



AUTONOMOUS SYSTEMS  
FOR A MASSIVE AND  
EFFICIENT RECYCLING  
OF THE PLASTIC WASTE

# PLASTICS



Plastics are one of the most versatile, cheap and safe materials that have been manufactured. It has many applications, for the many hygienic and economic advantages it presents. However, one of its main characteristics has become a nightmare for life on our planet: its durability.

And whether it is for a single use, or if it has a longer cycle of use, its impact on the environment is so brutal that it seriously compromises ecosystems and the food chain itself.

# 8 Million of tonnes

**of plastic waste are poured to our  
oceans every year**

Garbage that reaches the sea, especially the plastic ones, is killing more than a million seabirds and about 100,000 mammals and sea turtles every year.

The plastic material affects the fauna in two important ways: when the creatures become entangled in it and when they ingest it.

The problem is at the  
door of our house

9%

of plastic wastes  
is finally recycled



# 140 Millions tonnes / year

in single use plastic





# ORBYS

PRODUCTIVE ECOLOGY SYSTEMS

WHAT ARE WE  
DOING TO  
SOLVE THE  
PROBLEM?

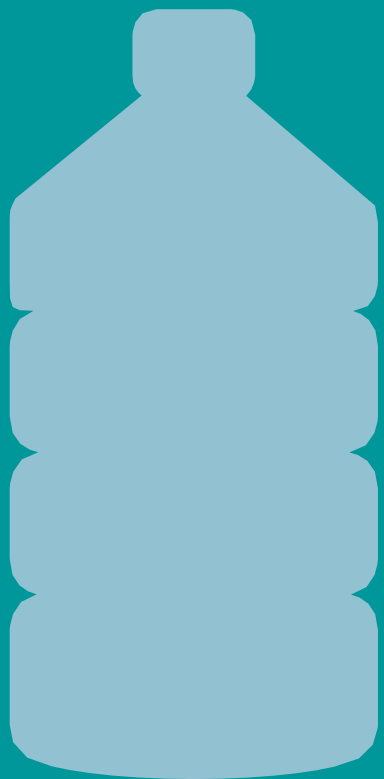


