

Towards a Sustainable Mobility Future of Greek Islands

Opportunities, Difficulties and Challenges

Kosmas Anagnostopoulos
Alexia Spyridonidou
Ifigenia Psarra



Project co-financed by the European
Regional Development Fund



What kind of islands are we talking about?



Island **Municipalities**
with 150 - 120.000 inhabitants

Not Island Regions,
Countries or Continents



Crete



UK



Australia

Why is Greece a good case for research and testing on islands?



6000 islands and islets

117 inhabited

79 population \geq 100 inhabitants

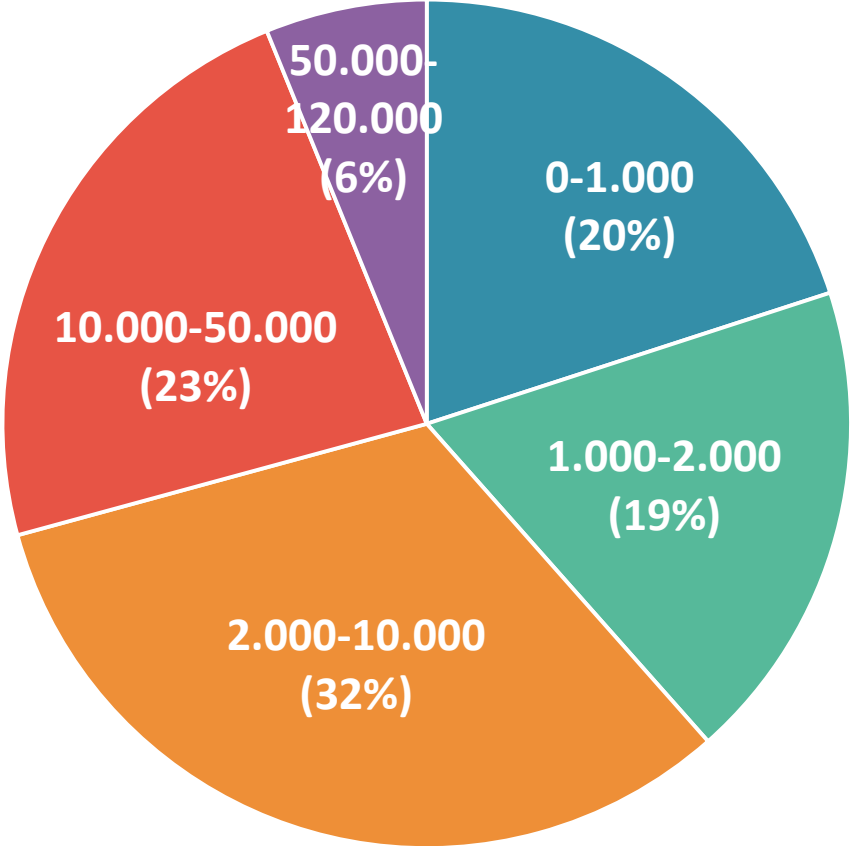
65 island municipalities
(except for Crete and Evia)

