ACTION PLAN TO MANAGE AQUATIC PLASTIC LITTER IN SURABAYA CITY

STATEMENT FROM THE CITY OF SURABAYA

The progress of plastic waste management in Indonesia has increased significantly in the past few years with the support of the presence of regulations from the national level to the local level, such the Presidential Regulation No. 83/2018 concerning Marine Debris Handling and Presidential Regulation, No. 97/2017 concerning National Policy and Strategy of Management of Household Solid Waste and Household-like Solid Waste (JAKSTRANAS). As the second-largest city in Indonesia, Surabaya aims to improve the city's solid waste management and achieve zero plastic leakage into waterways in the future.
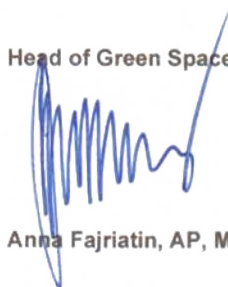
The city government has carried out measures to reduce plastic waste generation and disposal in the landfill by promoting the limited use of single-use plastic for commercial and business purposes. These measures are supported by the promulgation of Surabaya Mayor Circular No. 660.1/7953/436.7.12/2019 concerning the Single-Use Plastic Ban Agenda in 2019. Currently, Surabaya's solid waste management system is supported by 190 temporary storage facilities, nine material recovery facilities, and 26 composting centres. In addition, the operation of 352 waste banks in Surabaya has also strengthened plastic waste management among communities and has become a prominent feature of Surabaya.

The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) launched the project titled Closing the Loop: Scaling up Innovation to Tackle Marine Plastic Pollution in ASEAN Cities, supported by the Government of Japan. Together with partner cities, Da Nang – Vietnam, Nakhon Si Thammarat – Thailand, and Kuala Lumpur – Malaysia, I hope that we could share innovative steps to tackle aquatic plastic emissions to protect environment and build a sustainable city.

The journey towards having a clean and green city requires a strong partnership, from the government institutions, non-government organizations, business sectors, universities and research institutes, and the most essential component is citizens of Surabaya. This action plan to manage aquatic plastic litter in Surabaya is the first step of this journey. I hope that we could work together and realize our goals in the near future.

Thank you.

Head of Green Space and Cleansing Agency of Surabaya City

Anna Fajriatin, AP, MM

ACTION PLAN TO MANAGE AQUATIC PLASTIC LITTER IN SURABAYA CITY

To support the Government of Indonesia's program in combating marine plastic debris in Indonesia, such the Indonesia's Plan of Action on Marine Plastic Debris 2017-2025 (Presidential Regulation No. 83/2018 on Marine Debris Management) and in line with the government's objectives in achieving Sustainable Development Goals 2030 (Presidential Regulation No. 59/2017 on Implementation of the Achievement of Sustainable Development Goals), the City of Surabaya issue the following action plan on managing aquatic plastic litter from land-based sources by 2025, with a vision towards 2030.

This Action Plan was developed by the City of Surabaya in Collaboration with the Ministry of Environment and Forestry of the Republic of Indonesia through the Closing the Loop project, implemented by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). The project is supported by the Government of Japan. Implementing partners include Institute for Global Environmental Strategies (IGES) and Japan Space Systems (JSS).

I.   THE NEED FOR AN ACTION PLAN

- The progress of plastic waste management in Indonesia has been increasing significantly in the past few years with the support of the presence of regulations from the national level to the local level, such the Presidential Regulation No. 83/2018 concerning Marine Debris Handling and Presidential Regulation No. 97/2017 concerning National Policy and Strategy of Management of Household Solid Waste and Household-like Solid Waste (JAKSTRANAS) as well as Local Policy 2017-2025 (JAKSTRADA). Indonesia aims to achieve a 30% waste reduction and a total 70% processing rate by 2025 with the year 2017 as a baseline. According to PPC, in Surabaya, 111,300 tonnes of plastic waste are generated each year of which 14.4% is still mismanaged. To this date, there is no regulation addressing aquatic plastic debris in Surabaya.

