The Influence of waste generation in Tourist Areas in the Framework of City Metabolism: A case study from Cyprus

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Scope of the survey

The main objective of the research was to analyze the qualitative and quantitative composition of solid waste produced in the Study Area (Sunrise Beach – Protaras, Cyprus), in order to determine the correlation between the solid waste production and the visitors, to determine their habits and to evaluate the existing Waste Management Plan.

Study area: PROTARAS

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Waste zone 1 (beach): zone 1 consists of 19 points (double bins with a capacity of 56 liters).

The maximum capacity of the study area is about 1660 people per day

Waste management Infrastructure

2 points of rewarding recycling

1 point with semi underground recycle waste containers

Methodology

Waste Composition Analysis

Sampling period: The waste composition analysis took place from June to October for a period of 7 days per month (Sunday to Saturday, last week for each month).

Sampling program: Sampling was collected on a daily base, 3 times a day between 9:00-10:30am, 13:00-14:30pm and 16:00-17:30pm.

Sampling Methodology

The Waste Composition Analysis was carried out according to the Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste, D5231 – 92. Specifically, the process includes the following:

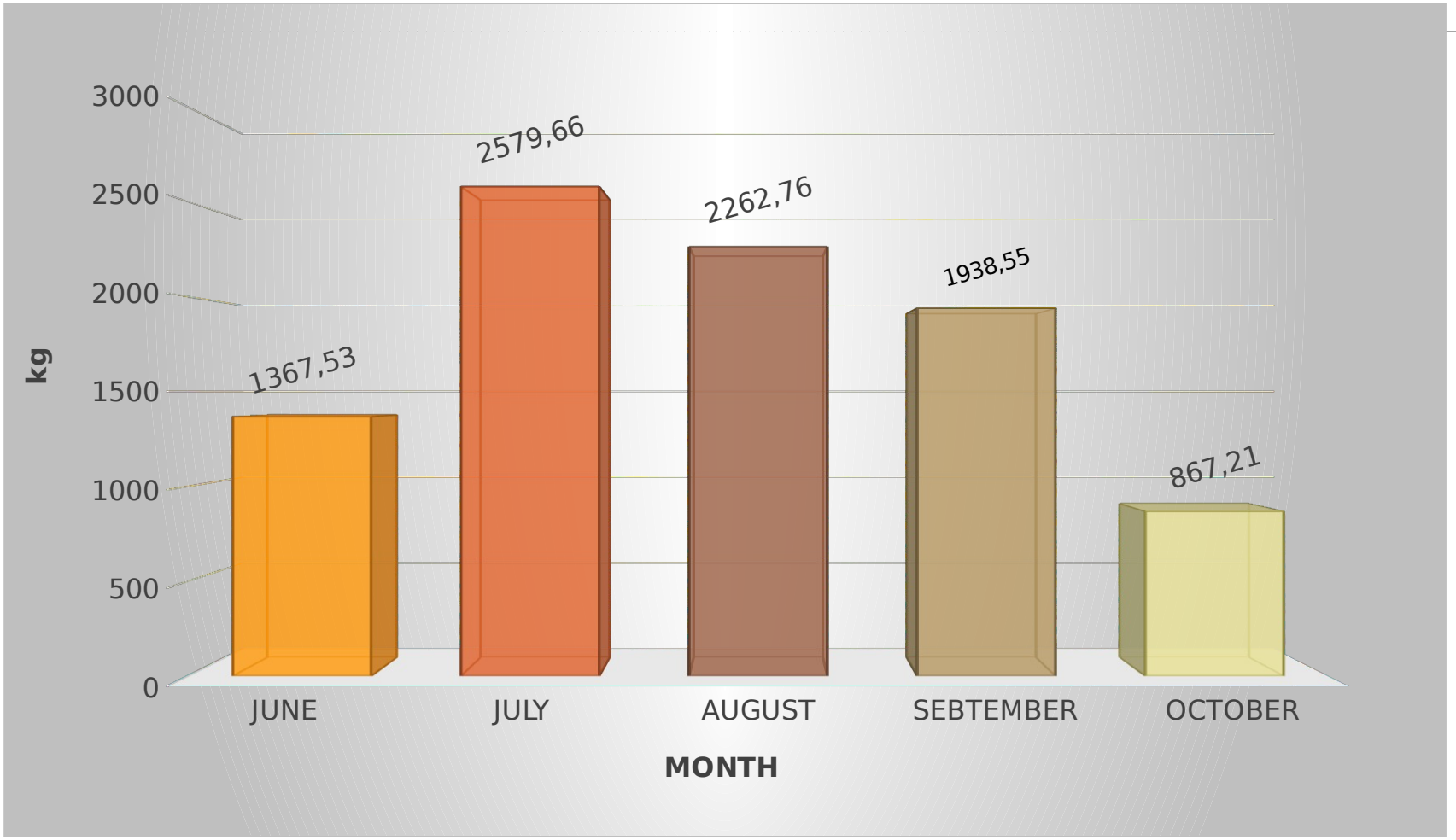
1. **Calculation of the total weight for each bin**
2. **Manual sorting of waste into individual waste components**
3. **Calculation of the total weight for each waste stream**

