



THE MOBULA MISSION IN INDONESIA

Pack your bag,
MOBULDO, we're boarding
the MOBULA.

EMBARK ON THE MOBULA
IN SEARCH OF AQUATIC WASTE

I'm ready, MANTALO -
let's go get some waste!



ACT AGAINST **PLASTIC POLLUTION** WITH THE **SEACLEANERS**

Discover our educational
booklet...

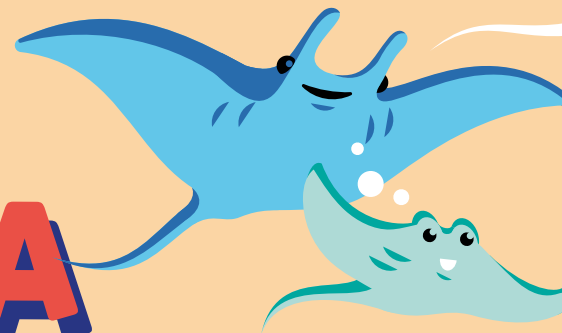
Since 2016, The SeaCleaners has been acting against plastic pollution on land and at sea through a number of actions: the development of scientific knowledge, raising citizens' awareness of ocean preservation and the design of innovative waste collection boats at sea, such as the MOBULA.

MOBULA's missions are an opportunity to raise awareness and disseminate solutions for moving towards an eco-responsible lifestyle.



...To read and fill
in to support
our action

MISSION INDONESIA



Let's discover
Indonesia

First stop,
Bali!

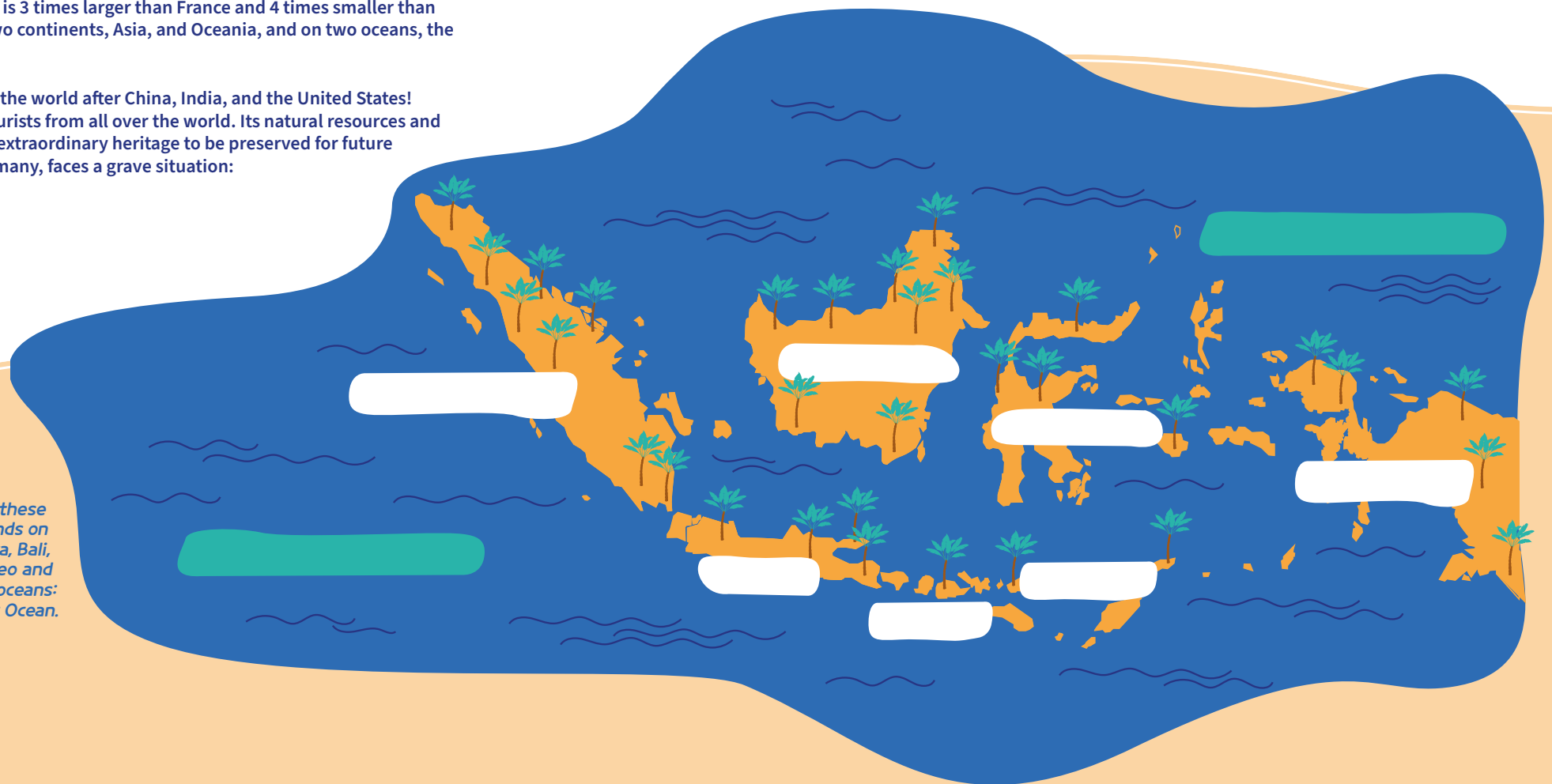
INDONESIA, THE LARGEST ARCHIPELAGO IN THE WORLD

