



Optimising Waste Management

INVESTIGATE YOUR LOCAL WASTE MANAGEMENT SYSTEM TO IDENTIFY IMPROVEMENTS





Welcome to the Optimising Waste Management Toolkit

Your community's waste management system consists of all the infrastructure and activities put in place by your municipality to collect general waste and recycling.

Do you think your area's waste collection system is as good as it can be? Or are there issues you'd like to resolve? For example, are public bins always overflowing? Do people put their recycling in the wrong bins? Is there a littering problem?

This toolkit will help you investigate your local waste system and identify ways to improve it, as effectively and efficiently as possible.

“ Thanks to the work Common Seas did to map all bins on the island, we can plan and optimise collection routes. I am optimistic for the future of this collaboration, that will establish Paros as a pioneer not only in Greece, but also the EU and globally. ”

Ioannis Ragoussis, Paros Municipality, Director of Planning for Urban Development, Building Authorities, and the Environment

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Our investigation into the island's waste collection system



How to guide

Waste collection system mapping

This guide will help you create a digital map of bin locations, bin condition, use level and illegal dumping spots. Although you can map your community's bins at any stage of your journey, it's a particularly useful place to start because of the useful information it provides. This guide will explain how to get going, and we recommend you read all the way through before starting.



ΠΡΟΣ ΧΥΤΑ TO LANDFILL

OXI ΚΛΑΔΙΑ NO BRANCHES

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Τμήμα Καθαριότητας, Ανακύκλωσης και Πρασίνου:
Department of Cleaning, Recycling and Green
☎ 22840-24059

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ΑΝΑΚΥΚΛΩΣΙΜΑ • RECYCLABLES

ΜΟΝΟ ΚΑΘΑΡΕΣ ΣΥΣΚΕΥΑΣΙΕΣ • ONLY CLEAN
ΣΥΣΚΕΥΑΣΙΕΣ ΧΩΡΙΣ ΣΑΚΟΥΛΑ • NOT IN BAGS

Χαρτί • Χαρτακιβώτια ΔΙΠΛΩΝΟ Paper • Cardboard FLATTEN	Αλουμίνιο ΣΥΜΠΙΕΣΟ Aluminium CRUSH
Πλαστικό ΣΥΜΠΙΕΣΟ ΚΑΙ ΒΙΔΩΝΟ ΤΑ ΚΑΠΑΚΙΑ Plastic COMPRESS AND KEEP LIDS ON	Γυαλί ΔΕΝ ΣΠΑΩ Glass DON'T BREAK
Λευκοσίδηρος Tinplate	

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ΔΗΜΟΣ ΠΑΡΟΥ CommonSeas WATT Clean Blue Paros

Case study from Paros:

Our investigation into the island's waste collection system



When we started working on Paros, we knew that although the local municipality was doing its best, there were opportunities to improve the island's waste collection system. We wanted to understand the problem properly before we started trying to solve it.

To do this, we conducted three investigations: first, we analysed what was being sent to the island's landfill; we then asked eight families to monitor how they used their bins at homes; and finally, we mapped all of Paros' public bins to understand their usage. These investigations were all linked, and we used our findings to design and implement a series of solutions.

This case study will summarise these investigations and their findings.



The three steps

Step 1.

The landfill audit



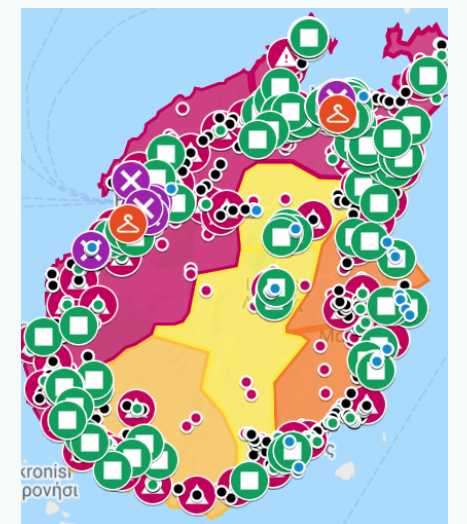
Step 2.

Household waste audit



Step 3.

Mapping Paros' bins



Step 1. The landfill audit

We started by conducting a Waste Composition Analysis at Paros' landfill. We wanted to get a closer look at what was being put into the general waste, both to understand people's habits and to find out if there was any room for improvement.



Here's how the landfill audit worked.