# Gestures are important, but insufficient

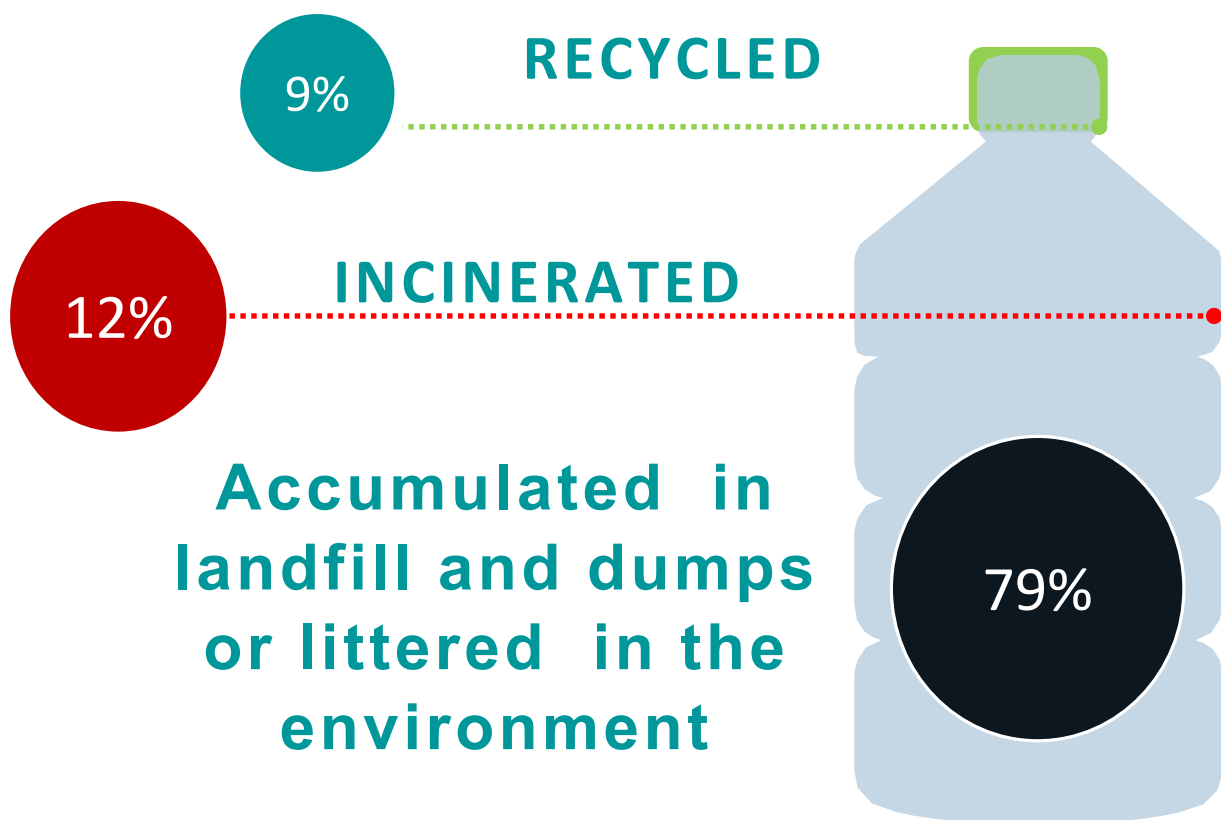


The initiatives that seek to achieve greater civic awareness, educating in a more rational use of packaging, are important and necessary. The application of new technologies allows to manufacture plastics and less aggressive alternatives. And the policy of large companies committed to recycling, also help to increase the plastic waste slow. But the problem is already of an extraordinary magnitude and it is necessary to apply massive recycling solutions on a large scale.

Legal restrictions on the use of plastics can not reverse the effects that are occurring in the sea, in rivers, and in many ecosystems that also affect the most vulnerable human communities.



The world produce  
more than  
400  
millions  
tonnes  
plastics every year

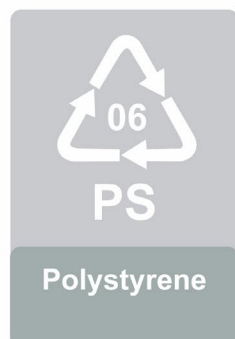
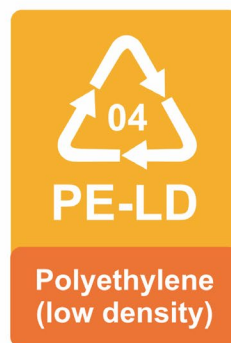


Source: UNEP, 2015



## THE COMPLEXITY OF PLASTICS

Plastics are organic materials formed by polymers consisting of long chains of atoms that contain mainly carbon. Other elements that contain plastics can be oxygen, nitrogen, hydrogen and sulfur.



