



Laboratory for Local and Insular  
Development

University of the Aegean - Greece



LABORATORY  
FOR LOCAL &  
INSULAR  
DEVELOPMENT

## Operational framework for measuring sustainable tourism in destinations: the case of Santorini



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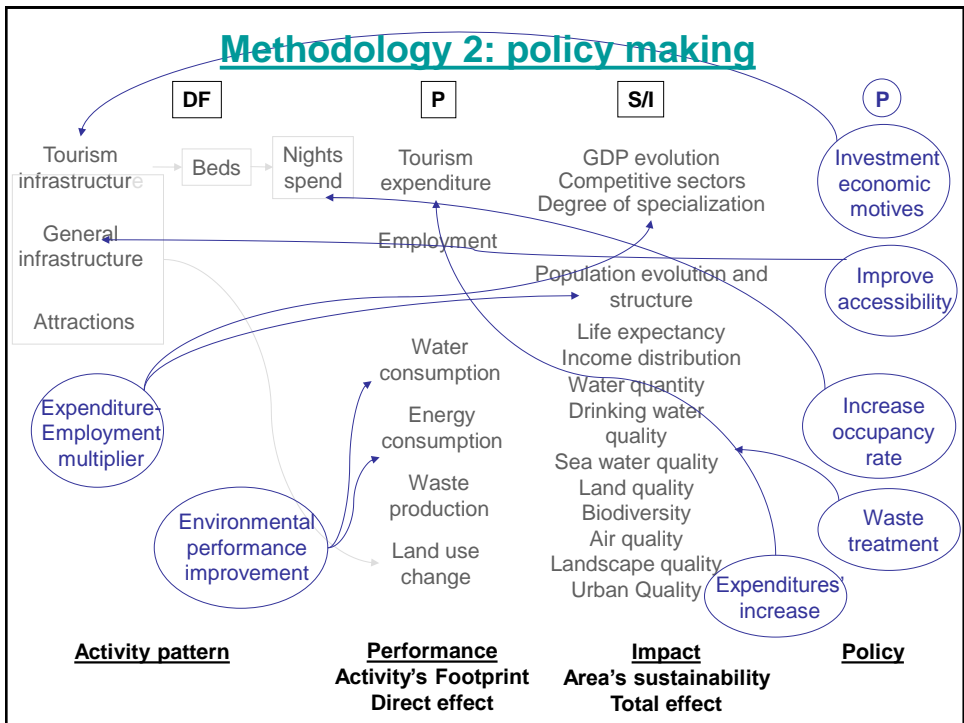
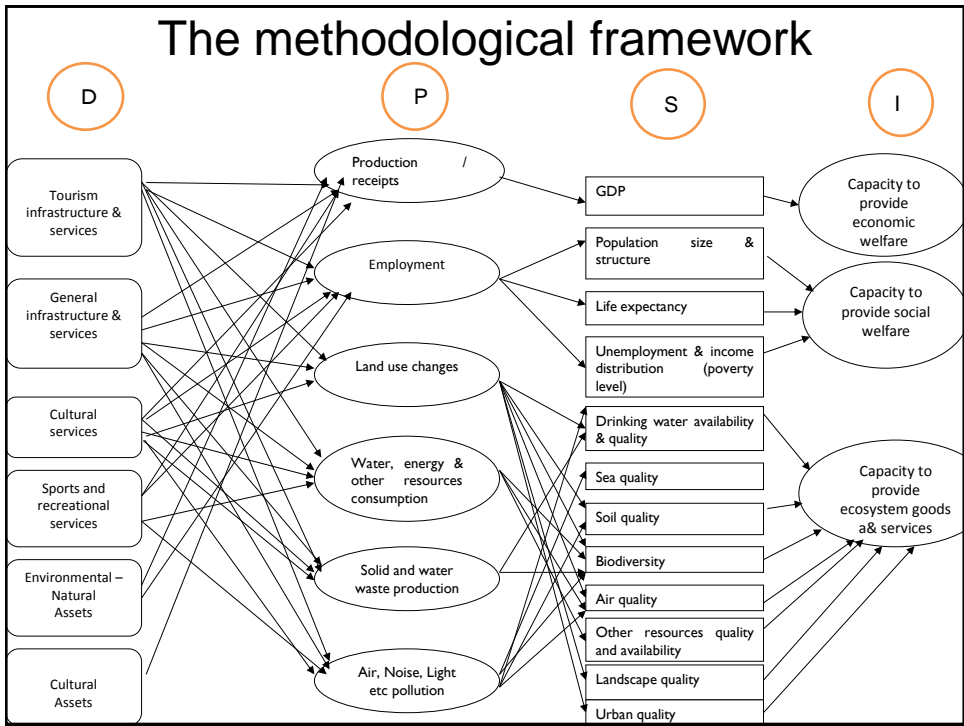
*Committee on Statistics and TSA, Madrid 24-25/1/17*

