Small-medium size islands as test-beds for sustainable mobility innovations and the tool of Sustainable Island Mobility Plan (SIMP)

Alexia Spyridonidou
Kosmas Anagnostopoulou
What kind of islands are we talking about?

Island Municipalities with 150 - 120,000 inhabitants

Not Island Regions, Countries or Continents

Crete, UK, Australia
The Greek islands and DAFNI Network

**Greece**

- **6000** islands and islets
- **117** inhabited
- **79** population ≥ 100 inhabitants
- **65** island municipalities (except for Crete and Evia)
- **4** totally insular regions

**DAFNI Network**

- Network of Sustainable Greek Islands
- **40 Island Municipalities**
- **3 Island Regions**

Continuously expanding!

[Map of Greece showing the islands and islets, with indicators for DAFNI Network locations.]
Distinctive Island Characteristics

High population Fluctuation
summer = 3 to 15 * winter

Low population Density
(inhabitants/square klm)

Land Cover varies importantly among settlements & rural areas

Urban density = 3,5 to 56 * island density
Distinctive Island Characteristics

External Connections

- Road links (never)
- Rail connections (never)
- Port(s) (always)
- Airport(s) (possible)

Local Transport

- Traditional means
- Bicycle?
- Highways
- Parking buildings
- Interchanges
Distinctive Island Characteristics

Double Isolation

Energy Isolation or Independence

Hard Living
- Cost of Living
- Supply/variety of goods
- Education
- Medical Health
- Social Services
- Culture
- Ageing population

Time, Value, Weather

other restrictions (strikes etc)
High Diversity Among the Islands

Tourism Development Models
- Mass tourism
- Medium developed tourism
- Eco or undeveloped tourism

Population
150 - 120,000 inhabitants

Unemployment
AVG 19%, min: 7%, max: 26%
High Diversity Among the Islands

Urbanization Patterns

- Sprawl
- Moderate Expansion of Settlements & Housing (out of settlements)
- Compact Settlements

Total area

- min: Lipsi 17 km²
- max: Lesbos 1636 km²

Urban area existence?

Number of Ports/ Airports?
High Diversity Among the Islands

Typology for mobility planning

Size:
- <100 km² (small)
- 100-500 km² (medium)
- >500 km² (big)

Capital Population:
- <10,000 (non-urban)
- >10,000 (urban)
## High Diversity Among the Islands

**Typology for mobility planning**

<table>
<thead>
<tr>
<th>Small non-urban</th>
<th>Medium non-urban</th>
<th>Big non-urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santorini</td>
<td>Mykonos</td>
<td>Kefallonia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Small urban</th>
<th>Medium urban</th>
<th>Big urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syros</td>
<td>Kos</td>
<td>Rhodes</td>
</tr>
</tbody>
</table>
Main differences between SUMP and SIMP
### Main differences between SUMP and SIMP methodology

<table>
<thead>
<tr>
<th></th>
<th>Urban (SUMP)</th>
<th>Island (SIMP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>Urban – Suburban – Satellites</td>
<td>Whole island – more islands – Urban areas?</td>
</tr>
<tr>
<td>Population</td>
<td>Residents + Tourists</td>
<td>Residents + <strong>Tourists</strong></td>
</tr>
<tr>
<td>Needs for infrastructure</td>
<td>Heavy with fixed use</td>
<td>Light and flexible</td>
</tr>
<tr>
<td>Gates / External Connections</td>
<td><img src="image" alt="numerous" /></td>
<td><img src="image" alt="limited" /></td>
</tr>
<tr>
<td>General Vision</td>
<td><strong>Car-free or Car-less City</strong></td>
<td><strong>Car-free Tourism</strong></td>
</tr>
</tbody>
</table>

- **General Vision**
  - Urban (SUMP): Car-free or Car-less City
  - Island (SIMP): Car-free Tourism
## Main differences between SUMP and SIMP

