



# Priorities of the Greek Government in relation to climate change.

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**International Centre for Research on the Environment and the Economy-**  
**ICRE8, [www.icre8.eu](http://www.icre8.eu)**  
Founder & Director: Prof. Dr. Phoebe Koundouri (AUEB, LSE)



## ICRE8 introduction

- ▶ Non-for-profit Research Centre, established 2014
- ▶ Interdisciplinary Research on:

Environment

Economy

Energy

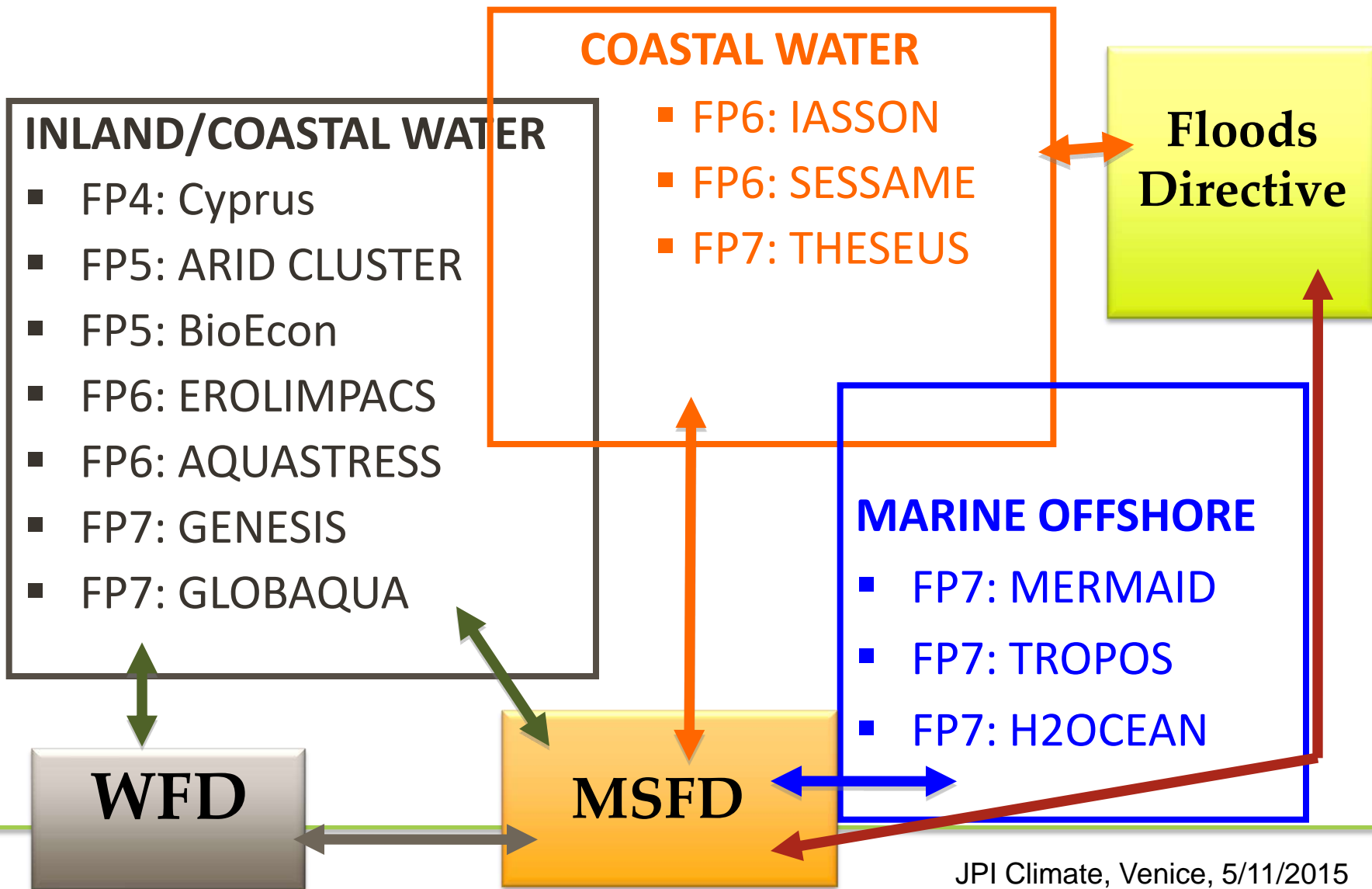
Eco-innovations

+electronic versions (hence E8)