With nearly 17,000 islands, Indonesia is 3 times larger than France and 4 times smaller than Australia. Its territory is located on two continents, Asia, and Oceania, and on two oceans, the Pacific and Indian Oceans.

It's the 4th most populated country in the world after China, India, and the United States! It's also a favourite destination for tourists from all over the world. Its natural resources and the diversity of its landscapes are an extraordinary heritage to be preserved for future generations. Yet this country, like so many, faces a grave situation: **PLASTIC POLLUTION.**

GOOD NEWS: In 2017, an action plan was adopted by the Indonesian government to fight against marine debris, with the aim of reducing its volume of waste by 70% by 2025. Many non-profit organisations are also mobilising to fight against this pollution, including The SeaCleaners. By deploying the MOBULA in Indonesia for its first missions, our team wishes to help **reduce pollution in Indonesian waters.**

Place the names of these
7 Indonesian islands on
the map: Sumatra, Java, Bali,
Sulawesi, Papua, Borneo and
Flores. Then, add the 2 oceans:
Indian Ocean and Pacific Ocean.

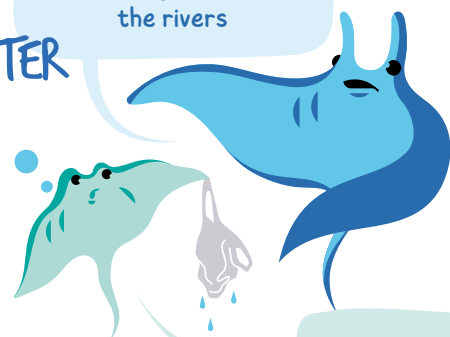


BALI, A TERRITORY SURROUNDED BY WATER

Bali is one of the smallest islands in the Indonesian archipelago. Water is everywhere. In fact, 90% of the inhabitants live less than a kilometer from one of the 400 rivers of the island. This water network is an incredible wealth for vegetation and agriculture. Unfortunately, it is also an ideal means of transport for plastic waste...

By joining the water cycle, and under the effect of wind, water currents and the sun, plastic waste degrades into **small plastic particles that are invisible to the naked eye**. Their dispersion then becomes dramatic and a major source of pollution!

In Bali, 33,000 tonnes of plastic per year end up in the rivers



That's 90 tonnes per day!!!

A MARINE BIODIVERSITY TO PRESERVE

Bali has one of the most extraordinary and colorful marine ecosystems in the world. Located in the heart of the Coral Triangle, the island concentrates half of the world's coral reefs mainly around the islands of Nusa Penida, Menjangan and Nusa Lembongan. They help maintain the balance of marine ecosystems, capture carbon and provide a habitat for a multitude of aquatic plants and animals.

There are more than 3,000 marine species in Bali: sharks, whales, dolphins, turtles, clownfish, Mola mola or «ocean sunfish» but also the Manta ray (which inspired the name of one of our waste collection boats!).

Add the stages of the water cycle (precipitation, evapotranspiration, condensation, infiltration), and activities that produce plastic pollution (agriculture, transport, landfills, cities, tourism and fishing).

Using arrows, trace the water cycle (blue arrows) and the cycle of plastic particles (red arrows)



Name the marine species: plankton, coral, sea turtle, shark, jellyfish, dugong and manta ray. With arrows, show us «who eats who» (the arrow points towards the predator).