- Surabaya, as the second-largest city in Indonesia, has experienced rapid economic and population growth leading to an increase in municipal solid waste (MSW) generation. Surabaya's population increased from 2.94 million in 2015 to 3.15 million in 2019. The number of wastes sent to the landfill increased from 1,102 tonnes per day in 2015 to 1,689 tonnes per day in 2019 on average. However, at the beginning of the COVID-19 pandemic, the recorded amount of monthly MSW sent to the landfill decreased up to 12.6% in May 2020 in comparison with 2019. According to PPC, approximately 792,290 tonnes of municipal solid waste (0.70 kg per person per day) were generated in 2020. This is almost same when compared to the national average (0.68 kg/capita/day) in the World Bank's What a Waste 2.0 report.

- Surabaya city government has carried out measures in reducing the amount of plastic waste generation at source by promoting to limit the use of single-use plastic in commercial and business purposes. These measures are supported by the promulgation of Surabaya Mayor Circular No. 660.1/7953/436.7.12/2019 concerning the Single-Use Plastic Ban Agenda in 2019. However, this action lacks monitoring and evaluation controls resulting in lack of direction and unreported progress. Waste minimization plays an important role in the city's solid waste management. In Surabaya, 2% of total plastic waste generation or 2,174 tonnes of plastic waste enter waterways each year, of which 32% is plastic bags by weight.

- To support national and regional progress, Surabaya City promulgates an Action Plan to Manage Aquatic Plastic Litter in Surabaya City by 2025, with a vision to 2040; in order to strengthen the city's plastic waste management, in line with the national strategy and the city vision of building towards Surabaya as a global city that is advanced, humanist, and sustainable.

II.   AIMS AND OBJECTIVES

1.   Aims

a) Strengthening the management and prevention of plastic waste from land and coastal activities in Surabaya.

b) Raise awareness and change the behaviour and habits of individuals, communities, businesses and organizations to reduce the generation of plastic waste and promote the collection, recycling and reuse of plastic waste in the city.

c) Achieving the targets of the National Mid-term Development Plan 2020-2024 (RPJMN), National Policy and Strategy for Developing Solid Waste Management Systems 2017-2025 (JAKSTRANAS), and Local Policy 2017-2025 (JAKSTRADA).

2. Specific Objectives and Targets

a) Medium-term objectives (2021-2025)

1. At least 88% of daily waste collection from transfer stations to landfill (to limit numbers of waste containers staying overnight at TPS).

2. Double plastic waste recycling capacity from 11.3% to 23% of all plastic waste generated in the city.

3. Increase plastic waste recycling facility (TPS3R) from 9 to 11 facilities.

4. Reduce plastic waste generation at source: The percentage of plastic waste in the municipal solid waste decreases to 12% (baseline 2020 14%).

5. Build and replicate two effective interventions: A market-focused project targeting reduction of plastic bags; and a school-focused model targeting all plastic waste.

6. Build two effective monitoring tools: A plastic waste monitoring tool that can be deployed in rivers in Surabaya and land-based plastic waste hotspots within Surabaya smart city system.

7. Reduce plastic leakage into aquatic environment from 2% in 2020 to 1% in 2025.

b) Long-term objectives (2026 to 2030, with 2020 as baseline)

1. Pilot activities and models which are successful in the period 2021-2025 will be institutionalized in written form and specific policies that can be replicated throughout all the city districts (e.g., "Reducing plastic waste at schools and public institutions").

2. Build an open access database for plastic waste management to accommodate supply and demand of plastic waste recycling chain.

3. Build additional plastic waste treatment plant as an alternative technology.

4. Double plastic waste recycling capacity from 23% in 2025 to 46% in 2040 of all plastic waste generated in the city.

5. Increase plastic waste recycling facility (TPS3R) from 11 facilities in 2025 to 18 facilities in 2040.

6. 100% of daily waste collection from transfer stations to landfill (to limit numbers of waste containers staying overnight at TPS).

III. CONTENT OF THE ACTION PLAN

1. Actions to raise public awareness and change people's behaviour to reduce single-use plastic products and aquatic plastic pollution.

- Initiate cooperation with non-government organizations for education and awareness raising on plastic waste management.