4 totally insular regions

Population statistics



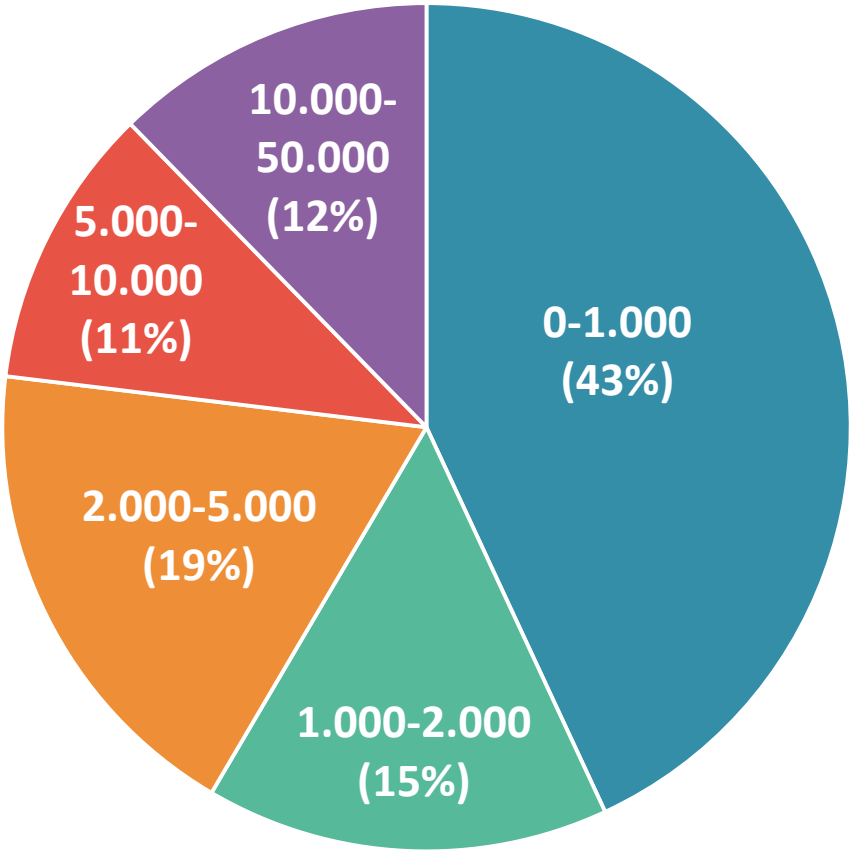
Municipality Population



Population statistics



Capital City Population





DAFNI Network

Network of Sustainable
Greek Islands

40 Island Municipalities

3 Island Regions

Continuously expanding!



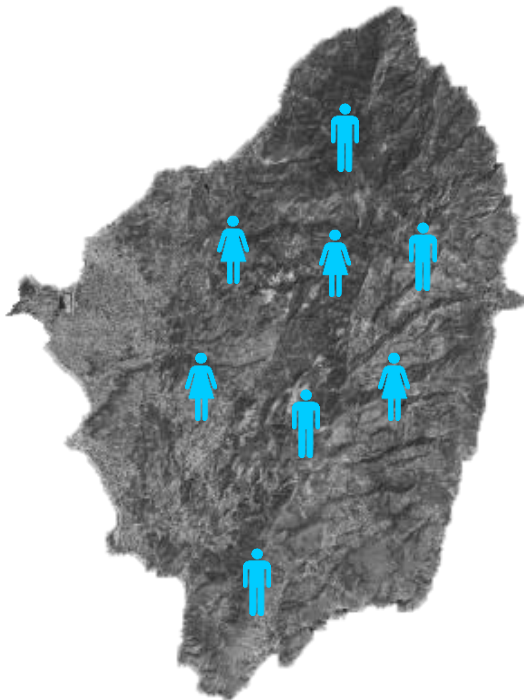
aegean energy
& environment  **agency**
THE SUPPORTING ORGANISATION FOR GREEK ISLANDS

Differences between islands and cities

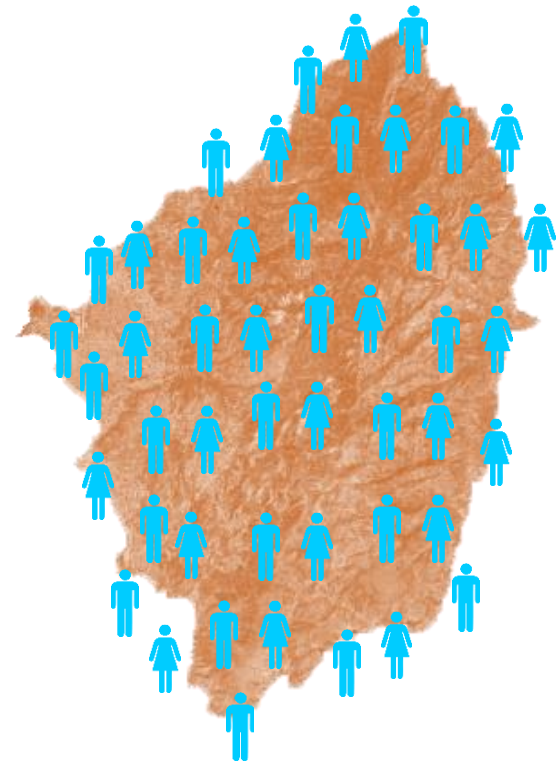
Population Fluctuation

summer = 3 to 15 * winter

winter



summer



Differences between islands and cities

Population Density

urban = 3,5 to 56 * island

Municipalities	population density (inhabitants/square klm)		
	min	average	max
Total	3	1.360	21.386
Islands	4	57	408
Urban (Pop ≥ 25.000)	14	3.162	21.386
Multiplier	x 3,5	x 56	x 52