In the atmosphere, water vapor condenses into clouds, then falls in the form of rain or snow. Some of the rain infiltrates the soil or is absorbed by the vegetation. The plants return this water to the atmosphere by evapotranspiration. The rest of the rain flows into rivers and joins the ocean. Part of the water is evaporated by the sun and returns to the atmosphere.

Today the balance of marine food chains is threatened by human activities: overfishing, excessive emissions of greenhouse gases or pollutions. More than 1.5 million marine animals die every year from plastic waste. It is important to act to protect them.

ON BOARD THE MOBULA

WASTE IN BALI

Globally, Indonesia is among the top 5 emitting countries of marine plastic litter. This pollution impacts marine biodiversity, the fishing, aquaculture and tourism sectors, as well as the country's food and health security.

The management and treatment of this waste are currently real challenges for the country and its many islands. Any improvement project must be explored if we want to prevent this waste from ending up in the ocean: political action, collection, recycling and raising awareness among citizens.

Answer the quiz questions
(Tick the right answer)

1 What is waste?

- A / The name of a hard-core music group
- B / Any discarded or abandoned material or product
- C / Any material or product leaving a manufacturing plant

2 Around the world, how much waste are dumped into the ocean every minute?

- A / 170 kilos, the weight of two large male orangutans
- B / 1.7 tonnes, the weight that the manta ray can reach
- C / 17 tonnes, the average weight of 3 adult elephants

3 What is the most common type of waste found in natural areas?

- A / Plastic bags
- B / Plastic bottles
- C / Glass bottles



The best type of waste is the one we don't produce!

THEY ACT!

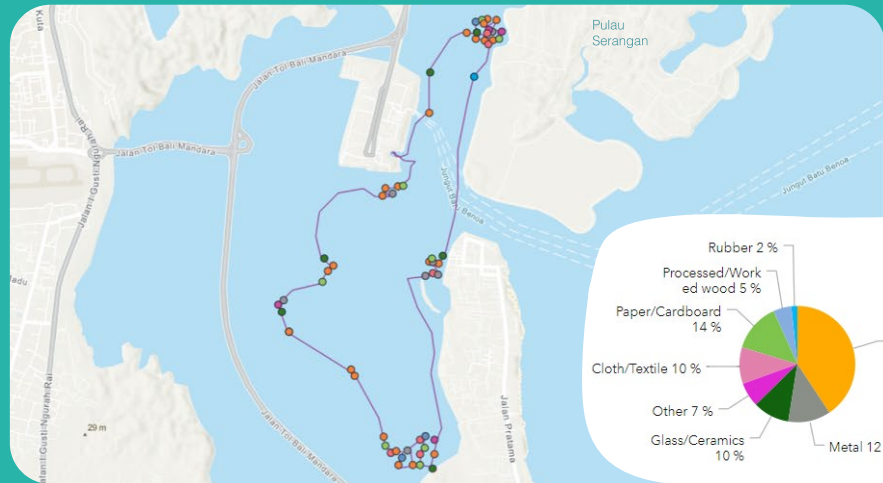
The Peduli Alam association, introduced garbage cans and a garbage truck which collects 60 tonnes of waste per month in the region of Amed. The Gili Eco Trust association acts by collecting, processing, recycling and transporting off the island of Gili Trawangan.

THE MOBULA, A WASTE COLLECTION BOAT

The MOBULA is a clean-up boat that operates in polluted rivers, mangroves and coastal areas in the Bali region. With its mobile arms, it concentrates solid and liquid waste and brings it on board where two people sort it. Debris collected at sea are stored, weighed and classified by type, before being recycled or incinerated.



Analyse the map and graphs and answer the questions below.



1 During this MOBULA collection at sea, what was the most collected type of waste?

.....

2 Off which peninsula did the MOBULA collect rubber?

.....

3 On this collection, the MOBULA picked up a total of 150kg of waste. How many kilos of textile waste did the boat pick up?

