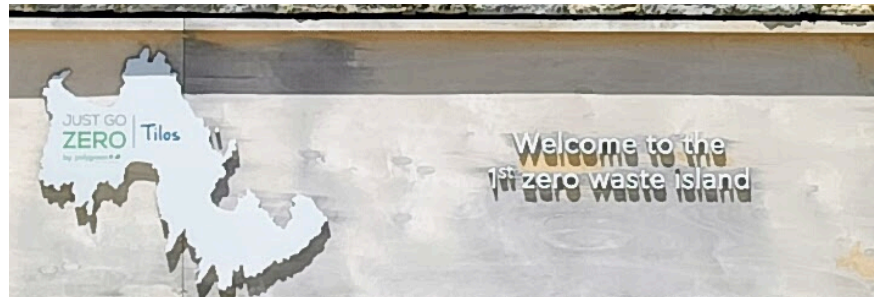




## **Lessons of Sustainability**

### **Lesson 3a: Tilos - Waste Free**

Tilos - [the small island of Tilos is a trail blazer in sustainable infrastructure](#). They have achieved the ambitious goal of being both [a waste free island](#), and energy independent.



These achievements are impressive, and their success is aided by the fact that the population of Tilos is under 800 people. The waste processing facility is called the Κέντρο Κυκλικής Καινοτομίας (**Center for Circular Innovation**)



#### **Part 1: Zero Waste Landfill**

[According to Mira Fillipou](#), Communications Officer with Polygreen, the company that runs the recycling, the following stats are true:

- The **Center for Circular Innovation** has on average 11 workers who do the work of collecting and sorting resident's waste each year for the approximately 750 residents
- In winter, the **Center for Circular Innovation** processes 4,300 Kg of organics, 7,600 Kg of recyclables, and 1,000 kg of non-recyclables per month. In Summer, 12,000 kg organics, 19,500 kg recyclables



and 2,500 non-recyclables per month

- Over three years, the **Center for Circular Innovation** has collected 447,244 kg of recyclables (55,5%), 276,032 kg organics 276,032 (34.2%) and 82,852 non-recyclables (10.3%).



The problem: Leadership on Tilos see their success as a pilot project, or a test case for ideas that could be scaled up. [Recently, the city of Dubai has contracted with the same company that helped Tilos go waste free.](#) Scaling up the hand sorting, and complete recycling that happens on Tilos will be a challenge in Dubai, starting with servicing 700,000 people, then 800,000, then 1.1 Million in the third year.

The Task: Use population data for these two cities to calculate the size of the waste treatment plant that will be needed in Dubai for each stage over the next three years. Show your work

- How many total Kgs of waste can they expect?
- How many people will need to be hired to work a similar center in Dubai?
- How many Kgs of organics, recyclables, and non-recyclables will they likely process per month?
- How many Kgs of organics, recyclables, and non-recyclables will they likely process per year?



*Topics: Unit analysis, proportional relationships, data analysis*