- Organize awareness-training and environmental education-related programs, including reduce littering campaign, for school children and educational institutions (integrating with training on waste segregation at source)

- Organize training, awareness-raising, and responsibility programs on plastic waste for management personnel at all levels including public officials and employees (integrating with training on waste segregation at source).

- Disseminate communication materials, implement plastic waste reduction activities, and calls for action engaging organizations, socio-political organizations, civil society organizations, and residential communities through meetings.

- Develop guidance documents, communications, and training on the reduction of plastic waste and single-use plastic products (integrating with waste separation at source plans) in schools and educational institutions, public facilities, and commercial areas.

2. Implement targeted actions to reduce the generation and leakage of plastic waste in the city.

- Update and complete the city single-use plastic ban policy, following the Circular concerning Single-Use Plastic Ban Agenda in 2019 (Circular No. 660.1/7953/436.7.12/2019), to reduce plastic waste generation and promote Extended Producer Responsibility (EPR).

- Develop and implement a database that is used as input (in which data originates from private parties, industries, or crowdsourcing) for apps or platforms to connect supply and demand for plastic waste in the city.

- Develop and implement a plan with defined objectives and activities promoting the reduction of single-use plastics in stores, supermarkets, trade centres, and convenience stores over time.

- Develop and implement a plan to strengthen the role of waste banks as a platform for delivering education related to solid waste recycling, catalysing public behavioural change in waste recycling practice, and reinforcing circular economy in the city.

- Develop and implement a pilot model for households to reduce the use of single-use plastic products which includes waste segregation at source and plastic waste recycling. Implement a pilot 'Kampung green, clean, and recycling'.

- Establish business recycling ecosystem by introducing a more inclusive investment scheme, integrating informal sector to the city's solid waste management, and promoting public-private-partnership.

3. Prevent, reduce and control ocean plastic waste at land and aquatic sources.

• Increase the collection rate and reach of municipal solid waste from sources (household and non-household sources) to waste facilities (TPS/TPS3R/TPA).

• Increase the collection rate of plastic waste to reduce leakage.

• Increase the number of waste recycling infrastructures (TPS3R) and services.

• Research into solutions for reduction of non-biodegradable plastic bags and single-use plastic products in public behaviour.
• Organize training for business actors in plastic waste recycling to leverage capacity and investment readiness.

• Increase the number of dedicated public bins and provide frequent emptying.

• Improve waste storage containers for households and non-households and transfer stations to prevent leakage.

• Law enforcement and monitoring to reduce littering / fly-tipping

• Increase the quality and quantity of drainage system protection to prevent plastic entering aquatic system

4. National and international cooperation, scientific research and technology application, development and transfer for plastic waste management.

- Mobilize domestic resources state (provincial and national government) and non-state (business and private organizations) actors for technical support and investment to control marine plastic waste. Adopt management models that support innovation to produce alternative products, improve recycling, and transition to a circular economy and green growth.

- Mobilize international resources for technical support and investment to control marine plastic waste. Adopt management models that support innovation to produce alternative products, improve recycling, and transition to a circular economy and green growth.

- Implement the Closing the Loop project by UN ESCAP building an ocean plastic waste monitoring system based on remote sensing, aerial photography, and satellite image interpretation with artificial intelligence in collaboration with local and international experts.

- Research, develop, apply and transfer technologies and methods for the treatment and reduction of aquatic plastic waste across the city involving multi-stakeholders (government, business, industry, civil society and academia).

IV. IMPLEMENTATION COST

Funding for implementation shall be used from allocated funds for environmental protection; and sponsors and socialization sources from domestic organizations and technical and service assistances from foreign organizations. The relevant departments/units in the city and stakeholders are required to have planning and budgeting details, integrating the activities into the city planning budget for the 2021 – 2032 period. This report will be adopted by Surabaya City Government.

The agency is assigned to assume the prime responsibility for performing the tasks as described in the Plan (See Appendix). Actively arrange and allocate funds within the approved budget source and mobilize other support funding sources as prescribed by law to organize the implementation of the Plan.