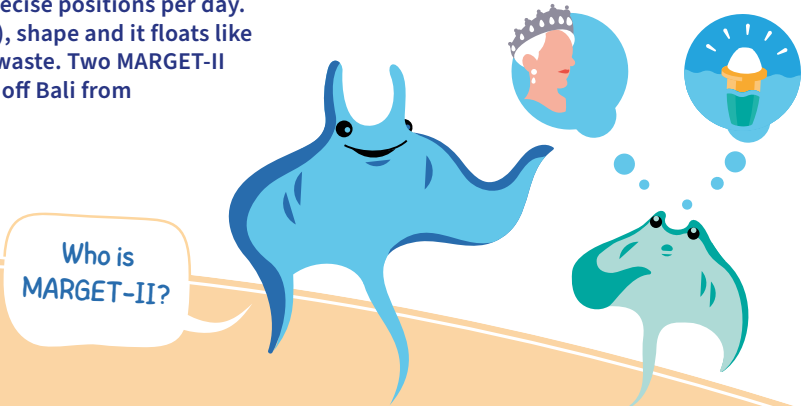
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Improving scientific knowledge on the types of waste that float in coastal waters will help local decision-makers to plan and optimise effective measures to identify the sources of this pollution and reduce them.

WHERE DOES WASTE GO AT SEA?

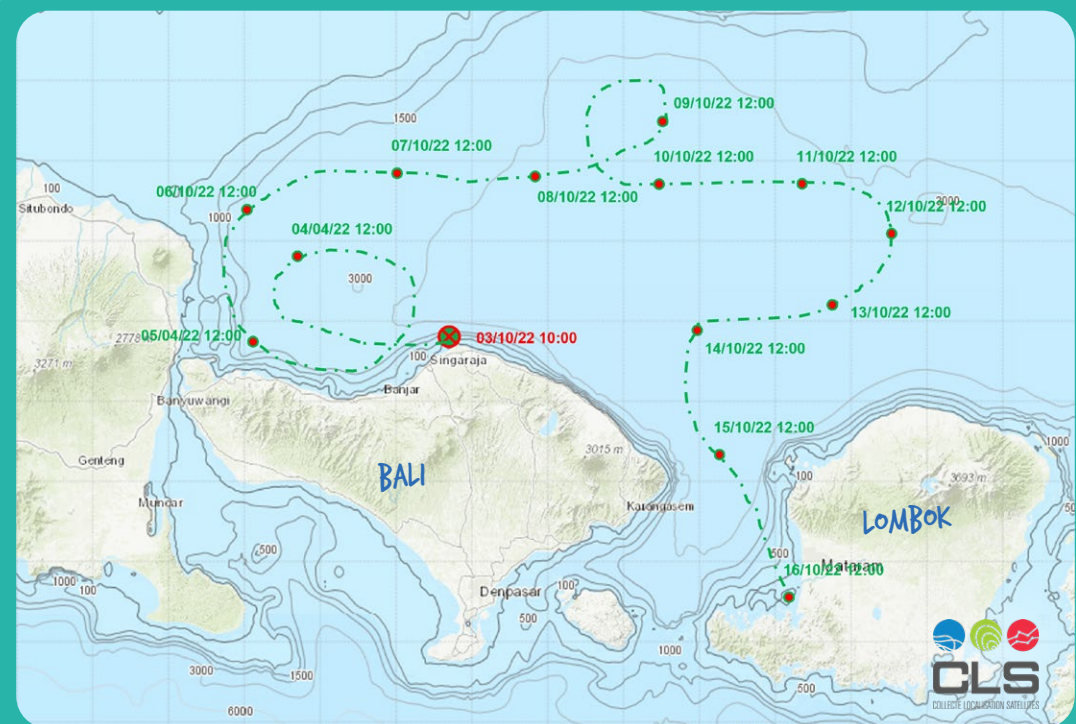
MARGET-II helps us understand the path and drift of waste at sea. Please note, this is not the Queen of Denmark (Margrethe II), but one of the drifters of the CLS group, specialist in Earth and Ocean observation to preserve the environment. This drifter is equipped with a data recorder, which allows it to be located and with a transmitter which returns the recorded position ashore. It can record up to 96 precise positions per day. It has the weight (1.2kg), shape and it floats like certain types of plastic waste. Two MARGET-II drifters will be released off Bali from the MOBULA.



Connect the dots in chronological order to retrace the route from the MARGET-II drifter (red) off Bali



Analyse the course of the two MARGET-II drifters (red and green) and answer the questions:



- 1 How long did the green MARGET-II drifter take from its departure from BALI until its stranding in LOMBOK?
- 2 Describe the route of waste. Is it linear, concentric or both?
- 3 Where does plastic waste go? Explain its movements.



Lightbulb icon: Floating litter either returns to the coast or is dispersed offshore by currents. There are places where currents meet and pollution is concentrated. These are called the plastic continents, where waste degrades into small plastic particles that are invisible to the naked eye.