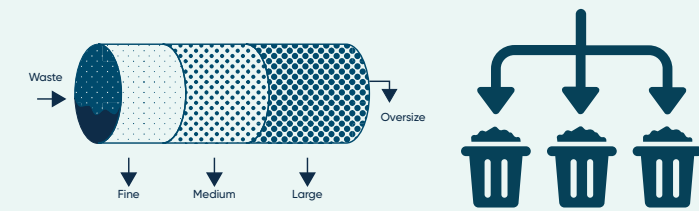
Waste was collected as usual by the island's refuse collection trucks.



Each truck was weighed as it entered and exited the landfill. That way, we could find out the total weight of waste that had been collected.



Our team then took a sample of waste from each truck and used a trommel to sort through it.



The whole process took a few days and led to some valuable insights.

Around **200 tons** of waste was sent to landfill during the sampling period.

15.8% of this waste could have been recycled.

Areas with higher population density and more tourists contributed the most waste and more importantly, more recyclables than other areas.

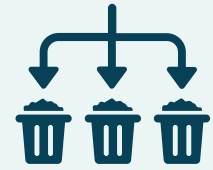
These findings also allowed us to set a benchmark so that we can continue to measure the impact of our solutions over time.

Step 2. Household waste audit

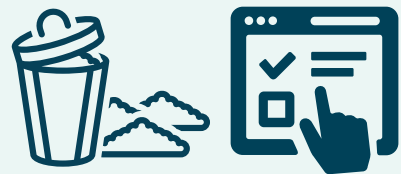
The findings of the landfill audit gave us lots of useful data, but we wanted to take a closer look at why so much recycling was being sent to the wrong place. We designed a simple household waste audit and found eight families who were keen to take part.

Here's how it worked:

•For one week, each family collected, sorted and measured all their household waste.



•At the end of the week, they submitted their data using an online survey.



•We gathered all the results, analysed them for our own work and reported back to the families involved.



This audit didn't just give us useful insights about how people on Paros were treating their household waste, it was also a great way to set another baseline while building engagement and awareness.



If you want to run your own household waste audits, there are good tools already available online – we recommend My Little Plastic Footprint and My Plastic Diary.

Compostable 	Branches	Paros Agricultural cooperative*	
	Food waste	1. Home compost	
	Non-animal organic waste	2. Green or Metal bin**	
Recyclables 	Metal packaging	Blue bin	
	Plastic packaging		
	Paper packaging		
	Tetrapack		
	Glass packaging	Glass bells	
Construction waste 	Bricks	Licensed disposal spaces: 1. Ioannis Daveronas 22840 53258 & 697 8440931, Naoussa 2. Giorgos Christoforos 22840 42798, Archilochos	
	Cement		
Other recyclables 	Construction material	ECOPAROS: ecoparos@gmail.com 6932460190, 6980512445, 2284 025131,	
	Metals etc.		
	Cooking oils		All Gas stations
	Engine oils		All Pharmacies
	Pharmaceutical waste		All Electronics stores
	Batteries		Warehouse of Paros' Municipality: 22840 24099
	Light bulbs		
Electrical and electronic devices	All Car workshops		
Mattresses			
Car batteries	Aegean Rebreath marine waste collection stations: ports of Parikia and Naoussa soon available in the port of Aliki		
Fishing gear			
Other waste 	Fishing gear	Green or Metal bin**	
	Non compostable organic waste (Bones, cooked meat, etc.)		
	Soiled packaging, sanitary waste, diapers etc		

Step 3. Mapping Paros' bins

To complete our investigation into Paros' waste collection system, we mapped the island's bins and waste collection routes. Paros is now one of only 20 municipalities globally to report this level of data.

Here's how it worked:

- Working in pairs, our team drove around the island marking the location of 1,292 bins into an online map.