V.   ORGANIZATION OF IMPLEMENTATION

1. **BAPPEKO** – Regional Body for City Development Planning (BAPPEKO) plays a role of a planner of many programs in Surabaya City. The agency is responsible for development of policy, technical guidelines for city development planning, including MSW masterplan, according to their Strategic Planning 2016-2021.

2. **DLH** – Environment Agency (DLH) is generally responsible for environmental monitoring, such as soil and air pollution and hazardous waste management. DLH's program according to Strategic Planning 2016-2021 includes monitoring and control of environmental impact; research and development of alternative energy (e.g., waste to energy); environmental permit services. In term of MSW management, the agency has responsibilities for monitoring, control, and evaluate results and processes of MSW management. In 2022, the agency will be merged with the Cleansing Agency (DKRTH), whose role in city solid waste management is prominent. DKRTH is currently responsible for the operation of solid waste management in Surabaya and acting as a main executor of the aquatic plastic debris management.

3. **MoEF** – Ministry of Environment and Forestry (MoEF), through the Directorate General of Waste Management and Hazardous Toxic Materials (PSLB3) and the Directorate General of Pollution and Environmental Damage Control (PPKPL), play a leading role at the provincial and local government levels for addressing MSW management and marine plastic litter from land-based sources. MoEF, together with the Coordinating Ministry of Maritime Affairs, heading the National Coordination Team (NCT) to implement the action plan related to marine plastic waste management in Indonesia.

4. **DPUBMP** – Public Works Agency (DPUBMP) is responsible for constructing drainage coverage and providing services for drainage protection and monitoring. The open drains of Surabaya are highly susceptible for waste to enter them either accidentally via windblown plastic on streets, or deliberately through open dumping or littering. Once in the drains, the heavy seasonal rainfall of Surabaya means these drains become an important pathway for plastic moving into watercourses and subsequently oceans.

5. **DPM** – Investment Agency (DPM) is responsible for providing capacity building for investment readiness and partnership for business actors.

6. **Waste banks** – this is a common type of community-based waste management in Indonesia. There are about 352 waste bank units in Surabaya. The platform is managed by community organizations at the sub-district level on a voluntary basis. Collected recyclable waste at waste bank units will then be sold to the central waste banks or small-scale scrap dealers. Waste banks' role becomes more prominent after the launch of Regulation of the MoEF No. 14/2021 on Waste Management at Waste Banks (PermenLHK No. 14 / 2021).

7. **Environmental cadres and facilitators** – this group is responsible for accelerating awareness raising and behaviour change in plastic recycling at the community level, together with community organizations (RT/RW) and sub-district administration offices (Kelurahan). Through this partnership, we aim to ensure cooperation between the local communities and authorities for the prevention of uncollected waste, which is among one of the sources of plastic emissions to the environment in Surabaya.

8. **Scrap dealers and/or recycling enterprises** – small-scale scrap dealers are persons or small business unit that collect recyclable materials (e.g., plastic and paper waste) from waste banks or households (door-to-door) and then sell it to the large-scale enterprises. These enterprises are responsible for cleaning the waste before selling it to the recycling industries.

9. **NGOs and universities** – non-government organizations (NGO) are actively involved in the city planning through the community discussion for development planning, i.e., MUSRENBANG, by giving inputs for decision-making processes or SWM planning, campaign for bans of single-use plastic, providing waste education for communities, and conducting research on plastic waste. Universities contribute not only to education and research (e.g., waste to energy), but also to workshop / seminar / public discussion involving experts in MSW management.

10. **Other private sectors** – private sectors such as national and multinational companies have also been active physically and financially in the environmental awareness program through their Corporate Social Responsibility (CSR) agenda. They provided fully or partially funding to the programs such as the Green and Clean Program and waste banks' capacity building.