IT'S YOUR TURN

I THROW AWAY MY TRASH

There are many illegal dumpsites in Bali, along rivers, roads or vacant lands. Some are even the size of a football field! They concentrate waste that may pollute soils, the air and the ocean. You should never dump your waste there, nor leave it in nature. It should always be thrown in the trash. And when you have the choice to sort, choose the right color:

- The **green bin** for organic waste
- The **yellow bin** for glass, paper and plastic
- The **blue bin** for metal, iron and aluminum
- The **black bin** for medical waste
- The **red bin** for hazardous waste

Be careful, the sorting rules vary. Find out before you throw away your rubbish.



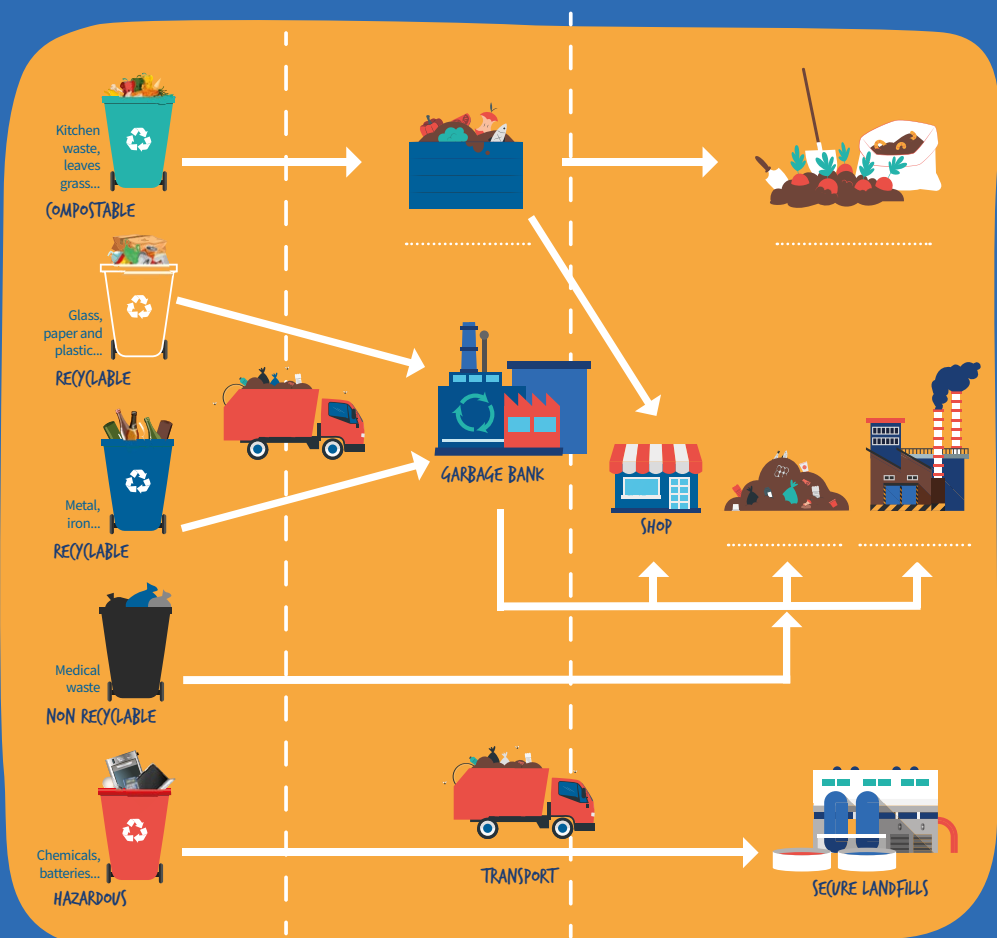
Connect the plastic waste to the new objects they can make when recycled.



WHAT HAPPENS WITH WASTE THAT WE THROW IN THE TRASH?

Once our waste is in the bins in Bali, several destinies are available to them! The garbage bank is a first place to collect, process, categorise, clean, recycle and sell reusable items. After this stage, some are burned in incinerators (on Java island), others go to secure landfills, and some are used for composting. It all depends on the type of waste and the infrastructure on site to manage it.

Place the following words on the diagram: compost, plantations, landfill, incineration plant.