*ICRE8 Mission: The pursuit of excellence in conducting and presenting research and a commitment to explore relevant environmental, natural resources and energy issues, for a variety of circumstances and stakeholders and across different temporal and spatial scales.*



# EC DG-Research





## Recent Water & Biodiversity Projects

### EXAMPLES INTER ORG

- World Bank:  
Arsenic Contamination,  
Bangladesh, India
- World Bank:  
Water Pricing, China,  
Bangladesh
- WWC: Green Water Growth:  
Egypt, China, Nepal, Australia
- OECD:  
Economic Instruments to  
Protect Freshwater Resources in  
Lake Baikal Basin.
- IIED:  
Integrated WM Methodologies

### EXAMPLES NATIONAL GOVT

- Greece Climate Change Review
- UK, EA: Economic Value of  
Groundwater
- Finland, MoE: Agricultural use of  
Water and CAP
- Greece, MoE: ASOPOS RB
- Cyprus, MoE: WFD Atrs 5 & 11
- Abu Dhabi, MoE: Economic  
Valuation of Groundwater
- Namibia, MoE: Groundwater Pricing



## Sample of Projects on Other Public Goods

- **WHO: Assessing Fairness of Greek Health System Financing**
- **UK Treasury & DEFRA: Discounting for LR CBA**
- **World Bank: Governments of Cyprus, Ukraine and Moldova: Public Investment Assessment process**
- **DIFID: South Africa: Incentives for Leaded Gasoline**
- **EC-DG-Environment:**
  - **The impact of REACH on the environment and human health**
  - **EU Chemicals Directive: Economic Evaluation**
- **Cyprus DoE: Amiantos Mines**
- **Greece DoE: CBA mining-metallurgical installation Hellas Gold**
- **Bank of Greece: Report on Climate Change**
- **The Hashemite Kingdom of Jordan: Waste Management**
- **EC-FP7: OpenAIRE: Open Access Scientific Information**



## **ICRE8's Research Tools include:**

- mathematical economic modeling and econometrics
- financial analysis
- socio-economic analysis
- environmental valuation
- political and institutional analysis
- integrated environmental-economic modeling
- cost-benefits analysis
- multi-criteria analysis
- risk analysis
- geographical information systems
- multi-stakeholder mediations techniques
- game theory
- information technology decision making tool development
- Etc.



## ICRE8's Structure

- **Founder and Scientific Director:** Phoebe Koundouri
- **Strategic Management Board:** internationally renowned academics and (legal and financial) executives.
- **Scientific Collaborators:** network of more than 70 established researchers (Europe, US, Asia, Australia).
- **Website:** [www.icre8.eu](http://www.icre8.eu)



## Collaborating institutions

- [CSERGE](#) Centre for Social and Economic Research on the Global Environment, UK.
- [ATHENA](#) Research and Innovation Center, GREECE.
- [Aristotle University of Thessaloniki](#) School of Technology, Department of Civil Engineering, Division of Hydraulics and Environmental Engineering, GREECE.
- [Amrita Vishwa Vidyapeetham](#) Amrita School of Business, INDIA
- [Center of Economic and Development Studies](#), Department of Economics, Padjadjaran University, INDONESIA.
- [Environmental Hydraulics Institute "IH Cantabria"](#), Offshore Engineering and Ocean Energy Group, SPAIN.
- [Ludwig-Maximilians University \(LMU\)](#), Faculty of Geosciences, Department of of Geography, GERMANY.
- [Statera](#), Research & Practice Centre for Sustainability and Regional Development, ESTONIA.
- [EEPSEA](#), Economy and Environment Program for Southeast Asia.





## ICRE8 and Sustainable Development Solutions Network (SDSN) -[www.unsdsn.org](http://www.unsdsn.org)



ICRE8 co-hosts the **GREEK SDSN** along with:

- Centre for Research on the Political Economy of Sustainable Development of the University of Athens, [www.en.uoa.gr](http://www.en.uoa.gr)
- Climate Change Impacts Study Committee of Bank of Greece, [www.bankofgreece.gr](http://www.bankofgreece.gr)