Differences between islands and cities

Land Cover Spatial Variation in Islands

**Very low ground cover
outside the settlements**



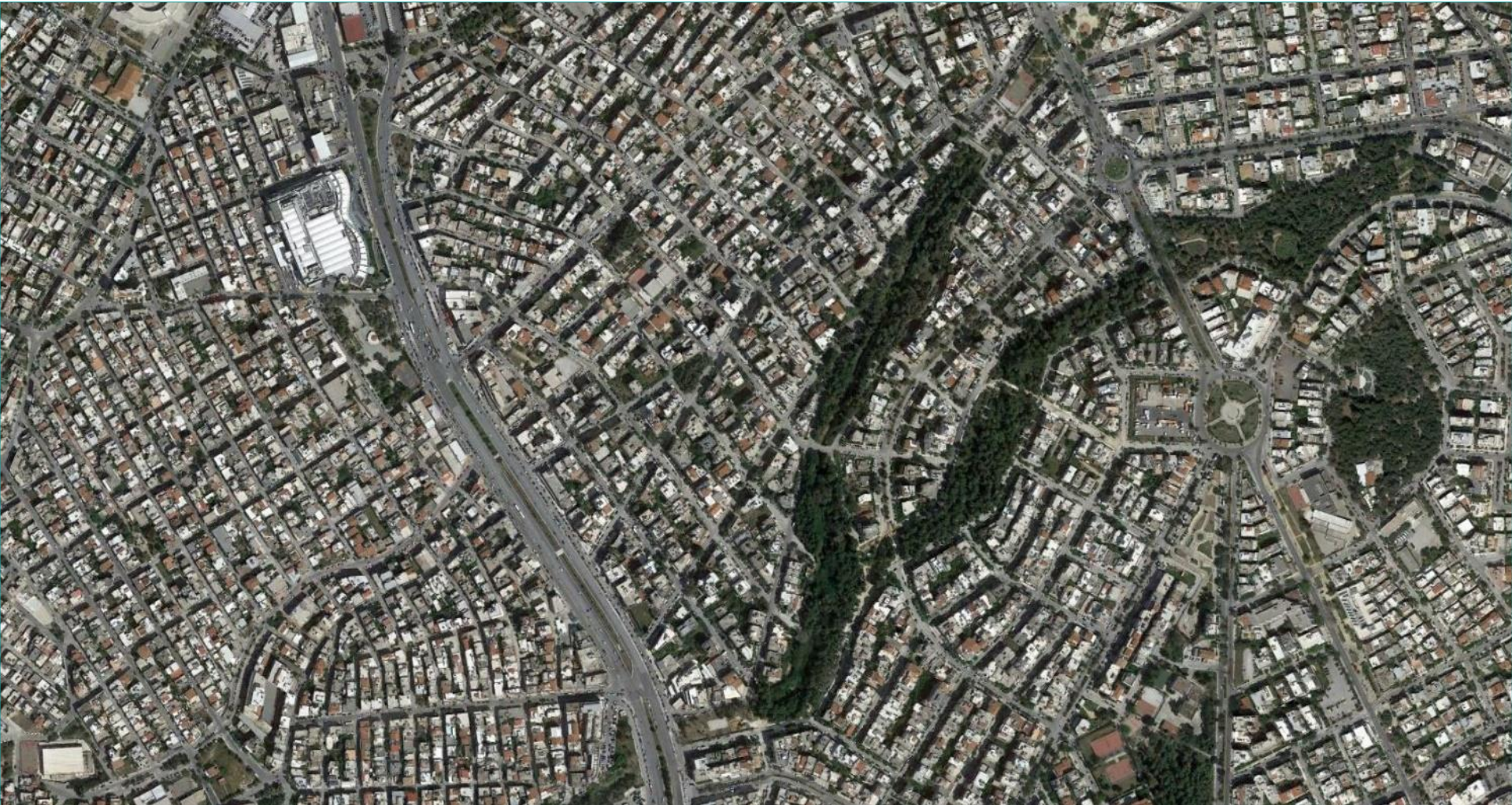
**Very high ground cover
inside the settlements**