I EDUCATE OTHERS

Now that you know all about the effects of plastic pollution, you can become an "ocean ambassador". Share your knowledge and these activities with your friends, at school and with your family. Participate in waste collections and clean-ups on land and set an example to those around you. You can support non-profits that are committed to preserving the oceans - like The SeaCleaners.



There is bound to be one near you!

THE ZERO-PLASTIC TRICK

Create a bag from an old t-shirt!



(CHOOSE AN OLD T-SHIRT)



(CUT THE COLLAR WITH SCISSORS AT THE SEAM)



(CUT THE SLEEVES AT THE SEAM)



(CUT THE BOTTOM OF THE T-SHIRT BY MAKING FRINGES)



TIE THE FRINGES IN PAIRS



TURN THE T-SHIRT OVER



YOUR BAG IS READY!

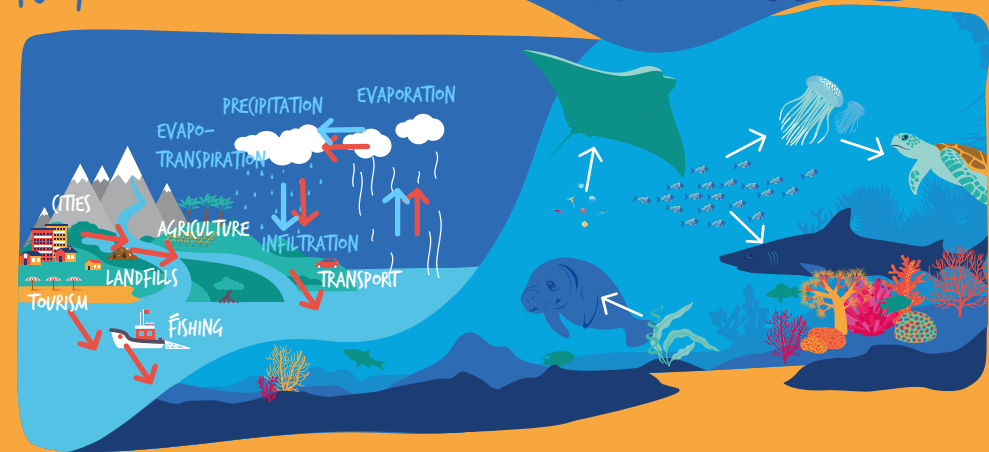


SOLUTIONS

P4-5



P6-7



P8
1/b
2/c
3/a

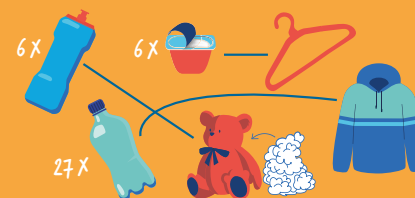
P9

- 1) Plastic waste
- 2) Pulau Serangan
- 3) 15kg (10% of 150kg)

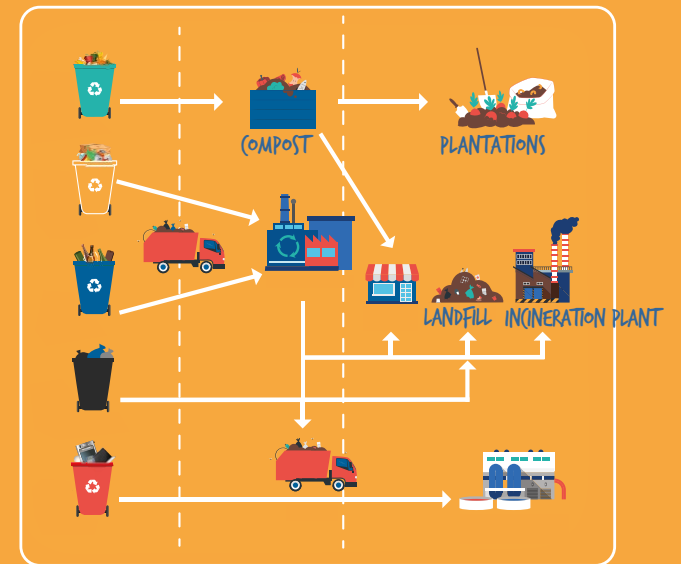
P11

- 1) 18 days: from 05/04/2022 to 22/04/2022
- 2) Both
- 3) Floating waste either comes back on the beach, or are scattered offshore by currents and wind.

P12



P13





The
SEA CLEANERS

WWW.THESEACLEANERS.ORG



THE SEACLEANERS INDONESIA

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