MALAGA SUSTAINABLE TOURISM OBSERVATORY:

SOLID WASTE MANAGEMENT

TECHNICAL INSTO WEBINAR ON: SOLID WASTE MANAGEMENT
WEDNESDAY, 5 JULY 2023
INTRODUCTION TO MALAGA SUSTAINABLE TOURISM OBSERVATORY

WASTE MANAGEMENT IN MALAGA
- WHO IS RESPONSIBLE?
- STATE OF ART
- GOOD PRACTICES PROMOTING SUSTAINABILITY RELATED TO TOURISM
- WASTE MANAGEMENT INDICATORS

FINDINGS AND CONCLUSIONS
In the south of Spain, bathed by the Mediterranean Sea, Málaga is the second most populous city in Andalusia and the sixth most populous in Spain. Our more than 3,000 years of history have left us an incomparable legacy. Its monuments, museums, festivals and gastronomy make Málaga a city that cannot be forgotten.

**AREA:** 395 SQUARE KILOMETRES  
**POPULATION:** 578,000 INHABITANTS  
**CLIMATE:** MORE THAN 300 DAYS OF SUNSHINE A YEAR

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**1st Airport in Andalusia & 4th in the Iberian peninsula.**

- 19,858,656 passengers in 2019
- 5,161,636 passengers in 2020
- 8,874,765 passengers in 2021
- 18,457,194 passengers in 2022
- 137 direct destinations in 38 countries

**2nd Cruise ship port in peninsula & 6th in the Mediterranean Sea.**

- 288 Cruise Port with 477,001 passengers in 2019
- 41 Cruise Port with 40,172 passengers in 2020
- 144 Cruise Port with 145,859 passengers in 2021
- 267 Cruise Port with 342,045 passengers in 2022
- Seatrade Med in 2022
- Restaurant / entertainment promenade connecting port to city. Málaga Cruise Shops

**High-speed trains, commuter railway and metro system.**

- Madrid in 2 hour and 20 minutes
- Barcelona in 4 hours and 40 minutes
- 2 metro lines
STO MALAGA

EUROPEAN CAPITAL OF SMART TOURISM 2020

Promote by the European Comission:
Focus on four main pillars:
Sustainability, accessibility, digitalisation as well as cultural heritage and creativity.

MEMBER OF THE SMART DESTINATION NETWORK (DTI)

Promote by the Spanish Ministry of Tourism:
Focus on the five main pillars:
Governance, Innovation, Technology, Sustainability and Accessibility.

MÁLAGA’S TOURISM DEVELOPMENT PLAN 2021-2024

The City defined a total of thirteen action areas (‘Strategic Challenges’).
Number 2,5 ‘BE AN INSTO MEMBER’

MALAGA CLIMATE PLAN 2050 (ALICIA)

Axis “Urban Metabolism”:
Strategic Line 20: Circular and Local Economy; Action 20.1: Promotion of Local Circular Economy.
Strategic Line 21: Responsible Consumption and Healthy Diet; Action 21.1: Good Practices of Consumption

MALAGA STRATEGIC WASTE MANAGEMENT PLAN is developing

As a part of general strategy, special focus in events and tourism related:
INTERREG EUROPE 2022-2027 PROJECT: “WASTE MINIMISATION IN BIG EVENTS”
Expert Committee:
Municipal areas related to the strategic areas of the Insto network: Environmental sustainability, innovation and urban digitalization, mobility, accessibility and citizen participation.

Tourism Forum:
Local Stakeholder Group: Representatives of airport, Port, Chamber of Commerce, Hotel association, Hoteliers association, Tourist guides, Spanish schools for foreigners, Travel agencies, ....

Research Partners:
OMAU: Urban Environment Observatory
UMA: University of Málaga
CIEDES: Centre for Strategic Research and Economic and Social Development of Málaga.

DATA SID:
https://datasid.malaga.eu/turismo_malaga/home
1. ACCESSIBILITY

Develop tools to monitor implementation of accessibility

Last Tuesday 18 October we presented the City’s Accessible Tourism Plan

2. GOVERNANCE

Improve and extend the monitoring of indicators to improve understanding of all impacts of tourism in the destination

3. LOCAL PARTICIPATION & SATISFACTION

Start monitoring resident satisfaction and increase evidence about environmental impact of tourism

4. SUSTAINABILITY

Increase evidence about environmental impact of tourism

- Tourist flows & Densities
- Climate action
- Impacts of cruise ships

WASTE MANAGEMENT

MISION

Through multisector and destination-wide cooperation, regular and holistic monitoring, evaluation and reporting of tourism impacts, the observatory’s mission is to unlock the potential of tourism as catalyst for positive change by bringing all data insights together that are relevant for sustainable and resilient destinations and provide all stakeholders the opportunity to co-create a tourism model that can balance the needs of people, planet, and prosperity.

It will strive to ensure reliable, holistic information for well-informed decision making, point out risks and opportunities, develop ideas, as well as provide recommendations and best practices towards continuous improvement of sustainable tourism and smart destination management. The enabling of awareness, learning and evidence-based decision making for different target groups of Málaga’s society will be its very core.