Differences between islands and cities

Land Cover Spatial Variation in Cities

Most of the city area is extensively covered



Differences between islands and cities

Land Cover of Inhabited Areas

Cities



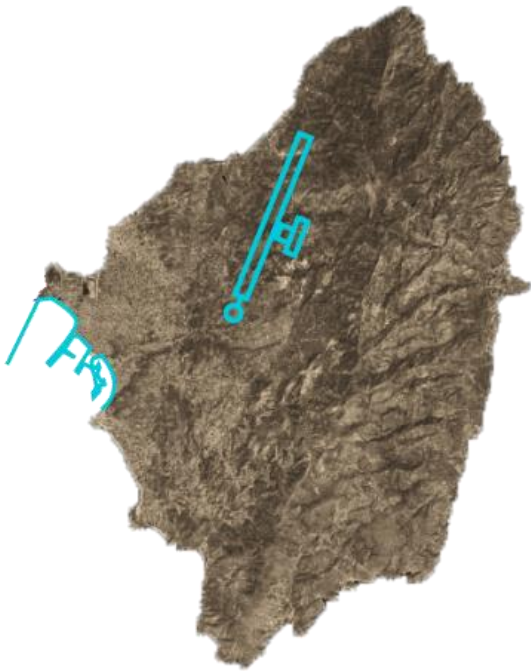
Islands



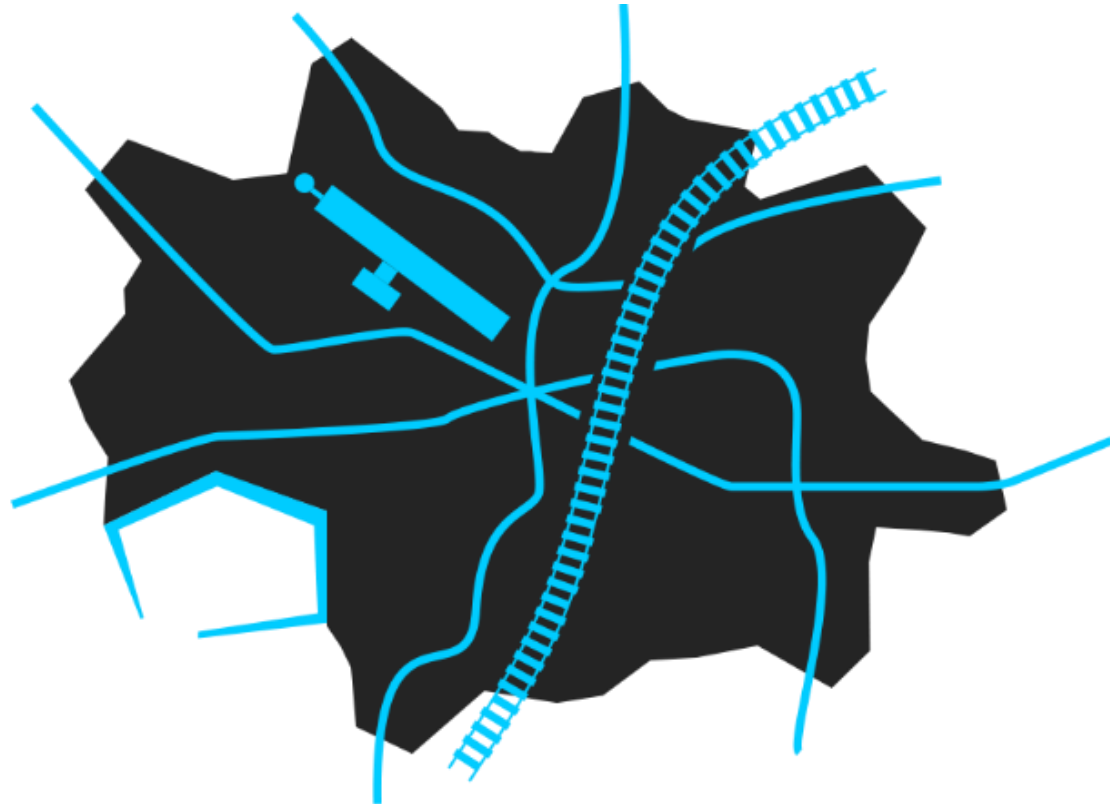
Differences between islands and cities

External Connections

islands



cities



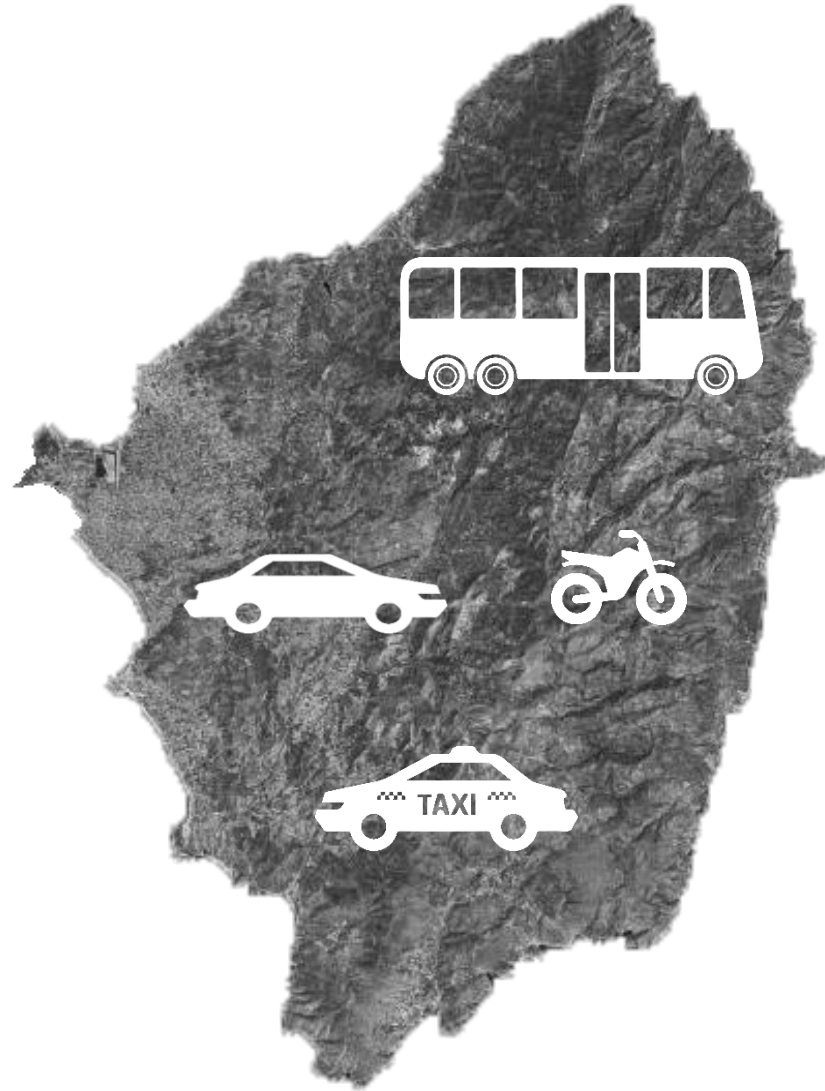
- Road links (never)
- Rail connections (never)
- **Port(s)** (always)
- Airport(s) (possible)