**Executive council ( Prof. Phoebe Koundouri, Prof. Yannis Ioannidis, Prof. Andreas Papandreou)**

**Greek Leadership Council** (politicians, entrepreneurs, academics and representatives of the civil society).

**Focus:** Climate Change and the Mediterranean,

SDGs and Crises: Governance, Democracy, Institutions, Economy

Water: Inland, Coastal, Marine

Biodiversity



## Priorities of the Greek Government.

*“Actions to tackle climate change ought to reinforce a change in the current model of development, towards sustainable development and low carbon economy, making use of modern technologies..”*

### **Adaptation and mitigation concern:**

- Efficient use of scarce water resources.
- Adjustment of infrastructure to be resistant to future climate conditions and extreme weather events.
- Infrastructure to protect against floods.
- Development of drought-resistant cultivation.
- Choice of tree species and forestry practices that secure communities against extreme storms and fire incidents.
- Land planning to facilitate the migration of species.





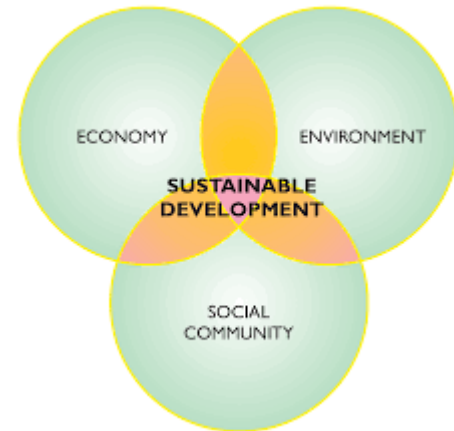
## Priorities of the Greek Government.

Greece as other EU countries follows the **targets for 2030**

- a 40% cut in greenhouse gas emissions compared to 1990 levels
- at least a 27% share of renewable energy consumption
- at least 27% energy savings compared with the business-as-usual scenario

### Axes of National Strategy for Development:

*AXE 3: Protection of the Environment-transition to an environment-friendly economy.*



Funded mainly by the **National Framework Reference Strategy (NFRS)- EU and national contribution.**



# Priorities of the Greek Government.

**Framework Program: Environment and Sustainable Development (EU and national funds). Period: 2014-2020.**

- **Priority 2 &7: Protection and management of water resources.**
  - Freshwater and sea/ coastal pollution.
  - Water provisioning in water scarce regions.
  - Reuse of wastewater.
- **Priority 3 &8: Prevention and mitigation of environmental damages.**
  - Infrastructures against environmental dangers.
  - Protection against floods.
  - Preparation of reports on environmental risk management (spatial, temporal), environmental risk management of big projects, minimizing social costs.
- **Priority 6: Reduction of air pollution that exacerbates climate change.**





# Climate Change Research in Greece

EL - Greece - most active FP7 research priority areas by number of applications for the research projects

FP7 priority-area	Nr. of applicants	Requested EC contribution by applicants (M euro)	Nr. of mainlisted applicants	Success Rate (applicants)	Requested EC contribution by mainlisted applicants (M euro)	Success Rate (requested EC contribution)
Information and Communication Technologies	6.956	2.441,74	906	13,02 %	333,57	13,66 %
Marie-Curie Actions	2.249	n/a	470	20,90 %	n/a	n/a
Research for the benefit of SMEs	2.081	248,00	301	14,46 %	32,84	13,24 %
Transport (including Aeronautics)	1.314	309,88	269	20,47 %	56,57	18,26 %
Environment (including Climate Change)	1.207	310,05	175	14,50 %	41,57	13,41 %
Food, Agriculture and Fisheries, and Biotechnology	1.100	285,30	170	15,45 %	32,87	11,52 %

- Greek institutes have great interest in climate change research.
- Success rate lower than the EU 28, but still significant.
- Most common collaborations with: Italy, Spain, France, Germany, UK.

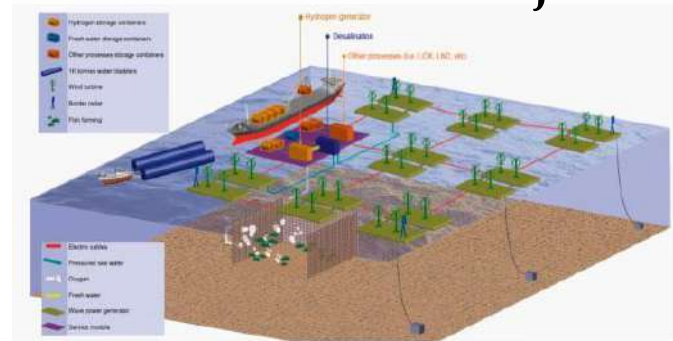


# Example of ICRE8's experience: Oceans Of Tomorrow Projects



Development of a wind-wave power open-sea platform equipped for hydrogen generation with support for multiple users of energy