The Observatory will monitor, evaluate, and communicate on Málaga’s developments and the impacts they have on the destination, its natural environment, and its inhabitants.
Waste management
Who is responsible for waste management?

CLEANING SERVICE OF MALAGA

<table>
<thead>
<tr>
<th>Shareholder</th>
<th>100% Municipality of Malaga</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of foundation</td>
<td>2020*</td>
</tr>
<tr>
<td>Main responsibilities</td>
<td>Street Cleaning</td>
</tr>
<tr>
<td></td>
<td>Municipal Waste management</td>
</tr>
<tr>
<td></td>
<td>• Waste collection</td>
</tr>
<tr>
<td></td>
<td>(also cleaning point)</td>
</tr>
<tr>
<td></td>
<td>• Waste treatment</td>
</tr>
<tr>
<td></td>
<td>(sorting plants and final disposal in landfill)</td>
</tr>
<tr>
<td>Treated waste per year</td>
<td>About 300,000 t MSW</td>
</tr>
<tr>
<td></td>
<td>&gt; 300,000 t CDW</td>
</tr>
<tr>
<td>Number of employes</td>
<td>Around 2,000</td>
</tr>
</tbody>
</table>

*Comes from previous public-private companies responsible for cleaning services and waste management in Malaga WORKING FOR THE LOCAL GOVERNMENT*
Waste collection in 5 fractions using containers located at street.
State of Art of Waste management in Malaga I

1. WASTE MANAGEMENT AND CIRCULAR ECONOMY PLAN is developing

2. WASTE COLLECTION IS SEGREGATED IN 5 FRACTIONS (implemented in the whole municipality)
   - Light packaging
   - Paper-cardboard
   - Glass
   - Organic waste (october 2023 is expected full implementation)
   - Non-segregated waste fraction (rest)

ACCORDING TO MUNICIPAL LAW, SORTING WASTE IS COMPULSORY for citizens and companies, included touristic business!
3. WASTE COLLECTION IS BASED ON CONTAINERS LOCATED ON THE STREET used by CITIZENS AND COMERCIAL BUSINESS

<table>
<thead>
<tr>
<th>Item</th>
<th>Average collection frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHT PACKAGING</td>
<td>4 days/week</td>
</tr>
<tr>
<td>PAPER CARDBOARD</td>
<td>3-4 days/week</td>
</tr>
<tr>
<td>GLASS</td>
<td>1 day/week</td>
</tr>
<tr>
<td>ORGANIC WASTE</td>
<td>Daily</td>
</tr>
<tr>
<td>REST</td>
<td>Daily</td>
</tr>
</tbody>
</table>

There are also “door to door” paper cardboard and glass collection for comercial stablishments in town center
4. ENERGY PRODUCTION FROM BIOGAS PRODUCED IN LANDFILL

Currently, all non-recycled/sorted waste is deposited in a sanitary controlled landfill. Biogas generated is converted into electricity.

5. NEW REGULATIONS AND LAWS IN WASTE MANAGEMENT
- Landfill tax has been implemented in 2023
- DEVELOPING GUIDELINES TO IMPLEMENT NEW MUNICIPAL WASTE MANAGEMENT TAX SYSTEM based on global principle “As pay as you throw”
State of Art of Waste management in Malaga III

4. ENERGY PRODUCTION FROM BIOGAS PRODUCED IN LANDFILL

Currently, all non-recycled/sorted waste is deposited in a sanitary controlled landfill. Landfill biogas generated is managed to produce electricity.

5. INVESTMENTS IN WASTE TREATMENT FACILITIES ARE PLANNED

- New composting plant to “recycle organic waste”
- ImprovementS in sorting plant to increase recycling rate

6. NEW REGULATIONS AND LAWS IN WASTE MANAGEMENT

- Landfill tax has been implemented in 2023
- Municipal waste tax system must be review and implemented - ....based on principle “As pay as you throw”
GOOD PRACTICES TO PROMOTE SUSTAINABILITY, RELATED TO TOURISM

- Implementing Municipal “Sustainable Certificate” for establishments, also turistic ones

- Promoting sustainable events

Waste minimisation in Big events
GOOD PRACTICES TO PROMOTE SUSTAINABILITY, RELATED TO TOURISM

Selective collection bins and waste containers in events

Selective solar bins in “overcrowed areas” (touristic zones)
WASTE MANAGEMENT INDICATORS I