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- Port(s) (possible)
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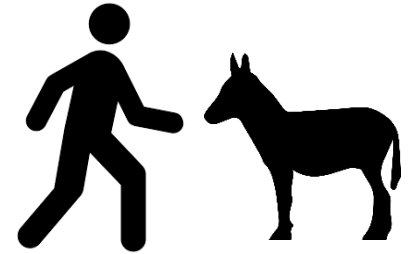
Distinctive Island Characteristics

Local Transport

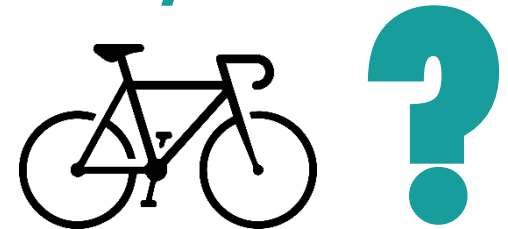
rail



**traditional
means**



bicycle



Distinctive Island Characteristics

Limited Infrastructure



highways



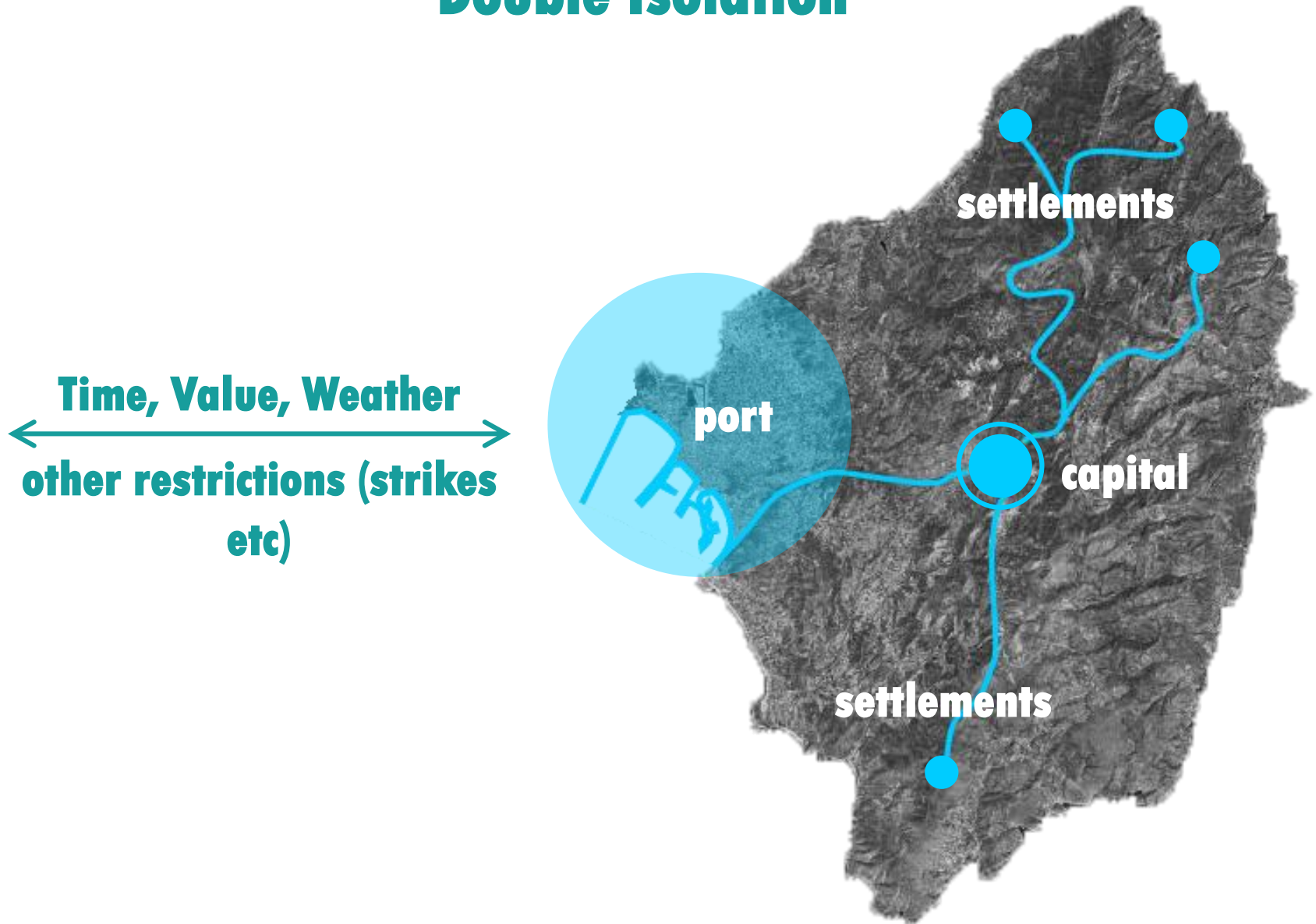
parking buildings



interchanges

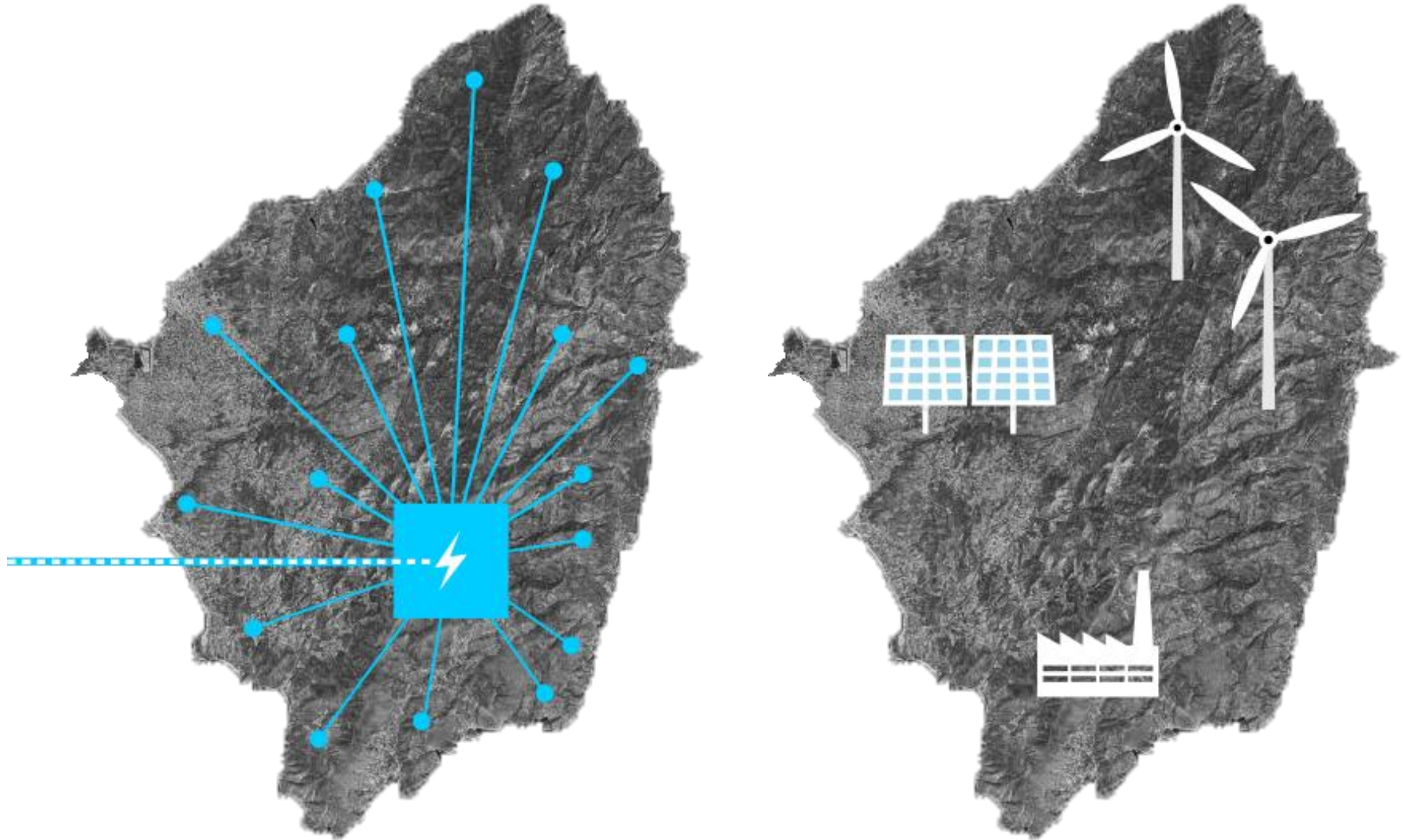
Distinctive Island Characteristics

Double Isolation



Distinctive Island Characteristics

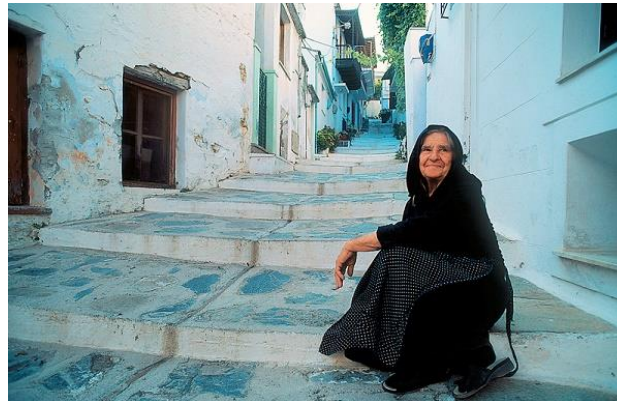
Energy Isolation or Independence



Distinctive Island Characteristics

Hard Living

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



Distinctive Island Characteristics

High Diversity Among the Islands

Urbanization Patterns

1 Sprawl

Mykonos, Santorini, Aegina,
Syros, Paros

2 Moderate Expansion of Settlements and Housing (out of settlements)

Andros, Ikaria, Naxos,
Lesvos, Limnos

3 Compact Settlements

Kythnos, Lipsi, Symi,
Folegandros, Kimolos

Tourism Development Models

1 Mass tourism

Mykonos, Santorini, Rodos,
Kos, Paros

2 Medium developed tourism

Syros, Milos, Patmos,
Naxos, Tinos

3 Eco or undeveloped tourism