### The objective of an UNWTO Sustainable Tourism Observatory

Create a tool for

- Measuring tourism activity at sub-national level
- Creating a causal chain between tourism activity, its total results and its per capita performance, its impact to a destination's state and policy measures
- Interrelating economic, social and environmental goals of destination's sustainability with tourism activity in order to evaluate and value the performance and the impact of tourism
- Planning and Monitoring for S Tourism and S Destinations

facilitating stakeholders' decision making



## **The data collection for islands : the natural limits of the destination**

- Secondary data
  - Administrative data: number of tourism enterprises, employment evolution, airport and sea arrivals, energy consumption, frequentation of museums
  - Collection from local sources: water consumption
  - Statistic information: demographic, economic, employment, unemployment
- Primary data
  - Land use – GIS
  - Tourists' survey (ETIS adapted)
  - Tourism enterprises' survey (ETIS adapted)
  - Local population survey (ETIS)
  - Destination questionnaire (UNWTO)
  - Expert evaluation & researchers assumptions

## **Basic information & practices used (1)**

- **Number of beds** of all types of accommodation: hotels and similar, B&B, private houses, as base for estimation of the production capacity of tourism activity
- Estimation of **tourists arrivals** based on arrivals on the island by air and sea, per month
- Estimation of **tourists night spent** as base for estimation of real production
- Estimation of the **water and energy consumption** from residents and tourists based on seasonal fluctuations and per company from surveys
- Estimation of **tourism expenditure**

## **Basic information & practices used (2)**

### **Creation of basic indicators for evaluation of tourism activity sustainability:**

- beds/population (*social pressure*)
- beds/area (*environmental pressure*)
- Nights spent/bed (*economic efficiency*)
- Revenue & tourism expenditure /bed (*econ efficiency*)
- Expenditure/night spent (*economic efficiency*)
- Direct employment/bed (*social efficiency*)
- Water consumption/night spent (*ecological efficiency*)
- Energy consumption/night spent (*ecol. efficiency*)
- Solid waste production/night spent (*ecol. efficiency*)

## **Basic information & practices used (3)**

### **Creation of basic indicators for evaluation of destination sustainability (1)**

- % of tourism in destination's GDP (evolution)
- % of tourism investment in total investment
- GDP evolution
- % of tourism employment in total employment (evol)
- Evolution of demographic .....
- Evolution of revenue per capita (share)
- Evolution of life expectancy
- Habitat fragmentation - biodiversity
- % water consumed by tourism

### **Basic information & practices used (3)**

#### **Creation of basic indicators for evaluation of destination sustainability (2)**

- availability and quality of drinking water (import of bottled water)
- management of solid waste (% of recycled material)
- management of waste water (% of treated waste)
- Level of noise
- Level of atmospheric pollution
- Level of circulation problems
- Quality of urban quality
- Landscape quality

### **The case study of Santorini within Aegean Observatory**

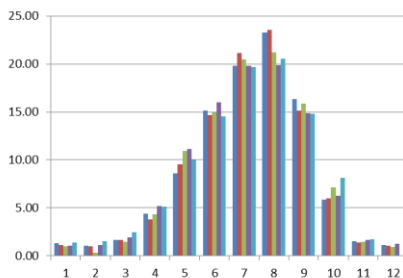
#### **Driving forces. The description of tourism activity:**

- 36.341 professional and 23.562 private beds  
**Pressure: 4 beds/capita, 790 beds /sq. km**
- 548 restaurants
- 113 Travel agencies
- 28 Rent a car
- Different activities (sea sports, excursions, climbing, hiking, diving)
- 2 Archaeological Museums, 2 archaeological sites, 15 wineries, 1 tomato factory and other places for visiting with ticket
- [Beaches, Volcano, Churches, Settlements, Landscapes and other attractions without ticket](#)

## Tourism results/pressure main indicators

- 1,5 m of arrivals (ship, scheduled and charter flights) and 5,5 nights spent + 805.000 of cruise visitors (2015) and 13.528 locals