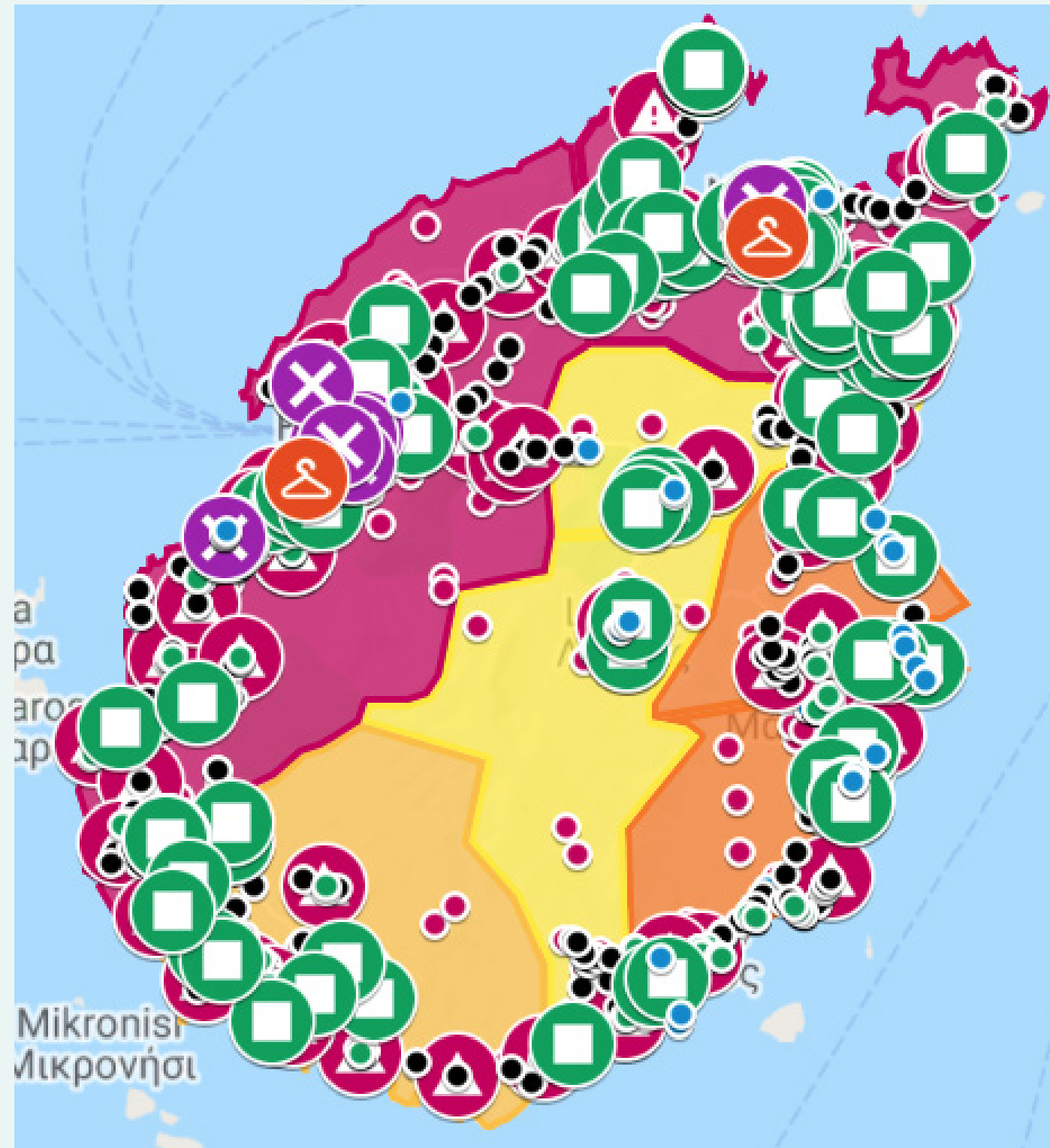
- On an agreed day, we followed the municipality's refuse collection trucks to track their routes – with their permission of course!



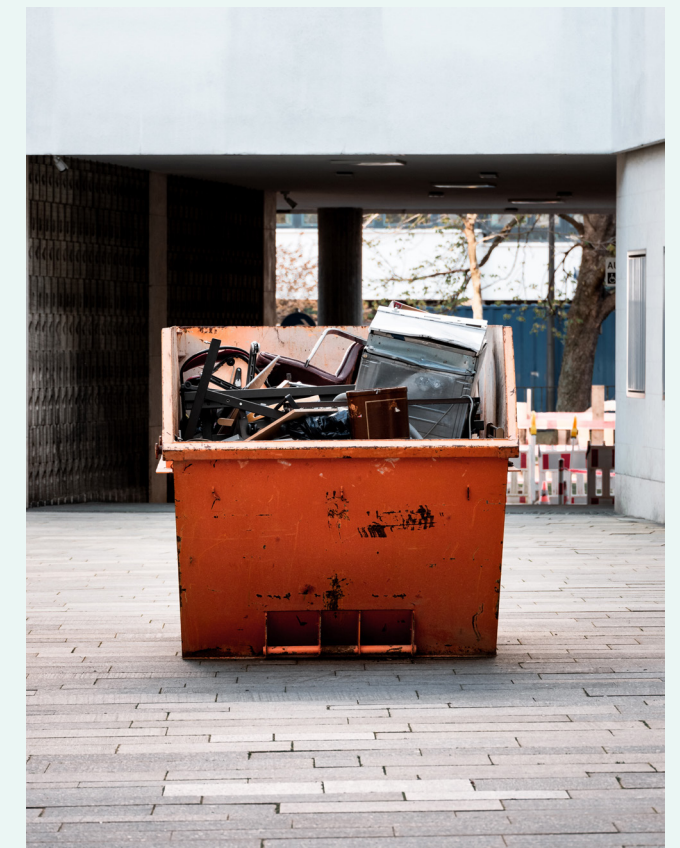
This work revealed that many people had better access to landfill bins than to recycling bins – and were therefore putting their recyclable waste in the wrong bin. We also discovered a lot of the island's bins weren't being used correctly, either because of confusing colouring or because of a lack of instructions.