Anafi, Tilos, Agios
Efstratios, Sikinos, Fourni



Distinctive Island Characteristics

High Diversity Among the Islands

Economic Development model

1st Sector

AVG 18%

Agios Efstratios 33%

Agathonisi 32%

Gavdos 29%

Kos 3%

Mykonos 3%

Salamina 2%

2nd Sector

AVG 10%

Kimolos 36%

Kea 30%

Milos 30%

Kos 10%

Psara 10%

Poros 10%

3rd Sector

AVG 72%

Kos 87%

Rhodes 84%

Skiathos 83%

Kea 54%

Agios Efstratios 51%

Kythnos 50%

Unemployment

AVG 19%

Nisyros 26%

Salamina 23%

Fournoi 22%

Sifnos 8%

Kythnos 8%

Kastelorizo 7%

Most Usual Mobility Problems & Achievements on Islands

Topics examined



Urban development
Public Transport (PT)

Cycling

Walking

Intermodality

Road Safety

Traffic flow optimization
and management

Parking
management

Major transport
infrastructures

Local Maritime
Transport (MT)

Freight
Transport (FT)

Municipal fleet

Alternative fuels and
vehicles

Alternative mobility schemes



Most Usual Mobility Problems on Islands



Urban areas

High density and low capacity for motorized vehicles

Rural areas

Low density and poorly served by PT



Public Transport Inadequate/inexistent. High cost and low use. Inaccessible neighborhoods. Lack of informative schemes and geo-tracking equipment. Old and high emission **municipal fleet** with no regular maintenance. Limited use of alternative fuels.



