10 %	50 %	80 %
5. Reducing plastic bags.	10 %	20 %	50 %



***“We aim at recycling plastic waste at the rate of 100% by 2027 while also encouraging public involvement and participation among stakeholders to have better understanding on plastic waste management. We can only achieve this through collective efforts by governmental agencies, the public, private sector, education institutions, civil society organisations and international organisations.”***

**Dr. Kanop Ketchart, Mayor, NST City Municipality**

# Zero Waste Bins Project



**ประตูปลอด  
ปลอด(ถัง)ขยะ**

ขยะใส่ถุงดำวางหน้าบ้าน  
**19.00 – 20.00 น.**

กองสาธารณสุขและสิ่งแวดล้อม  
เทศบาลนครนครศรีธรรมราช

The billboard is divided into three horizontal sections. The top section is purple with yellow text. The middle section is white with blue text and features a green illustration of a waste truck and a person in a green vest. The bottom section is purple with white text. A green circular emblem with a tree and a building is located in the top right corner of the billboard.



# Zero Waste Bins Project





# Waste Management (Big Items)

เทศบาลนครนครศรีธรรมราช กำหนดลงพื้นที่  
**นัดทั้งนัดเก็บขยะชิ้นใหญ่ ทุกวันศุกร์ ของสัปดาห์**

ศุกร์ที่ 1 ของเดือน  
จัดเก็บโซนพื้นที่  
**เขต 1**

ศุกร์ที่ 2 ของเดือน  
จัดเก็บโซนพื้นที่  
**เขต 2**

ศุกร์ที่ 3 ของเดือน  
จัดเก็บโซนพื้นที่  
**เขต 3**

ศุกร์ที่ 4 ของเดือน  
จัดเก็บโซนพื้นที่  
**เขต 4**

ขอความร่วมมือ ผู้พักอาศัย ผู้ประกอบการ ในแต่ละเขตพื้นที่ นำขยะชิ้นใหญ่ อาทิ ตู้ ที่นอน โต๊ะ โซฟา หรือต้นไม้ใหญ่ มาวางบริเวณจุดทิ้งขยะหรือหน้าบ้านของถ่าน เพื่อความสะดวกต่อการ  
ทำงานของเจ้าหน้าที่จัดเก็บขยะ **ในวันศุกร์ที่ตรงตามกำหนด**

ดำเนินการโดย กองสาธารณสุขและสิ่งแวดล้อม โทร.075-342880 ต่อ 160





# Waste Management (Clean-up)



Street Litter Clean-up



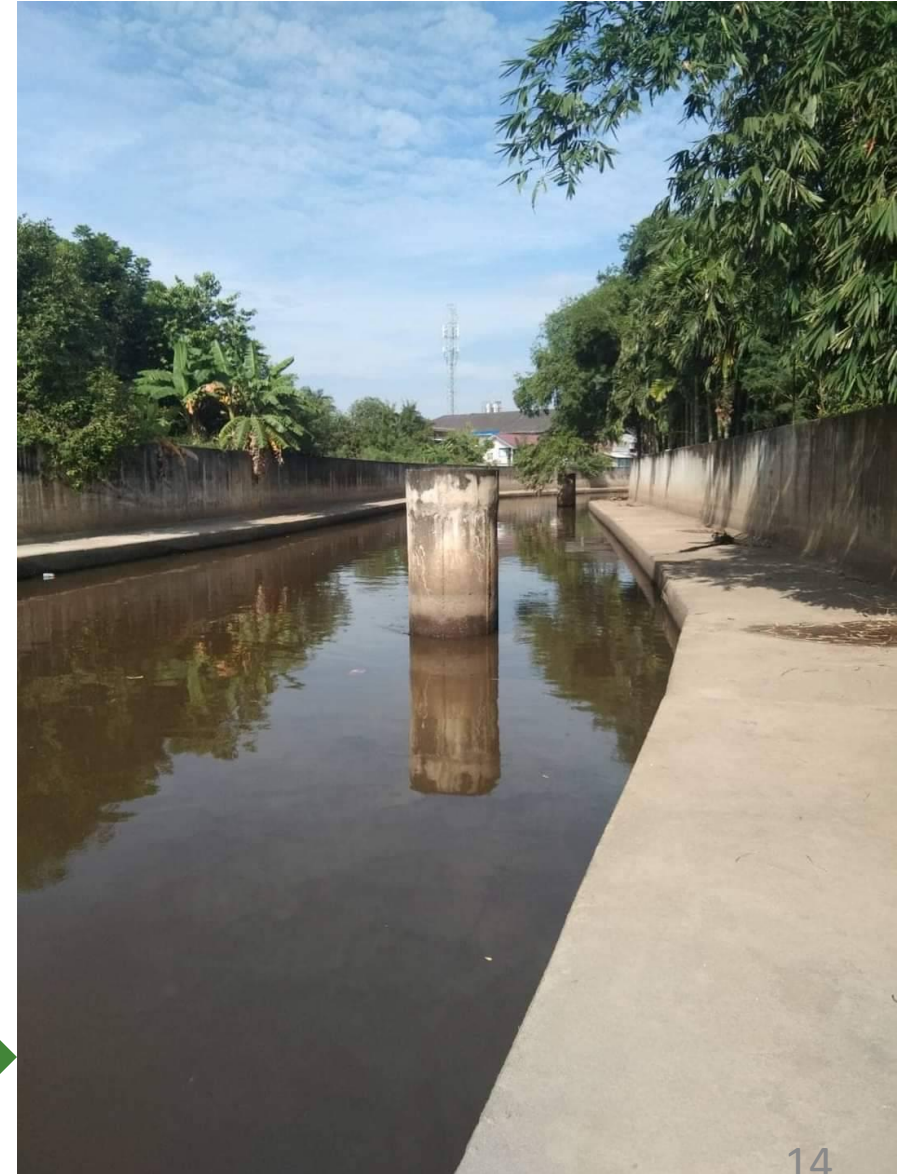
# Clean-up Activities (Hyacinth)



BEFORE

Clean up Water  
Hyacinth in canals

AFTER





# Clean-up Activities (Canals)

During Flooding Situations





# City Clean-up Activities

After Flooding Situations





# Landfill Site Survey and Management





# NST Management Policy



“Public Engagement  
is a starting point to  
**SUCCESS**”

*Dr. Vongvachira Ovararin, Vice-Mayor,  
Nakhon Si Thammarat City Municipality*