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<th>Focus</th>
<th>Urban (SUMP)</th>
<th>Island (SIMP)</th>
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<tr>
<td><strong>Trips</strong></td>
<td>Home-Work</td>
<td>Leisure</td>
</tr>
<tr>
<td><strong>Car</strong></td>
<td>Massive use. Need for permanent solutions</td>
<td>Need for flexible solutions (high VS low season)</td>
</tr>
<tr>
<td><strong>Public Transport</strong></td>
<td>Need for heavy, massive and stable PT</td>
<td>Need for light, personalized (on demand) and flexible PT</td>
</tr>
<tr>
<td><strong>Rail</strong></td>
<td>Existing or possible</td>
<td>Not possible</td>
</tr>
<tr>
<td><strong>Maritime Transport</strong></td>
<td>Not very critical, rarely developed</td>
<td>Very important and always existing</td>
</tr>
<tr>
<td><strong>Port</strong></td>
<td>In coastal cities</td>
<td>Always</td>
</tr>
<tr>
<td>Walking at non urban areas</td>
<td>Urban (SUMP)</td>
<td>Island (SIMP)</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Mainly in the urban area</td>
<td></td>
<td>Mainly out of the urban area</td>
</tr>
<tr>
<td>Always integrated with the National Energy Network (On-Grid)</td>
<td></td>
<td>Not always integrated. Possible Off-Grid solutions</td>
</tr>
<tr>
<td>Mainly residents</td>
<td></td>
<td>Residents + Tourists</td>
</tr>
<tr>
<td>Difficult and slow development of innovative ideas. Large scale.</td>
<td></td>
<td>Lighter, quicker, cheaper development of innovative ideas!</td>
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**Main differences between SUMP and SIMP**

**Urban (SUMP)**
- Mainly in the urban area.
- Always integrated with the National Energy Network (On-Grid).
- Mainly residents.
- Difficult and slow development of innovative ideas. Large scale.

**Island (SIMP)**
- Very important touristic activity. Always existing.
- Mainly out of the urban area.
- Not always integrated. Possible Off-Grid solutions.
- Residents + Tourists.
- Lighter, quicker, cheaper development of innovative ideas!
Sifnos SIMP
The first SIMP in Europe
<table>
<thead>
<tr>
<th>Sustainable Mobility Plan</th>
<th>Sifnos SIMP</th>
<th>Island (SIMP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>Whole island: 74km$^2$</td>
<td>Whole island – more islands – Urban areas?</td>
</tr>
</tbody>
</table>
| Population                | Off peak: 2500  
<p>|                           | On peak: 11200 | Residents + <strong>Tourists</strong> |
| Needs for infrastructure  | At least two main roads with rotating use | Light and flexible |
| Gates / External Connections | 1 port | limited |</p>
<table>
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<th>Island (SIMP)</th>
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<tr>
<td>Car</td>
<td>Increasing demand on car-rental, possibly car-sharing too</td>
<td>Need for flexible solutions (high VS low season)</td>
</tr>
<tr>
<td>Public Transport</td>
<td>Varying bus frequency among high &amp; low season</td>
<td>Need for light, personalized (on demand) and flexible PT</td>
</tr>
<tr>
<td>Walking at non urban areas</td>
<td>Top hiking destination in Greece.</td>
<td>Very important touristic activity. Always existing.</td>
</tr>
<tr>
<td>Cycling</td>
<td>Not developed. High interest for e-bikes.</td>
<td>Mainly out of the urban area</td>
</tr>
<tr>
<td>Energy</td>
<td>Seeking of energy autonomy from RES (V2G)</td>
<td>Not always integrated. Possible Off-Grid solutions</td>
</tr>
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## Main differences between SUMP and SIMP

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<tr>
<td><strong>Participation Engagement</strong></td>
<td>Use of online crowdsourcing &amp; participatory planning for all travelers (residents &amp; tourists)</td>
<td>Residents + Tourists</td>
</tr>
<tr>
<td><strong>Innovation</strong></td>
<td>Ideal island for MaaS implementation (bus, taxi, rental cars &amp; motorbikes, future: car sharing, bike sharing)</td>
<td>Lighter, quicker, cheaper development of innovative ideas!</td>
</tr>
</tbody>
</table>
Sifnos SIMP

Ideal “test-bed” for implementation!

Electromobility
e-cars, e-bikes, e-buses, e-boats

MaaS
Sharing schemes

Network of Sustainable Greek Islands

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