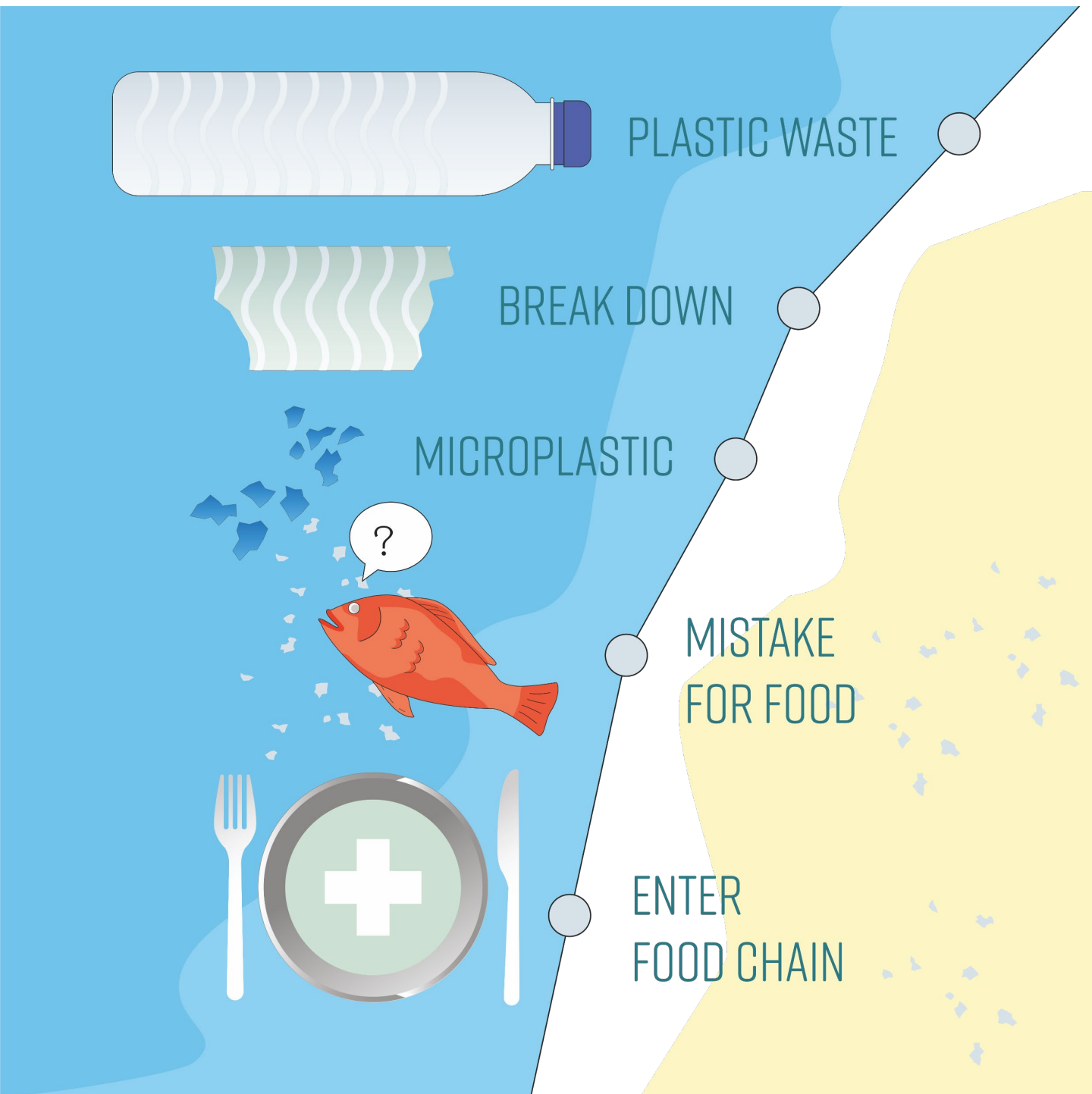
The different types of plastics can not be recycled together and the difficulty of identifying and separating them makes it even more complicated. If different types are mixed they tend to be separated by layers, so the whole lot has to be discarded.

In addition, for food safety, the numbers 2, 3, 5 and 6 can not be recycled to obtain new food containers.