<http://www.h2ocean-project.eu/>



H2OCEAN CONCEPT (©Copyright 2011 by VirtualPIE Ltd)



Innovative multi-purpose offshore platforms: planning, design and operation

<http://www.mermaidproject.eu/>



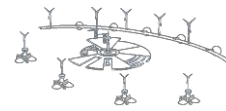
Modular multi-use deep water offshore platform harnessing and servicing Mediterranean, subtropical and tropical marine resources

<http://www.troposplatform.eu/>





# The TROPOS Project



*Modular Multi-use Deep Water Offshore Platform Harnessing and Servicing Mediterranean, Subtropical and Tropical Marine and Maritime Resources*



**The TROPOS Project**

Project cofinanced by the European Commission under the Seventh Framework Programme



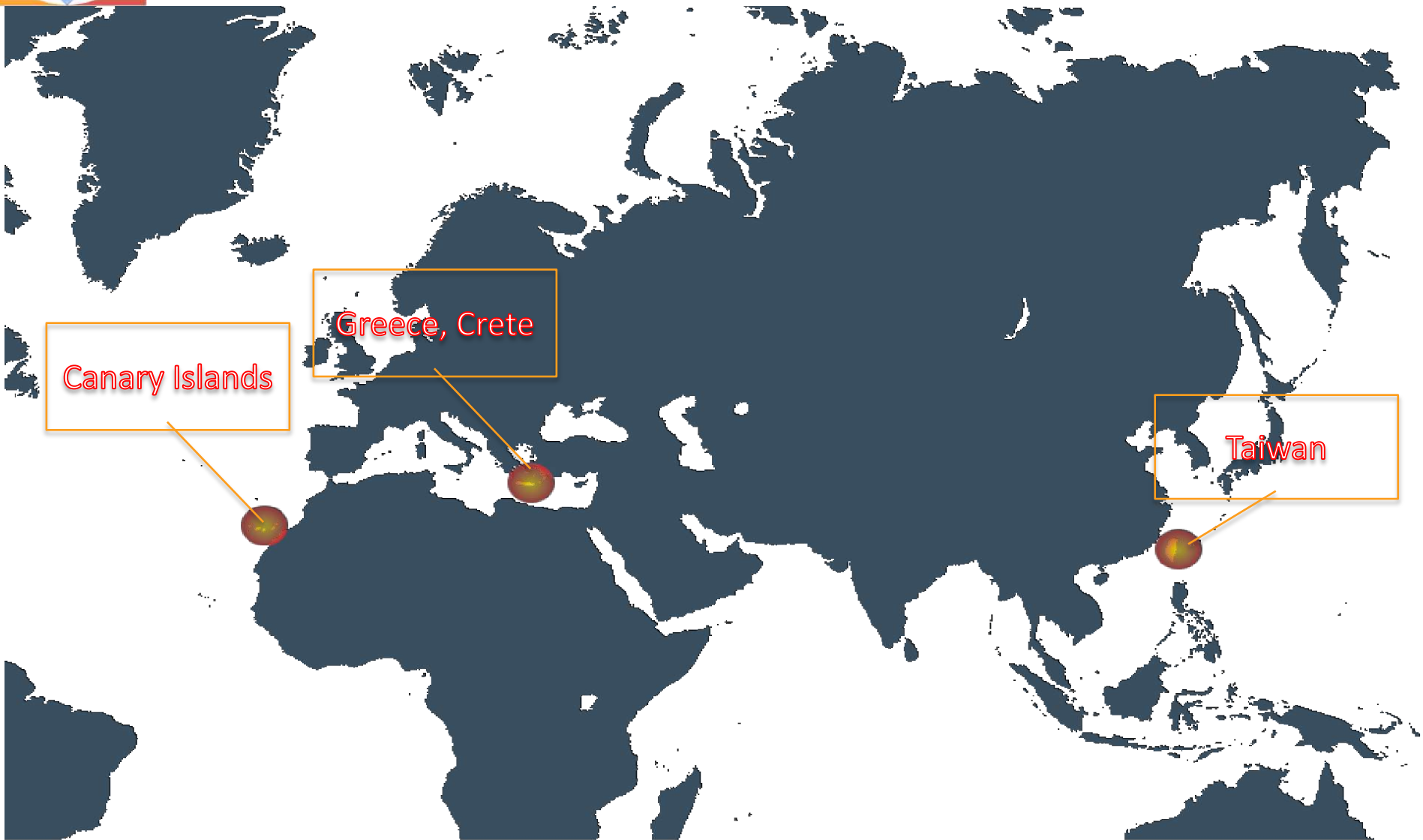
# Objectives

- ① Determine **ideal locations** for multi-use offshore platforms in tropical, subtropical and Mediterranean regions.
- ① **Research integration** renewable energy (wind), offshore aquaculture, marine transport and recreational activities
- ① Develop an **innovative design for a Multi-use Offshore Platform** that enables the integration of these activities.
- ① Study the new platforms' logistical requirements: security installation, operation, maintenance, etc.
- ① Asses the **economic feasibility and viability**
- ① Develop **environmental impact methodology and assessment.**
- ① Configure **THREE COMPLETE SOLUTIONS:**  
Mediterranean, Subtropical and Tropical scenarios.