When we presented our findings to the municipality, they decided to order 200 new green bins for recycling and repaint any 'confusing' bins to make it clear what they were for. They also supported our pilot 'bin sticker' campaign, which communicates how to use different bins.

Given the number of illegal tipping sites that we found, the municipality has also improved its communications on how to recycle mattresses, engine oil, white goods and clothes, etc. In some areas, they also improved bin shelter to reduce blow off and installed lighting to encourage use.



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How to guide

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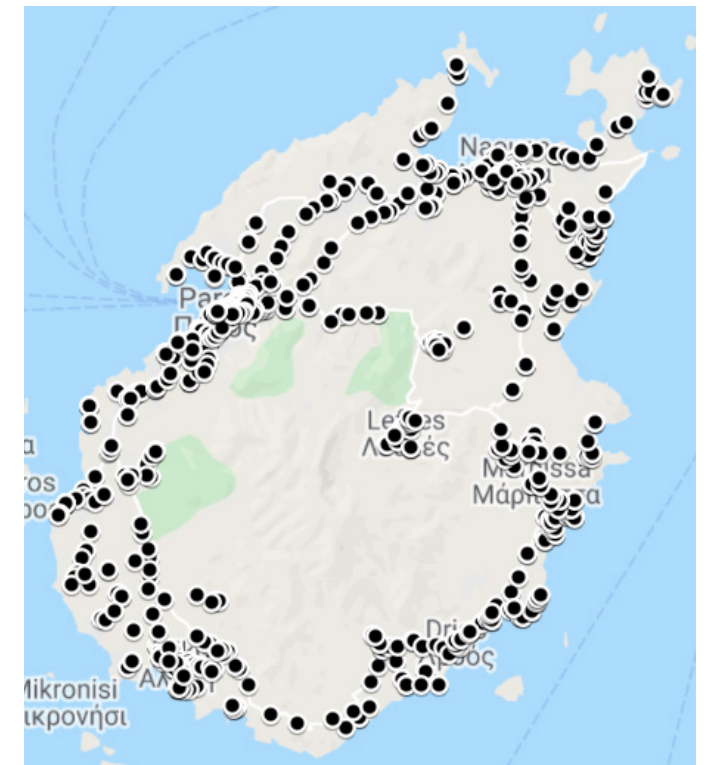
Introduction

What is 'waste collection mapping' and why do we do it?

Digitally mapping your region's waste collection system is a scientific process that helps you understand and communicate:

- Which waste streams are collected and by whom, e.g. general waste, recycling for glass, aluminium, plastics, etc.
- The bin locations for each waste stream.
- Available infrastructure like landfill sites and recycling centres.
- The condition and use of existing bins.

This mapping will help you see how your region's bins are distributed, and identify which bins are overflowing and letting litter escape, and which bins are hardly ever used. This will then help you and/or your municipality improve the bin distribution to reduce this leakage and improve recycling collection.

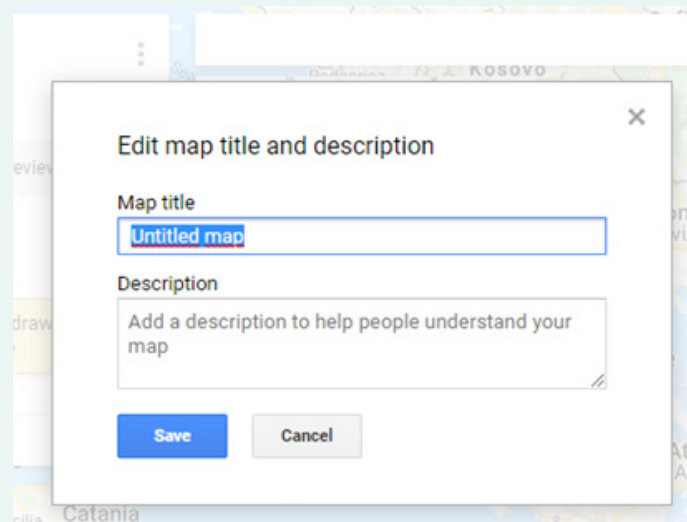


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How to map your region's waste collection system

This involves collecting on-the-ground information about your region's waste collection system. On Paros, the team drove around the island in pairs – with one person at the wheel, and the other making notes as they went.