That is, the best alternative to deal with the problem of accumulated plastic waste is through a chemical recycling that is integrated into a circular economy model: the resources are used as long as possible, the maximum value is extracted from them while they are in use, and then, instead of disposing of them, new products and materials are recovered and regenerated

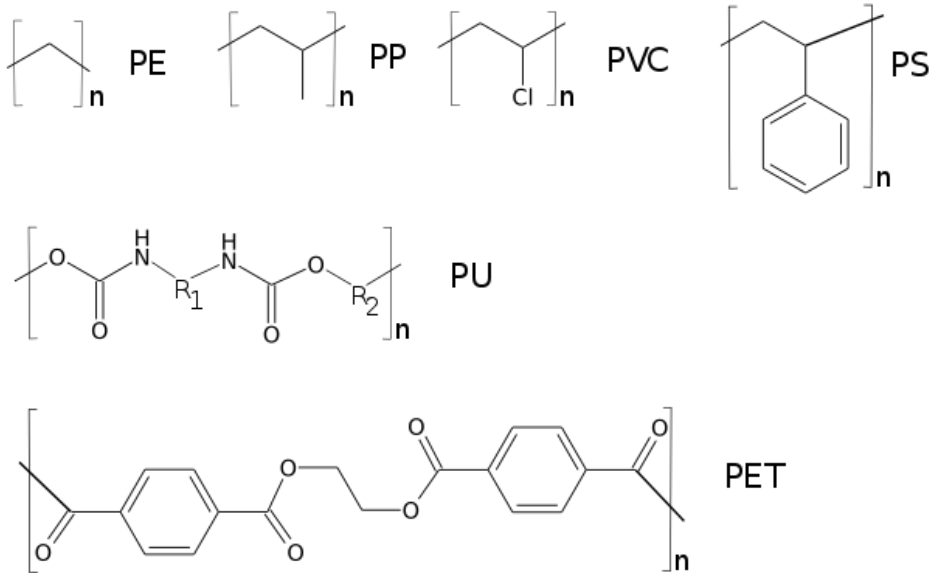
# MICROPLASTIC

But this is not all, in addition to these negative effects and direct on the environment, we must stop the damage they cause the microplastics when they are ingested by any living being.

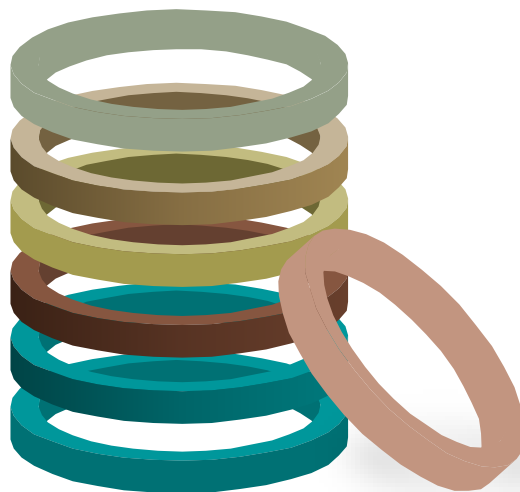


## BUT WHY IS IT SO DIFFICULT TO RECYCLE PLASTICS?

Because its exact composition is very variable



Because it is difficult and sometimes dangerous to separate its components



## BUT WHY IS IT SO DIFFICULT TO RECYCLE PLASTICS?

And because the energy cost and the emissions produced for transport to a fixed recycling plant would be disproportionate in relation to the environmental benefit to be obtained.





# RECYCLE IS EXPENSIVE



It will only be possible to recycle massively when this activity generates benefits and it is economically profitable