Appendix

**LIST OF PRIORITY TASKS FOR THE IMPLEMENTATION OF
ACTION PLAN TO MANAGE AQUATIC PLASTIC LITTER IN SURABAYA CITY**

No	Objective/Output (O)	Program (P)	Action Plan (A)	Reference to source of recommendation	PIC	Monitoring	Potential Source of Budget	Monitoring and Evaluation Criteria	Mid-term					Long-term						Additional Information
									2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
1	O1. At least 88% of daily waste collection from transfer stations to landfill (to limit numbers of waste containers staying overnight at TPS)	P1. Prevent, reduce, and control ocean plastic waste at land and aquatic sources.	A1. Increase the collection rate and reach of municipal solid waste from sources (household and non-household sources) to waste facilities (TPS/TPS3R/TPA).	5.1.8 - Increase plastics recycling (collection/supply chain) 5.1.1 - Increased primary waste collection 5.1.5 - Waste collection vehicles (planning route)	Sub-district (RT/RW); environmental cadre	City Government (EPA)	Local/National RT/RW; CSR; MEF; Parliament	Percentage of the collection rate (MSW)												O1 refer to RPJMD
2	O2. Double plastic waste recycling capacity from 11.3% to 23% of all plastic waste generated in the city.	P1. Prevent, reduce, and control ocean plastic waste at land and aquatic sources.	A2. Increase the collection rate of plastic waste to reduce leakage.	5.1.8 - Increase plastics recycling (collection/supply chain)	Sub-district (RT/RW); environmental cadre	City Government (EPA)	Local/National RT/RW; CSR; MEF; Parliament	Percentage of the collection rate (plastic waste)												O2 and A2 refer to NPAP
			A5. Organize training for business actors in plastic waste recycling to leverage capacity and investment readiness.	5.1.8 - Increase plastics recycling (collection/supply chain)	Investment Agency	Investment Agency	Blended (Local/National)	Number of trainings; number of business actors												O2 and A5 refer to NPAP
		P2. Implement targeted actions to reduce the generation and leakage of plastic waste in the city.	A6. Establish business recycling ecosystem by introducing a more inclusive investment scheme, integrating informal sector to the city's solid waste management, and promoting public-private-partnership.	5.2.3 - Integrating informal recycling sector 5.2.5 - Encourage more private sector participation	Investment Agency; EPA	Investment Agency; City Government (EPA)	Blended (Local/National)	Number of IRS registered in the city;												A6 refer to NPAP
3	O3. Increase plastic waste recycling facility (TPS3R) from 9 to 11 facilities.	P 1. Prevent, reduce and control ocean plastic waste at land and aquatic sources.	A3. Increase the number of waste recycling infrastructures (TPS3R) and services	5.1.8 - Increase plastics recycling (collection/supply chain)	Section Infrastructure and Services and Waste Utilization	City Government (EPA)	Local	Number of facilities (TPS3R)												O3 and A3 refer to RPJMD
4	O4. Reduce plastic waste generation at source: The percentage of plastic waste in the municipal solid waste decreases to 12% (baseline 2020 14%).	P2. Implement targeted actions to reduce the generation and leakage of plastic waste in the city.	A4. Develop and implement a plan to strengthen the role of waste banks as a platform for delivering education related to solid waste recycling, catalysing public behavioural change in waste recycling practice, and reinforcing circular economy in the city	5.1.1 - Increased primary waste collection - through consumer behaviour change	Section Cleansing and Empow-erment; environmental cadre	City Government (EPA)	CSR; retribution of SWM in level of RT/RW	Number of waste bank customers and units												
		P3. Actions to raise public awareness and change people's behaviour to reduce single-use plastic products and aquatic plastic pollution	A1 Initiate cooperation with non-government organizations for education and awareness raising on plastic waste management.	5.1.1 - Increased primary waste collection - through consumer behaviour change 5.2.4 - Re-build public participation	Section Cleansing and Empower-ment; NGO; and Academic; environmental cadre	City Government (EPA)	Blended (Local; National; International)	Number of NGO involved in the program												O4 and A1 refer to RPJMD; frequent activity