Inadequate road safety signaling, poorly maintained infrastructure, steep terrain – no excuse for mistakes



Biking & Walking Lack of dedicated lanes/ tracks, services and facilities.

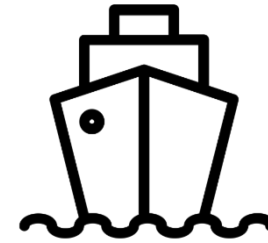
Biking Inadequate width of roads. limited bike sharing schemes. Inconvenient terrain, and weather (during the TP)

Walking Inappropriate infrastructure for disabled persons. Lack of trails/routes promotion out of the settlements, alongside with informative walking/hiking schemes

Most Usual Mobility Problems on Islands

Congestion in the main towns & in ports/airports during arrivals/departures

Unsafe, vulnerable airports & ports. Inappropriate for hydroplanes, cruise & freight transport



Low capacity/inexistent parking facilities in ports/airports, tourist destinations, main towns

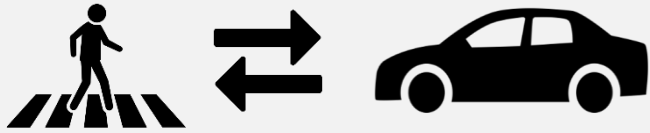
Maritime Transport: high cost, inadequate for bad weather conditions, lack of local connections, no integration with inland PT, low quality facilities for the TP



Freight T.: lack of local logistics plans. Shortage of goods in special circumstances (weather, strikes). Absence of e-shopping. Conflict with tourism. Old, big and high emission vehicles.