We recommend you use the Google MyMaps tool to build your map. Please note: Google MyMaps is not the same as Google Maps.



Outline and divide

Using a printed or digital map of your region, outline the area you're investigating and divide it into several smaller segments, each of which can be tackled in a single session. Plan a route so you don't miss any roads, streets, beaches and so on.

Setting up Google MyMaps

Set up your Google MyMaps account. To do this, go to MyMaps (<https://mymaps.google.com/>), create an account, and create a map using the following format (see fig.1):

NAME: region name + 'waste collection system map' e.g. Paros waste collection system map.

DESCRIPTION: A Clean Blue Promise map of [region]'s waste collection system, including bins and collection routes.

Once you have your map, add a layer for each category you're mapping (see fig.2). For example, you might want layers for: general waste bins, recycling bins, glass recycling bins, compost bins, litter bins, specific bins (eg. ashtrays, clothes recycling), and facilities, like the landfill or recycling site.

Get out there!

Follow your route and record each bin location. Google MyMaps doesn't have a smartphone app, but it's easy to use via a web browser on your phone. Or use the GoogleMaps app to 'pin' each bin location and upload to Google MyMaps later.

If you'd rather keep everything offline while you're on the move, mark each bin on a printed map and upload to Google MyMaps later.

Ideally, you want to record the following information for each bin:

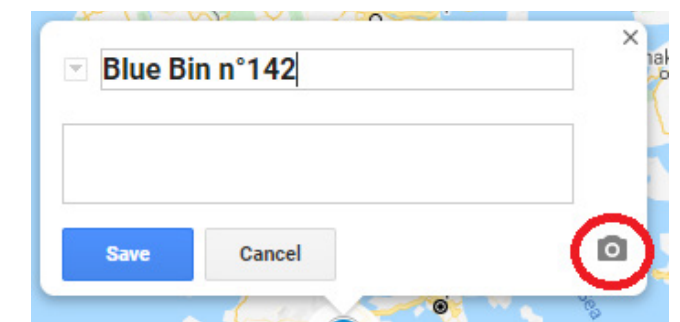
- **Time:** Is it morning, afternoon or night?
- **Condition:** Is the body of the bin intact? Is the lid on? Is it broken?
- **Colour:** What colour is the body and the lid?
- **Capacity:** Is the bin full, overused or underused?
- **Area around bin:** Is it clean, or full of waste? Is the area well or badly lit? Does it feel safe to use?
- **Access:** Is it easy or hard to access?
- Can you spot any illegal dumping grounds nearby?



Entering Data

Whether you're adding information on the go or uploading it later, here's how to enter all that data into Google MyMaps.

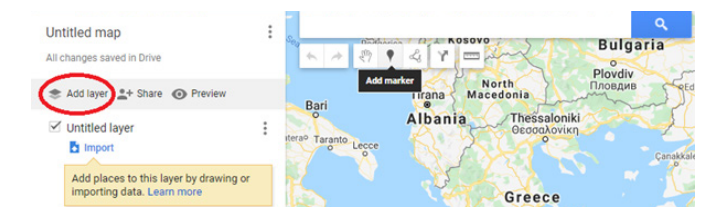
- Think of each bin as one data point. If there are five bins on a single spot, you'll need to place five pins there.
- Select the appropriate layer (eg. general waste bin or recycling bin) then click on 'Add marker'.
- Use a number system to 'name' each bin (see fig.3).
- Enter the information you've gathered and, if possible, attach a picture.



Saving on Computer

Google MyMaps will automatically save your work when you're online, but it's worth saving a local version to your computer too.

This work will hopefully lead to changes in your region's waste collection system. If you want to record these changes and monitor their impact (which we recommend), then it is worth keeping your maps up to date.



Bin stickers to download and use



As part of our work to improve specific waste streams on Paros, we trialed a sticker campaign on 326 bins in the island's main town. These stickers are designed to provide clear signage that increases recycling and reduces waste to landfill.

As a result of these stickers, 19.5 tons waste are now being diverted from landfill each month. Thanks to these results, the municipality and local waste organisation WATT have agreed to finance similar communications on 1,291 bins across the island.

General waste bin sticker

This sticker communicates that this bin's waste is sent to landfill.



Recycling bin sticker

This sticker identifies items that can be recycled and communicates best disposal practices.



CLEAN BLUE PROMISE

x *1 Promise*

EST. 2022



Thank you