**Occupancy rate : about 90 nights spent per bed**  
(from 120 to hotels to 75 other categories)



### Seasonality:

39.6% during July/August

70.5% during May-September

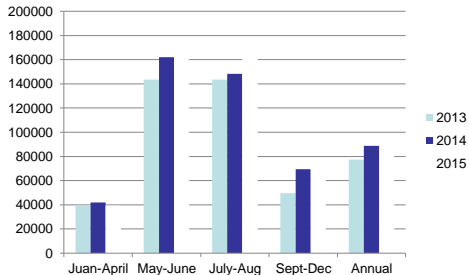
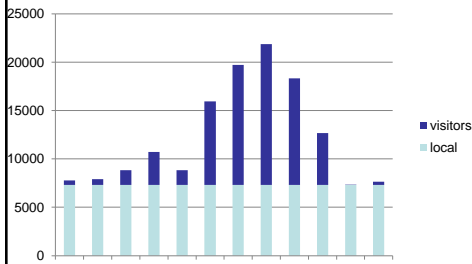
## Tourism results/pressure from tourist first survey

- Average stay: 5,8 days
- 70% stayed in hotels
- 52% had a B&b reservation and 35% room only
- Local transport: 43% by bus, 25% by rented car and 22 by taxi
- 20% tourism package,
- learned about the area from Internet 52%, friends and family 2%, tourism guide 24% ..
- Use of Internet: 82% for information and 70% for reservation
- Average daily expenditure: 286 euros

## Tourism results and main indicators (1)

### Environmental results

- 11% of land is built
- Increasing consumption of water & seasonality
- Production of energy seasonality



## Impact of tourism to the destination

### Economy:

- tourism driven 30% of the enterprises and 30% of the added value is coming from HORECA

### Employment:

- Census: 1994 hotels-bars-restaurants + 1325 retail + 368 transport + 54 entertainment (concerns only locals)
- Based on national estimations: 0,29 employment in tourism per bed: 10.538 employment

### Environment:

- **Housing:** 13528 houses for 2011 compared to 3755 for 1971 (27%) – intense and widespread construction
- 11% of the area is built
- Water scarcity – 5 desalination plants
- **Congestion**

For communication

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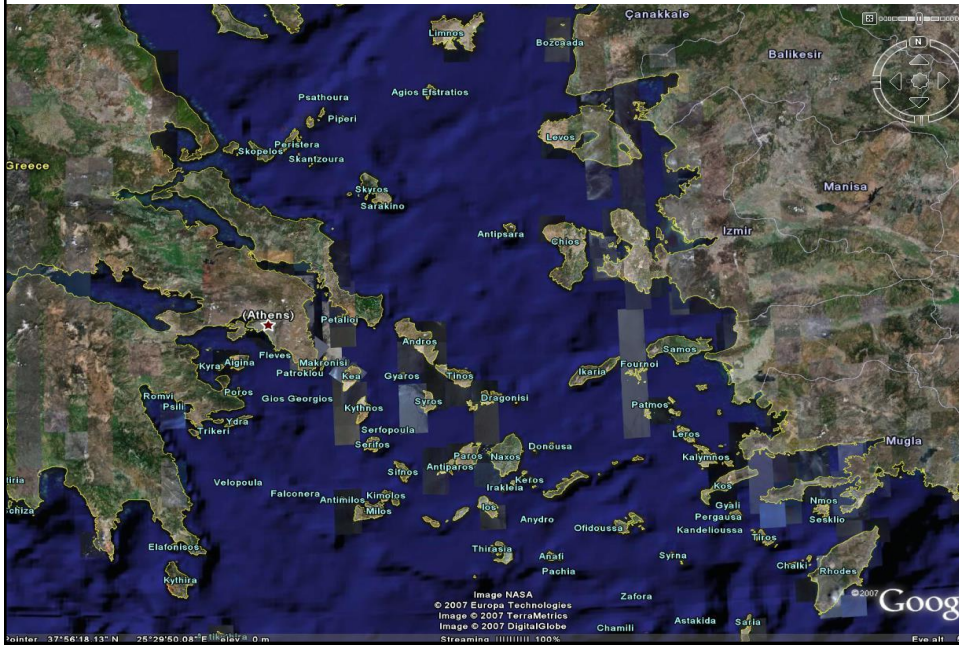


## The OMT Observatory for Sustainable Tourism of Greek Islands (1)

- Launched in September 2014
- Based on the methodology presented
- Concerns 2 regions of 48 + 10 islands = 58 destinations
- Aegean is the main greek tourism destination
- Aegean has:
  - 9 international + 8 national airports
  - 30% of Beds (205.000 in hotels and 113.000 in secondary accommodation)
  - 18 M nights-spent in hotels (25% of the total)



# Aegean Sea Islands - Santorini



## Landscape, local cuisine, local production



## Saturation ?