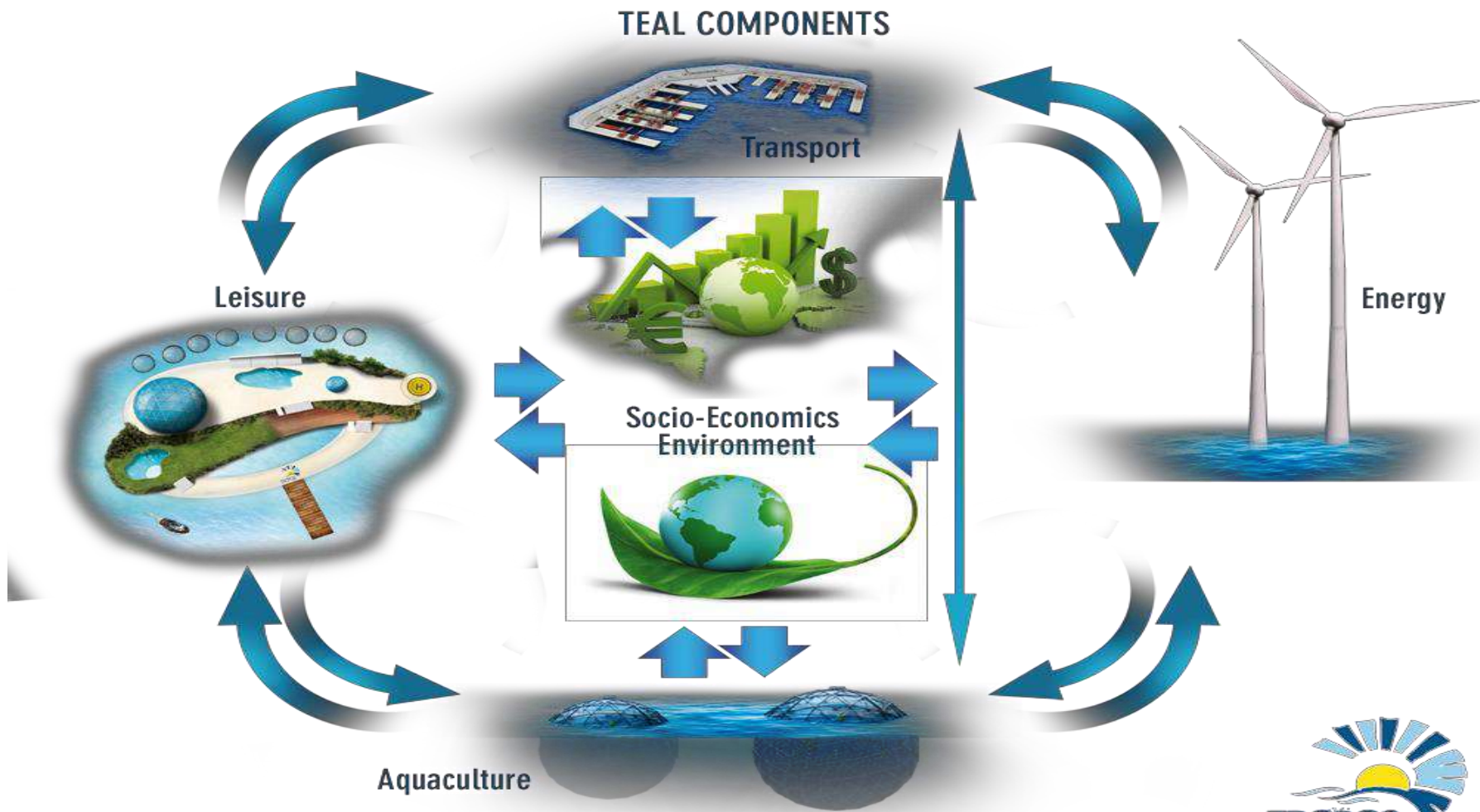


# TROPOS LOCATIONS





# TROPOS TEAL COMPONENTS





## Stratified Sample

**Table 2. Number of questionnaires required per strata**

<b>Strata</b>	<b>Percentage required</b>	<b>Number of questionnaires required</b>
<b>Tourists</b>	71.77%	273
<b>Locals</b>	28.23%	108
<b>Sum</b>	<b>100.00%</b>	<b>381</b>

**Table 3. Number of questionnaires required per district**

<b>Sector</b>	<b>Percentage of Population in the district</b>	<b>Number of questionnaires required per district</b>
1	16%	17.28
2	16%	17.28
3	11%	11.88
4	10%	10.8
5	20%	21.6
6	7%	7.56
7	11%	11.88
8	9%	9.72
<b>Total</b>	<b>100%</b>	<b>108</b>



## Eliciting Stakeholders Preferences for Alternative MUOPs Designs:

**Design 1:** Aquaculture facilities (fish + algae)

**Design 2:** Aquaculture facilities+ Renewable energy+ Leisure facilities

Two levels of mitigation impacts:

- Optimal
- Acceptable

Use Full **Rank Preference technique** with visual aids, to elicit stakeholder preferences in relation to different MUOPs designs conducted in the TROPOS project for the Liuqiu Island, Taiwan.



# Design 1. Aquaculture Facilities



Attributes	Description and economic impacts	Environmental Impacts	Levels
<b>Design 1:</b> Aquaculture Facilities (Fish+Algae): Satellite Unit (not inside the platform)	Fish and Algae Aquaculture: 1,333 FTE positions and GDP impact of NT\$ 1,660 million (€43.35 million)	<p><b>Solid and liquid wastes:</b> Major effect on water and sediment quality, benthos, fish and turtles, marine mammals and humans</p> <p><b>Noise and vibrations:</b> fish and turtles and marine mammals, the mooring will significantly affect sediment dynamics.