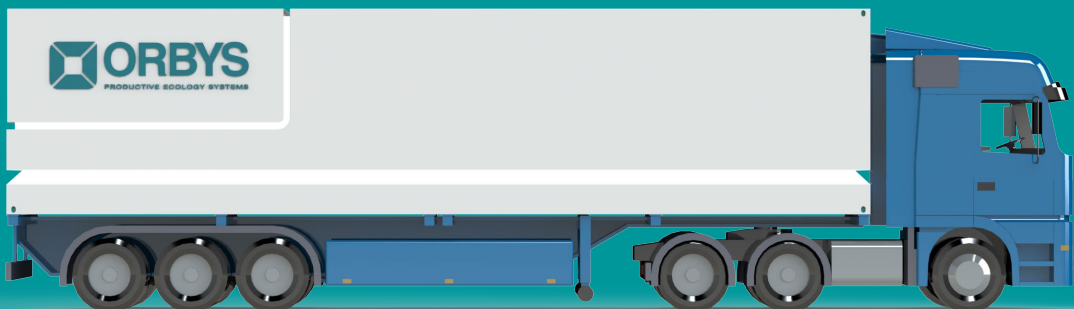
## PRODUCTIVE ECOLOGY SYSTEMS

When we observe the kind of waste that is left in the natural environment, we find that we do not find a large amount of metals. The reason is simple: it has an economic value. You put a price paid by the recycler. In the same way, if we can obtain a profit from the recycling of plastic waste, an economy will be generated in terms of productivity, either through its use as base products for the manufacture of new plastics, or for its consumption as an alternative source of energy to fossil fuels.



# Solution:

AUTONOMOUS SYSTEMS  
FOR A MASSIVE AND EFFICIENT  
RECYCLING  
OF THE PLASTIC WASTE





# MOBILE PLANT FOR RECYCLING PLASTIC WASTES



Orbys System has developed the capacity to build a total recycling facility for plastics, including so-called PET'S, which we can transport by conventional means and operate on site without any other requirement. The installation is mobile and suitable for any means of transport, autonomous in its operation and **capable of processing a volume of 20,000 kilos of plastic per day, or 500,000 bottles per day**. It can be installed both in landfills, as well as on boats that operate by collecting plastic from the sea.

The plastic is eliminated in a complete recycling process, which allows its total reuse, or its use as an energy source. In this way the system is efficient and economically viable.

# MOBILE PLANT FOR RECYCLING PLASTIC WASTES

The whole process is automated. Starting from a massive and indiscriminate entry of the waste that is classified by several systems, they are processed for their admission into the thermocatalytic conversion reactor.

The different compositions and densities of PET and PVC plastics require their classification and chopping to be processed in batches independently, thus maximizing the productivity of the mobile recycling unit.

As a result of all this, petroleum derivatives suitable for industrial use are obtained, with characteristics less polluting than those directly derived from the extraction of fossils.

The yield is equivalent and proportional to the amount of plastic processed, so that the commercialization of the different derivatives obtained, allows a profitability to the economic activity of recycling.