No	Objective/Output (O)	Program (P)	Action Plan (A)	Reference to source of recommendation	PIC	Monitoring	Potential Source of Budget	Monitoring and Evaluation Criteria	Mid-term					Long-term						Additional Informa-tion
									2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
			A2. Organize awareness-training and environmental education-related programs, including reduce littering campaign, for school children and educational institutions (integrating with training on waste segregation at source)	5.1.1 - Increased primary waste collection - through consumer behaviour change 5.1.2 - Raise environmental awareness towards littering through activities and workshops for schools and communities 5.1.3 - Raise environmental awareness towards possible waste leakage whilst waiting for collection through activities and workshops for schools and communities. 5.2.4 - Re-build public participation	Section Cleansing and Empow-erment; NGO; Youth Environment Association	City Government (EPA)	Blended (Local; National; International)	Number of trainings; number of school and education institutions participated in the program												O4 and A2 refer to RPJMD; frequent activity
			A3. Organize training, awareness-raising, and responsibility programs on plastic waste for management personnel at all levels including public officials and employees (integrating with training on waste segregation at source).	5.1.1 - Increased primary waste collection - cooperation between communities and authorities	Section Cleansing and Empowerment	City Government (EPA)	Local	Number of trainings; number of public officials and employees participated in the program												O4 and A3 refer to RPJMD; frequent activity
5	O5. Build and replicate two effective interventions: A market-focused project targeting reduction of plastic bags; and a school-focused model targeting all plastic waste.	P.1 Prevent, reduce and control ocean plastic waste at land and aquatic sources.	A4. Research into solutions for reduction of non-biodegradable plastic bags and single-use plastic products in public behaviour.	5.1.1 - Increased primary waste collection - through consumer behaviour change	Higher education institutions; EPA	City Government (EPA)	Research grants	Number of pilot research												A4 refer to NPAP
		P2. Implement targeted actions to reduce the generation and leakage of plastic waste in the city.	A1. Update and complete the city single-use plastic ban policy, following the Circular concerning Single-Use Plastic Ban Agenda in 2019 (Circular No. 660.1/7953 /436.7.12/2019), to reduce plastic waste generation and promote Extended Producer Responsibility (EPR).	5.1.7 - Target high emission plastics - such as plastic bags, food service plastics, and covid-related waste 5.2.1 - Plastic bag ban (moving from policies to action)	Section Cleansing and Empowerment	City Government (EPA)	Local	The existence of regulations												

No	Objective/Output (O)	Program (P)	Action Plan (A)	Reference to source of recommendation	PIC	Monitoring	Potential Source of Budget	Monitoring and Evaluation Criteria	Mid-term					Long-term						Additional Information
									2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
			A3. Develop and implement a plan with defined objectives and activities promoting the reduction of single-use plastics in stores, supermarkets, trade centres, and convenience stores over time	5.2.5 - Encourage more private sector participation	NGO / business actors / City Government / higher education institutions	City Government (EPA)	Blended	Number of private sectors participated in the program												A3 refer to NPAP
6	O6. Build two effective monitoring tools: A plastic waste monitoring tool that can be deployed in rivers in Surabaya and land-based plastic waste hotspots within Surabaya smart city system.	P4. National and international cooperation, scientific research and technology application, development and transfer for plastic waste management	A3. Implement the Closing the Loop project by UN ESCAP building an ocean plastic waste monitoring system based on remote sensing, aerial photography, and satellite image interpretation with artificial intelligence in collaboration with local and international experts	5.2.6 - Digital Tool	Follow-up MoEF	Follow-up MoEF	Blended	Number of monitoring hotspots; the existence of database												
7	O7. Reduce plastic leakage into aquatic environment from 2% in 2020 to 1% in 2025.	P.1 Prevent, reduce and control ocean plastic waste at land and aquatic sources.	A7. Increase the number of dedicated public bins and provide frequent emptying.	5.1.2 - Establish a sufficient network of public litterbins and provide frequent evacuation of bins.	Section Cleansing and Empowerment	City Government (EPA)	Local	Number of public bins												Frequent activity in EPA
			A1. Increase the collection rate and reach of municipal solid waste from sources (household and non-household sources) to waste facilities (TPS/TPS3R/TPA).	5.1.8 - Increase plastics recycling (collection/supply chain) 5.1.1 - Increased primary waste collection 5.1.5 - Waste collection vehicles (planning route)	Sub-district (RT/RW); environmental cadre	City Government (EPA)	Local/National RT/RW (CSR); MEF; Parliament	Percentage of the collection rate (MSW)												Frequent activity in EPA
			A8. Law enforcement and monitoring to reduce littering / fly-tipping	5.1.2 - Placing signboard for reducing littering 5.1.2 - Regular Street sweeping 5.1.4 - Placing signboard for reducing fly-tipping 5.1.4 - Surveillance	Section Infrastructure and Services and Waste Utilization	City Government (EPA)	Local	Number of surveillance areas												Frequent activity in EPA
			A9. Increase the quality and quantity of drainage system protection to prevent plastic entering aquatic system	5.1.6 - Regular drain cleaning 5.1.6 - Increase the quality and quantity of bar screen and trash racks	Public Work and Drainage Agency; Infrastructure Division in EPA	City Government (EPA); Public Work Agency	Local	The length of drainage system protected; the existence of guidelines												Frequent activity in EPA and Public Work
			A7. Improve waste storage containers for households and non-households and transfer stations to prevent leakage.	5.1.3 - Provision of dedicated waste storage containers for households alleviates some of the problems often seen when residents are forced to source their own waste container.	Section Infrastructure and Services and Waste Utilization	City Government (EPA)	Local; CSR; Parliament	Percentage of communities served with proper waste containers												Frequent activity in community by CSR and Parliament