Methodology

WASTE CATEGORIES		
Paper cardboard	**Batteries**	**Other:**
Glass	**Aerosols**	Toys
Small plastics	**Electronic equipment**	Syringe
Plastics	**Compostable waste (garden and park waste)**	Stationery
Small metals	**Soil and Stones**	Tetrapack
Metals	**Mixed municipal waste (includes sanitary)**	Medicine package
Wood		Cosmetics
Organic compostable kitchen waste		Candles
Clothes		CD
Textiles		Kitchen cleaner
Medicines		Beach equipment

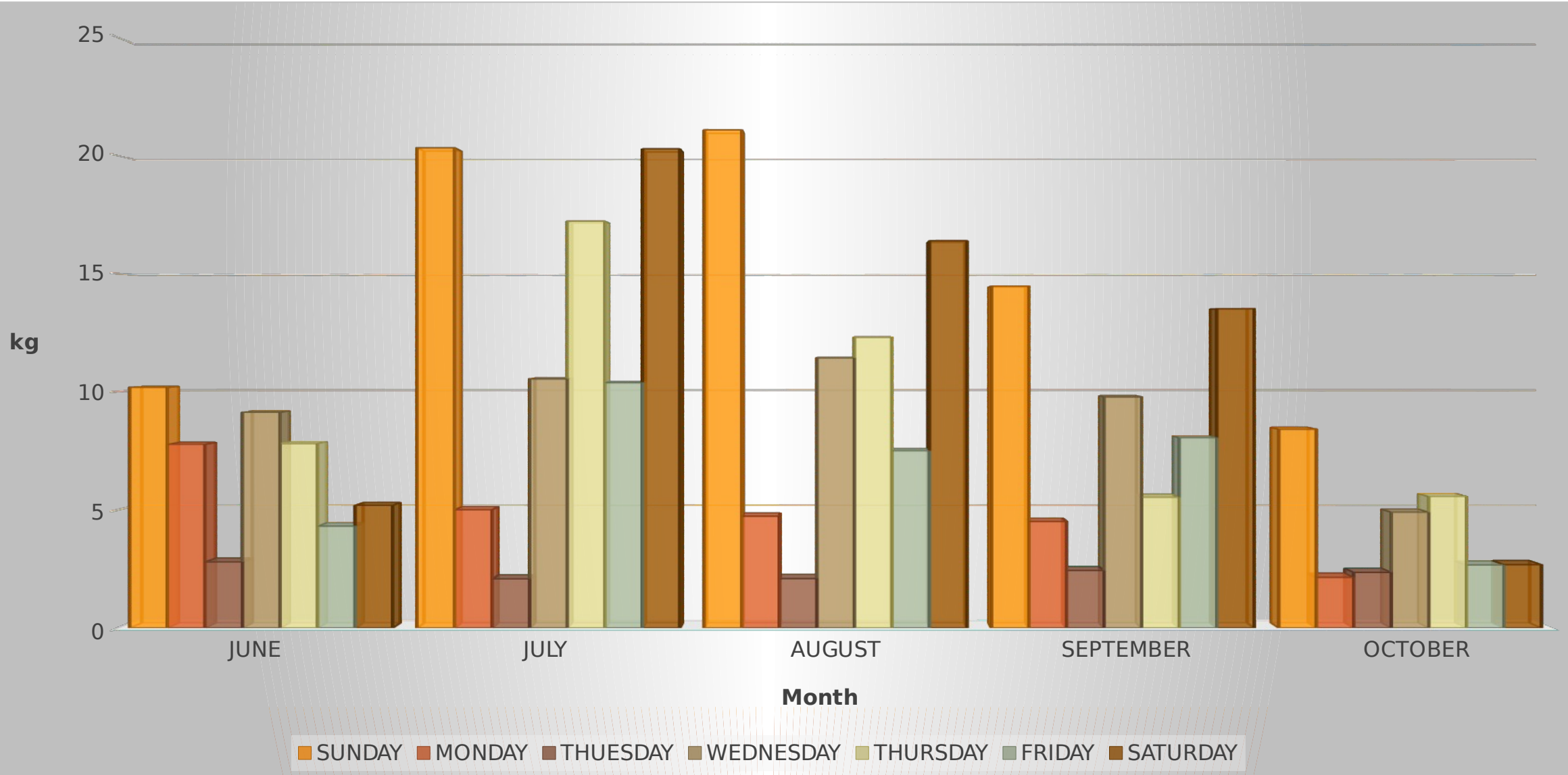

Corona
Extra

RESULTS (total kg per month)