# PRODUCTIVE ECOLOGY SYSTEMS

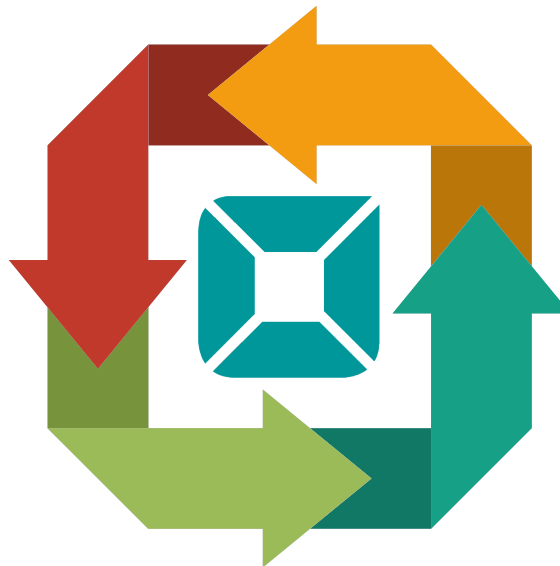
by ORBYS

## TECHNICAL SOLUTION

Large quantities of plastic waste are processed in situ

## AUTONOMY

The mobile plant self-supplies energy with the same recycling process



## MOVILITY

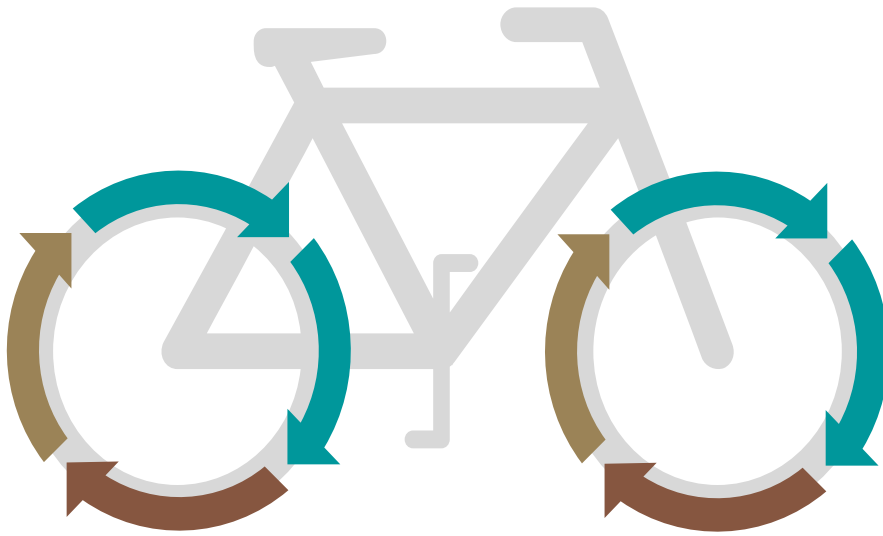
It can be transported in a standardized way by road, rail and by sea

## SUSTAINABILITY

High value-added derivatives are obtained that make the recycling activity sustainable

# STRATEGIC PLAN

**IT IS A GREAT OPPORTUNITY TO DEMONSTRATE THAT THE SOCIAL RESPONSIBILITY OF THE COMPANIES IS NOT PAPER WET, AND THAT THEY ARE COMMITTED**



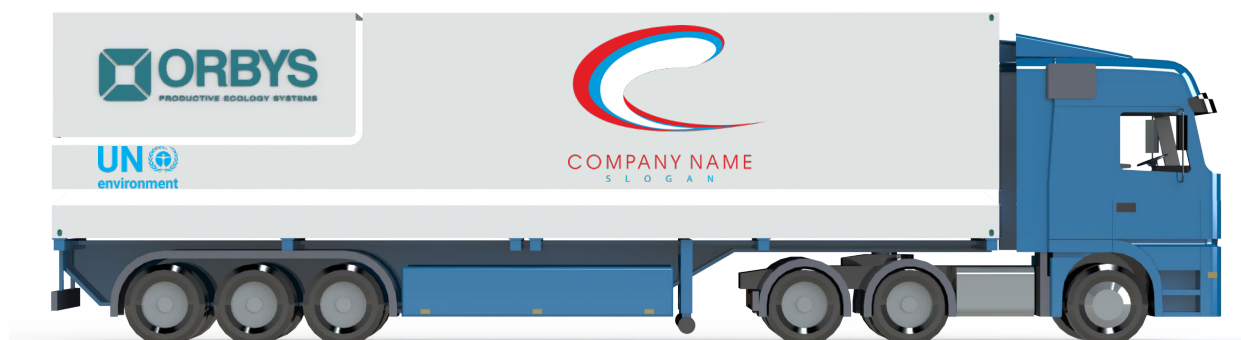
Our execution plan includes the main companies which produce plastic waste, as well as all those who want to contribute to this cause, to which they will be asked to sponsor and finance the mobile recycling units. Once manufactured and put into service, they are productive and financially sustainable, also providing benefits to communities that are suffering from this type of pollution.

We believe that the UN should collaborate in this project by providing its logistical capacity in the most needy areas of the planet.

# LET'S DO IT



HOW MANY COMPANIES ARE WILLING TO SPONSOR  
THE CONSTRUCTION AND COMMISSIONING OF A  
MOBILE PLANT OF MASSIVE AND EFFICIENT  
RECYCLING?





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