Achievements on Sustainable Mobility

Seasonal-rotating use of streets



Syros, Aegina, Lipsi

Hybrid/ electric public vehicles

Rhodes, Nisyros, Mykonos

Private boats enabling connections among the islands/ with Turkey



Pedestrianisation of roads or center

Partial or full car restriction in historical centers

Car-free islands



Hydra, Spetses, Sikinos, Small Cyclades, Lipsi

Car sharing

Mykonos

Bike sharing



Limnos, Lesvos, Samos, Syros, Rhodes, Corfu



Achievements on Sustainable Mobility

Green Wave (traffic lights) for bikers !

Lesvos



Information system for parking slots, bus arrivals

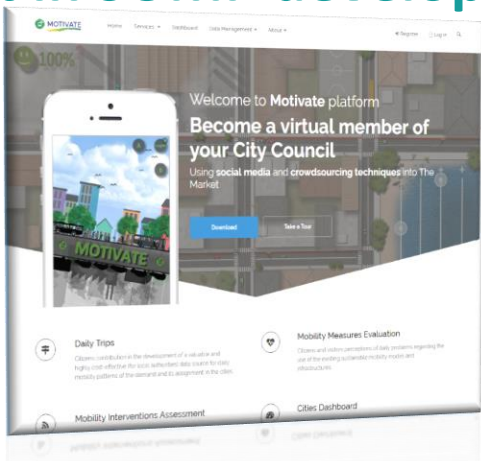
Kos, Naxos (bus) Syros (parking)

Crowdsourcing & participatory planning application for Citizens' involvement in SUMP development

Rhodes



Project co-financed by the European Regional Development Fund



Need for a new tool coming out of SUMP

It 's time for... "Sustainable Island Mobility Plan"



ISLEPACT



SUSTAINABLE ENERGY ACTIONS FOR ISLANDS



SMART ISLANDS
ΕΞΥΠΝΑ ΝΗΣΙΑ

Visit to Aegean Islands / Επίσκεψη στα νησιά του Αιγαίου

17/05/2016 | Kythnos



European Economic and Social Committee

walkability
cycling demand response
 deep renovation **renewables** crowd-funding
 car sharing low-carbon transport climate mitigation resource efficiency
electric vehicles rain-water harvesting **sustainable tourism** social inclusion climate protection
 energy storage **waste2energy** participatory planning **innovation jobs creation** innovative entrepreneurship
smart grids marine technologies **multi-level governance** ecosystems approach **circular economy life quality**
 ecosystem approach grey-water recycling smart sensing **living labs** climate adaptation **local ownership** sharing economy
vehicle2grid alternative fuels **prosumers** landscape protection start-ups sustainable agriculture
 cold ironing **micro-grids test-beds**
 renewable desalination resilience
ICT reuse



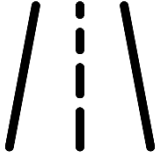
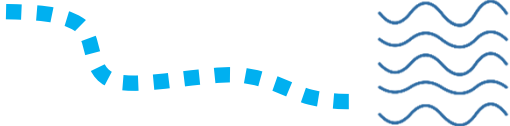


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Main differences between SUMP and SIMP



Main differences between SUMP and SIMP methodology

Sustainable Mobility Plan	Urban (SUMP)	Island (SIMP)
Area	Urban – Suburban – Satellites	Whole island – more islands – Urban areas?
Population	Residents + Tourists	Residents + Tourists
Connection of Municipal Districts		
Needs for infrastructure	Heavy with fixed use	Light, personalized (on demand) and flexible public transport
Gates / External Connections	 numerous	 limited
General Vision	Car-free or Car-less City	Car-free Tourism

Main differences between SUMP and SIMP

focus

Sustainable Mobility Plan

Urban (SUMP)

Island (SIMP)

Trips

Home-Work



Leisure

Car

Massive use. Need for permanent solutions.



Need for high VS low season flexible solutions

Public Transport

Need of heavy, massive and stable public transport



Need of light, personalized (on demand) and flexible public transport

Rail

Existing or possible



Not possible

Maritime Transport

Not very critical, rarely developed



Very important and possibly existing

Port

In coastal cities



Always

Main differences between SUMP and SIMP

focus

Sustainable
Mobility Plan

Urban (SUMP)

Island (SIMP)

**Walking at non
urban areas**

Leisure. Not critical.

Very important touristic
activity. Possibly existing.



Cycling

Network in the urban area

Routes out of the urban area



Energy

Always integrated with the
National Energy Network,
On-Grid

Not always integrated. Possible
Off-Grid solutions



**Participation
Engagement**

Residents

Residents + Tourists



Innovation

Difficult and slow
development of innovative
ideas. Large scale.

Lighter, quicker, cheaper
development of innovative
ideas !

Thank you