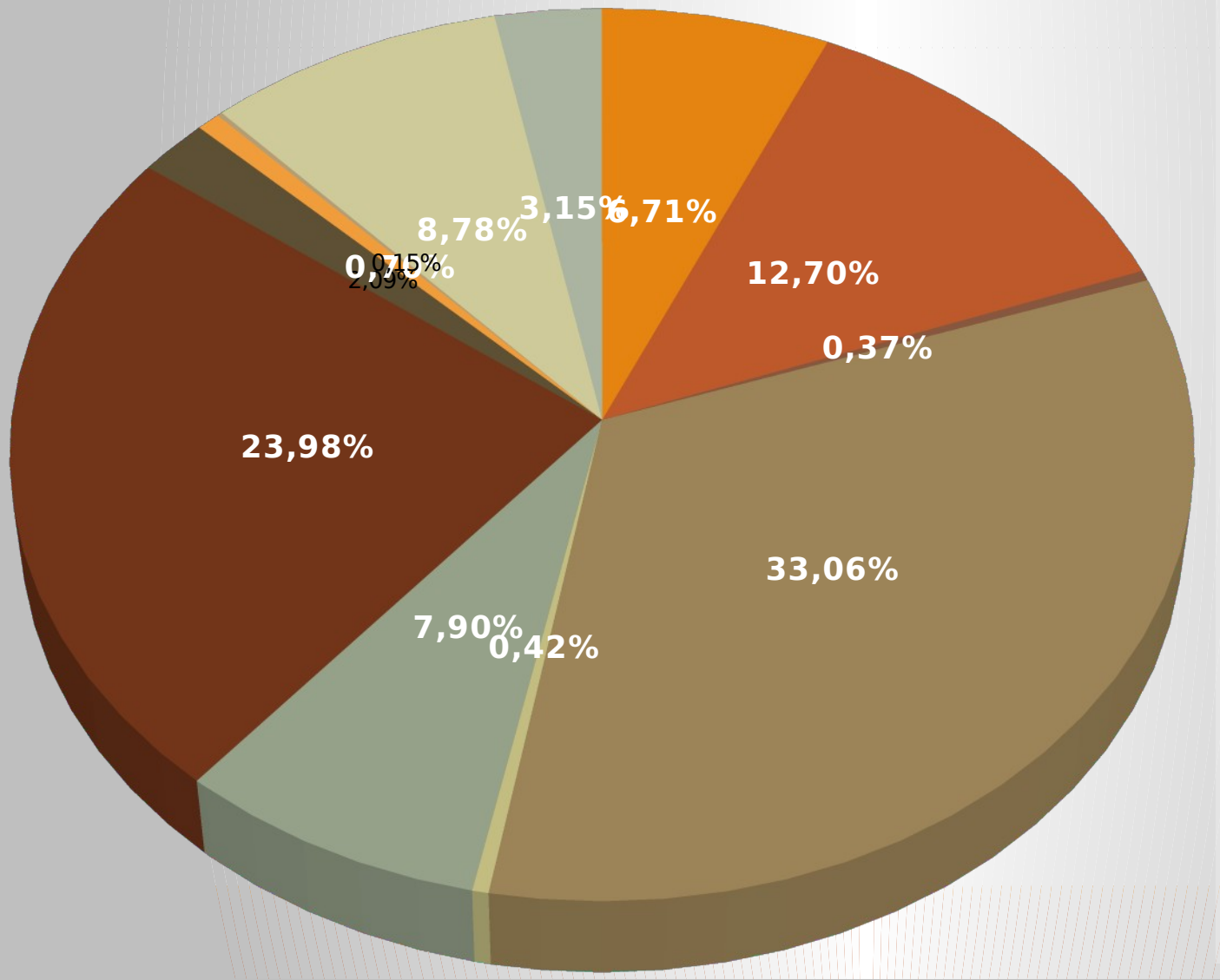


MONTH	kg
JUNE	1367.53
JULY	2579.66
AUGUST	2262.76
SEPTEMBER	1938.55
OCTOBER	867.21

RESULTS (variance of solid waste production per day per month)