</p> <p><b>Artificial lighting of the fish farm units:</b> pose a major impact on marine mammals, birds and bats, and fish and turtles.</p> <p><b>Escape of fish from the fish cages and the introduction of alien species:</b> major impact for plankton, benthos, and fish and turtles</p>	<p>1 Acceptable reduction on environmental impacts</p> <p>2 Optimal levels of conservation and high visitor satisfaction</p>



## Design 2. Aquaculture Facilities + Renewable Energy: OTEC plant + Leisure Facilities





## Payment Vehicle for Residents

- For residents, the scenarios proposed a local tax increase (absolute value per year).
- This monetary attribute is the respondents' contribution to the proposed design for mitigating pollution in order to have a sustainable growth model.
- It takes the form of a willingness to pay to avoid environmental damage.
- The WTP was chosen because tax increases are more plausible than tax reductions (compensation for damages).
- This attribute has five levels: a) 0 euro per year (status quo); b) 10 euros per year; c) 20 euros per year; d) 30 euros per year; e) 40 euro per year.







## Payment Vehicle for Tourists

- The attribute took the form of a daily tourist tax that is, an increase of the cost of their holiday in Liuqiu Island per day.
- The levels for this attribute were set to: a) 0 euro per day (status quo); b) 2 euros per day; c) 4 euros per day; d) 6 euros per day; e) 8 euro per day