1. TOTAL MUNICIPAL SOLID WASTE GENERATED

<table>
<thead>
<tr>
<th>WASTE GENERATION (tons)</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Waste (Mixed) in containers</td>
<td>224.635</td>
</tr>
<tr>
<td>Paper-cardboard*</td>
<td>8.463</td>
</tr>
<tr>
<td>Glass*</td>
<td>9.291</td>
</tr>
<tr>
<td>Packaging waste (plastic &amp; metals)</td>
<td>8.224</td>
</tr>
<tr>
<td>Organic waste (Pilot)</td>
<td>1.290*</td>
</tr>
<tr>
<td>HOUSEHOLD WASTE COLLECTION</td>
<td>250.613</td>
</tr>
<tr>
<td>Waste commercial/industrial suburban areas</td>
<td>18.826</td>
</tr>
<tr>
<td>C&amp;D waste</td>
<td>7.668</td>
</tr>
<tr>
<td>Street Cleaning</td>
<td>6.836</td>
</tr>
<tr>
<td>Green waste</td>
<td>3.847</td>
</tr>
<tr>
<td>Beaches cleaning waste</td>
<td>754</td>
</tr>
<tr>
<td>Furniture</td>
<td>7.547</td>
</tr>
<tr>
<td>WEEs</td>
<td>173</td>
</tr>
<tr>
<td>MUNICIPAL SOLID WASTE COLLECTION (tons)</td>
<td>297.556</td>
</tr>
</tbody>
</table>

2. % MUNICIPAL SOLID WASTE SELECTIVELY COLLECTED

~ 20%

EXPECTED HIGHER RATE IN 2023... FOR IMPLEMENTATION OF ORGANIC WASTE SELECTIVE COLLECTION

3. MUNICIPAL SOLID WASTE GENERATED PER INHABITANT

514 kg per person / year
### 4. % RECOVERED MATERIAL FROM MUNICIPAL SOLID WASTE

<table>
<thead>
<tr>
<th>RECOVERY MATERIAL (% overall MSW collection)</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household waste selectively collected</td>
<td>10%</td>
</tr>
<tr>
<td>Textile</td>
<td>0.5%</td>
</tr>
<tr>
<td>Furniture</td>
<td>1%</td>
</tr>
<tr>
<td>Green waste</td>
<td>1%</td>
</tr>
<tr>
<td>C&amp;D waste</td>
<td>3%</td>
</tr>
<tr>
<td>Street Cleaning</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Material from mixed waste collected</strong></td>
<td>1%</td>
</tr>
<tr>
<td>Bioestabilized - compost</td>
<td>3%</td>
</tr>
</tbody>
</table>

### 5. TOTAL MATERIALS FROM MIXED WASTE – SORTING PLANTS (tons)

<table>
<thead>
<tr>
<th><strong>RECOVERED MATERIALS FROM MIXED WASTE – SORTING PLANTS (tons)</strong></th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper-cardboard</td>
<td>1.183</td>
</tr>
<tr>
<td>Glass</td>
<td>9.291</td>
</tr>
<tr>
<td>PET</td>
<td>1.895</td>
</tr>
<tr>
<td>PEAD</td>
<td>592</td>
</tr>
<tr>
<td>Mixed plastic</td>
<td>511</td>
</tr>
<tr>
<td>Stretch film plastic</td>
<td>769</td>
</tr>
<tr>
<td>Brik/Tetrapack</td>
<td>386</td>
</tr>
<tr>
<td>Aluminium</td>
<td>177</td>
</tr>
<tr>
<td>Steel metals</td>
<td>1.132</td>
</tr>
<tr>
<td>Other metals</td>
<td>415</td>
</tr>
<tr>
<td>Wood</td>
<td>487</td>
</tr>
<tr>
<td>Bioestabilized – compost material</td>
<td>9.480</td>
</tr>
<tr>
<td>WEEs</td>
<td>184</td>
</tr>
<tr>
<td>Others (green waste and furniture)</td>
<td>3.513</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20.723</td>
</tr>
</tbody>
</table>

CURRENTLY, NEW SORTING AND COMPOSTING PLANTS ARE PLANNING TO INCREASE MATERIAL RECOVERY RATE!
6. DESTINATION OF NON RECYCLED MATERIAL AND LANDFILL BIOGAS VALORISATION

100% sanitary controlled landfill

Electricity produced (2022): 21.182.000 kWh

Environmental Center self consumption: 100%

Sold electricity/produced electricity: 85%

DESTINATION OF RENEWABLE ELECTRICITY PRODUCED FROM LANDFILL BIOGAS Kwh SOLD VS SELF-CONSUMPTION (2022)
WASTE MANAGEMENT INDICATORS IV

...WORKING IN NEW INDICATORS RELATED TO TOURISM BASED ON:

1. MONTHLY MUNICIPAL WASTE GENERATION IN MALAGA

Municipal waste generation 2022

2. Nº OF VISITORS OVERNIGHTS
3. MONTHLY WASTE SPECIFIC GENERATION IN MUNICIPALITY

4. Nº OF VISITORS FROM CRUISES
5. VARIATION OF WASTE COLLECTION IN AREAS HIGH DENSITY OF HOTELS-RESTAURANTS
6. WASTE COLLECTION IN DIFFERENT AREAS
FINDINGS AND CONCLUSIONS

Source of waste management data are reliable

Coming investments and implementations are improving “waste indicators” in short term

Lack of waste management indicators related to tourism and difficulties to estimate BUT working on...

New regulations in waste management (compulsory national landfill tax, municipal waste tax system..) promote waste measure improvements

“If you can not measure it, you can not improve it”
Lord Kelvin
Thank you

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