No	Objective/Output (O)	Program (P)	Action Plan (A)	Reference to source of recommendation	PIC	Monitoring	Potential Source of Budget	Monitoring and Evaluation Criteria	Mid-term					Long-term						Additional Information
									2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
8	O8. Pilot activities and models which are successful in the period 2021-2025 will be institutionalized in written form and specific policies that can be replicated throughout all the city districts	P2. Implement targeted actions to reduce the generation and leakage of plastic waste in the city.	A 5. Develop and implement a pilot model for **households to reduce the use of single-use plastic products which includes waste segregation at source and plastic waste recycling**. Implement a pilot 'Kampung green, clean, and recycling'	5.1.1 - Increased primary waste collection - establish guidelines and policies on waste collections for households 5.1.8 - Increase plastics recycling - encourage source separation of waste 5.2.4 - Re-build public participation	Section Cleansing and Empowerment; NGO; Waste Bank; Academic	City Government (EPA)	Blended (local; national; research grant; international)	Number of completed pilot model												
		P3. Actions to raise public awareness and change people's behaviour to reduce single-use plastic products and aquatic plastic pollution	A4. Disseminate communication materials, implement plastic waste reduction activities, and calls for action engaging organizations, socio-political organizations, civil society organizations, and residential communities through meetings.	5.1.2 - Reduce littering 5.2.4 - Re-build public participation	Section Cleansing and Empowerment; NGO; NPAP (task force behaviour change)	City Government (EPA)	Blended (Local; CSR; National; International)	Number of documents and activities												A4. Refer to RPJMD; frequent activity
			A5. Develop guidance documents, communications, and training on the reduction of plastic waste and single-use plastic products (integrating with waste separation at source plans) in schools and educational institutions, public facilities, and commercial areas	5.1.2 - Reduce littering 5.2.4 - Re-build public participation	Section Cleansing and Empowerment; NGO; Youth Environment Association; NPAP (task force behaviour change)	City Government (EPA)	Blended (Local; CSR; National; International)	Number of documents and activities												
		P4. National and international cooperation, scientific research and technology application, development, and transfer for plastic waste management	A1. Mobilize domestic resources state (provincial and national government) and non-state (business and private organizations) actors for technical support and investment to control marine plastic waste. Adopt management models that support innovation to produce alternative products, improve recycling, and transition to a circular economy and green growth.	5.2.5 - Encourage more private sector participation	Ministry of Environment and Forestry (MEF); Academic; City Government	City Government (EPA); MEF	Blended (National; International)	Number of domestic stakeholders involved												A1 refer to NPAP
			A2. Mobilize international resources for technical support and investment to control marine plastic waste. Adopt management models that support innovation to produce alternative products, improve recycling, and transition to a circular economy and green growth	5.2.5 - Encourage more private sector participation	Ministry of Environment and Forestry (MEF); Academic; City Government	City Government (EPA); MEF	International	Number of international stakeholders involved												A2 refer to NPAP