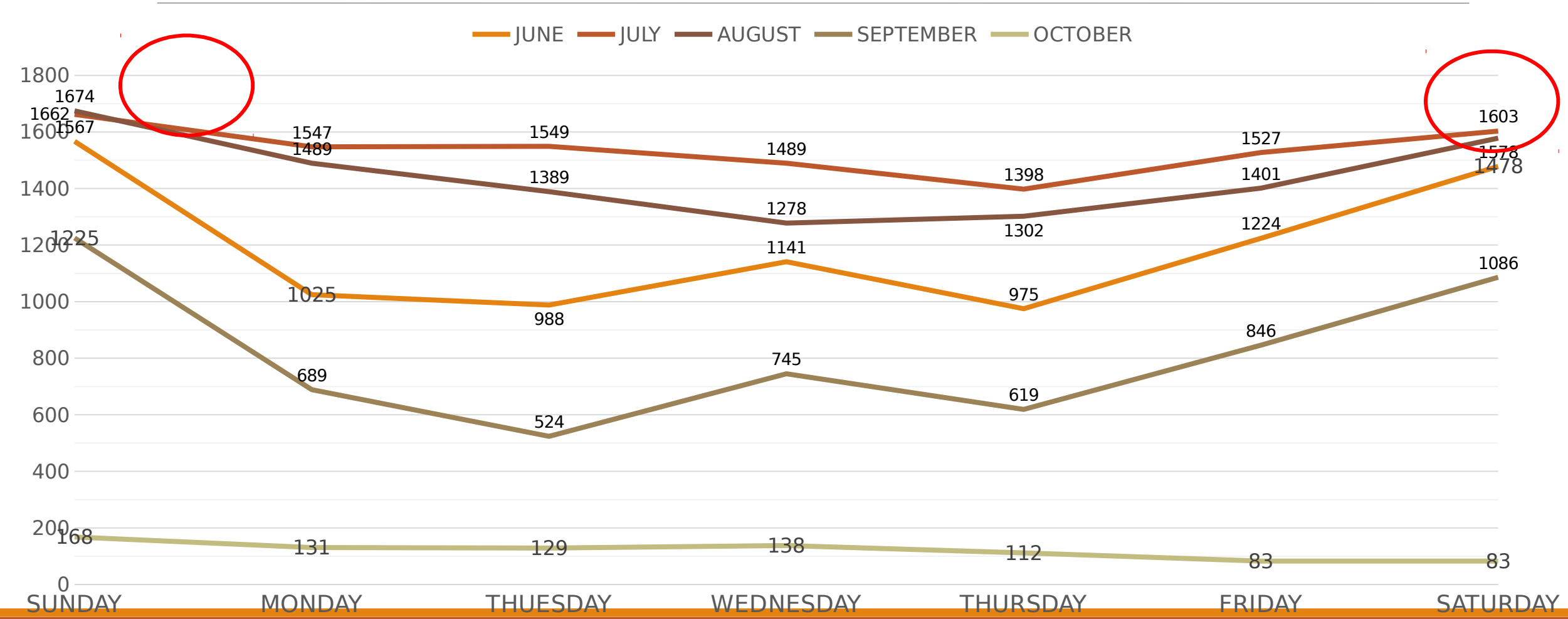


RESULTS (total kg per month)



- Paper cardboard
- Glass
- Small plastics
- Plastics
- Small metals
- Metals
- Wood
- Organic compostable kitchen waste
- Clothes
- Textiles
- Medicines
- Batteries
- Aerosols
- Electronic equipment
- Compostable waste (garden and park waste
- Soil and stones
- Mixed municipal waste(includes sanitary)
- Other

HUMAN PRESENT



Results

- The main waste streams resulting from composition analysis were recyclable materials (plastic, aluminum packages, glass, paper) and food waste.
- The waste composition analysis highlighted the significant problem of the absence of ***an effective waste management plan*** and, in particular, of the inefficiency plan for the separate collection of recyclable materials.

Results

- The infrastructure for recycling is inefficiency due to the fact that is located far away from the center of the beach and were not at obvious point (especially the semi underground bins).
- During the personal contact with visitors, a large number of them expressed dissatisfaction with the lack of recycling bins and that while they wanted to separate their waste was not feasible. Regarding the existing infrastructure, some of the visitor said that the recycling system was not practical, while for the waste semi-underground bins most of them did not know their existence (they are in a fenced area without any marking).

Proposals

- Stakeholders must provide the appropriate resources and infrastructure to promote separate collection / recycling / reuse practices → Waste Management Plant
- It is recommended to place recycling bins at least for the three of the main waste streams of ***glass, metal and plastics.***

Thank you for your attention!!!

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