No	Objective/Output (O)	Program (P)	Action Plan (A)	Reference to source of recommendation	PIC	Monitoring	Potential Source of Budget	Monitoring and Evaluation Criteria	Mid-term					Long-term						Additional Informa-tion
									2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
9	O9. Build an open access database for plastic waste management to accommodate supply and demand of plastic waste recycling chain.	P2. Implement targeted actions to reduce the generation and leakage of plastic waste in the city.	A2. Develop and implement a database that is used as input (in which data originates from private parties, industries, or crowdsourcing) for apps or platforms to connect supply and demand for plastic waste in the city.	5.2.2 - Matching plastic waste supply and demand	Information and Communi-cation Agency of Surabaya; City Govern-ment (EPA); Academic	City Government (City Planning)	Blended (Local; National; Research Grant; International)	The existence of database and apps												
10	O10. Build additional plastic waste treatment plant as an alternative technology.	P4. National and international cooperation, scientific research and technology application, development and transfer for plastic waste management.	A4. Research, develop, apply, and transfer technologies and methods for the treatment and reduction of aquatic plastic waste across the city involving multi-stakeholders (government, business, industry, civil society and academia)	5.1.8 - Increase plastics recycling	Academic; City Government (EPA)	City Government (EPA)	Blended (Local; National; Research Grant; International)	Number of collaboration research												A4 refer to NPAP
11	O11. Double plastic waste recycling capacity from 23% in 2025 to 46% in 2040 of all plastic waste generated in the city.	P1. Prevent, reduce, and control ocean plastic waste at land and aquatic sources.	A2. Increase the collection rate of plastic waste to reduce leakage	5.1.1 - Increased primary waste collection	Sub-district (RT/RW); environmental cadre	City Government (EPA)	Local/National RT/RW (CSR); MEF; Parliament	Percentage of the collection rate (MSW)												O2 and A2 refer to NPAP
			A5. Organize training for business actors in plastic waste recycling to leverage capacity and investment readiness.	5.1.8 - Increase plastics recycling (collection/supply chain)	Investment Agency; EPA	Investment Agency; City Government (EPA)	Blended (Local/ National)	Number of trainings; number of business actors												A6 refer to NPAP
		P2. Implement targeted actions to reduce the generation and leakage of plastic waste in the city.	A6. Establish business recycling ecosystem by introducing a more inclusive investment scheme, integrating informal sector to the city's solid waste management, and promoting public-private-partnership	5.2.3 - Integrating informal recycling sector 5.2.5 - Encourage more private sector participation	Investment Agency; EPA	Investment Agency; City Government (EPA)	Blended (Local/ National)	Number of IRS registered in the city;												A6 refer to NPAP
12	O12. Increase plastic waste recycling facility (TPS3R) from 11 facilities in 2025 to 18 facilities in 2040.	P 1. Prevent, reduce, and control ocean plastic waste at land and aquatic sources.	A3. Increase the number of waste recycling infrastructures (TPS3R) and services	5.1.8 - Increase plastics recycling (collection/supply chain)	Section Infrastructure and Services and Waste Utilization	City Government (EPA)	Local	Number of facilities (TPS3R)												O3 and A3 refer to RPJMD
13	O13.100% of daily waste collection from transfer stations to landfill (to limit numbers of waste containers staying overnight at TPS)	P1. Prevent, reduce, and control ocean plastic waste at land and aquatic sources.	A1. Increase the collection rate and reach of municipal solid waste from sources (household and non-household sources) to waste facilities (TPS/ TPS3R/TPA).	5.1.8 - Increase plastics recycling (collection/supply chain) 5.1.1 - Increased primary waste collection 5.1.5 - Waste collection vehicles (planning route)	Sub-district (RT/RW); environmental cadre	City Government (EPA)	Local/National RT/RW; CSR; MEF; Parliament	Percentage of the collection rate (MSW)												O1 refer to RPJMD