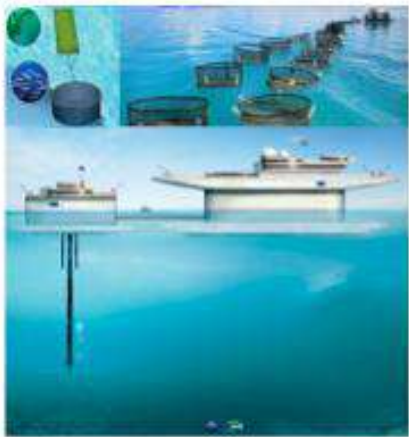
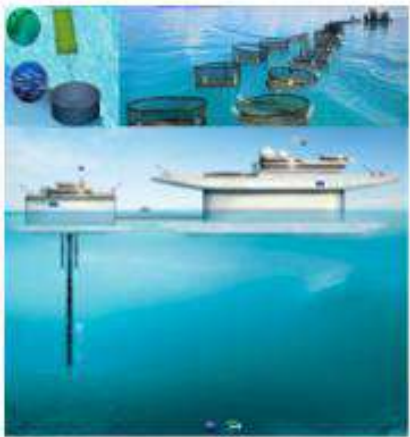




# Choice card example Tourists (12 in total)

	Option A	Option B	Option C
Choice card 9	<p>Design 1</p> 	<p>Design 2</p> 	
Environmental effects			<p>I prefer the current status (no platform is installed)</p>
Extent of mitigation in aquaculture	<p><b>Optimal mitigation of environmental impacts</b></p>	<p>Acceptable mitigation of environmental impacts</p>	
Renewable energy and leisure facilities	<p>Does not exist</p>	<p><b>Optimal mitigation of environmental impacts</b></p>	
Daily tax	<p><b>NT\$ 80 (€2.09)</b></p>	<p><b>NT\$ 160 (€4.18)</b></p>	
Which option do you prefer most?			
Which option do you prefer least?			



# Choice card example Residents (12 in total)

	Option A	Option B	Option C
Choice card 9	<p>Design 2</p> 	<p>Design 2</p> 	<p>I prefer the current status (no platform is installed)</p>
Environmental effects			
Aquaculture	Optimal mitigation of environmental impacts	Acceptable mitigation of environmental impacts	
Renewable energy and leisure facilities	Acceptable mitigation of environmental impacts	Optimal mitigation of environmental impacts	
Annual tax increase	NT\$ 800 (€20.89)	NT\$ 1,600 (€41.78)	
Which option do you prefer most?			
Which option do you prefer least?			



# Results

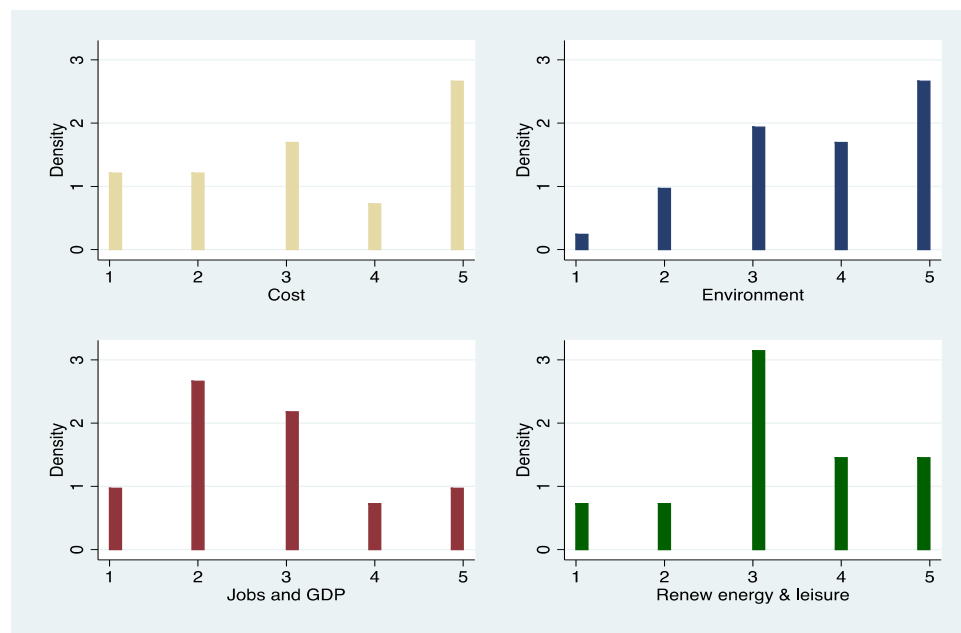
## Residents:

- Most preferred option: status quo -67.74% of the respondents stated that they would oppose the initiative.
- Reasons affecting their choices (follow-up question):

**Cost and environment** related alternatives were reasons that affected in a high degree the stated preferences.

**Energy and leisure facilities :**  
moderate effect

**GDP impacts and Job creation** were not deemed very important factors when the preference was stated.





# Results

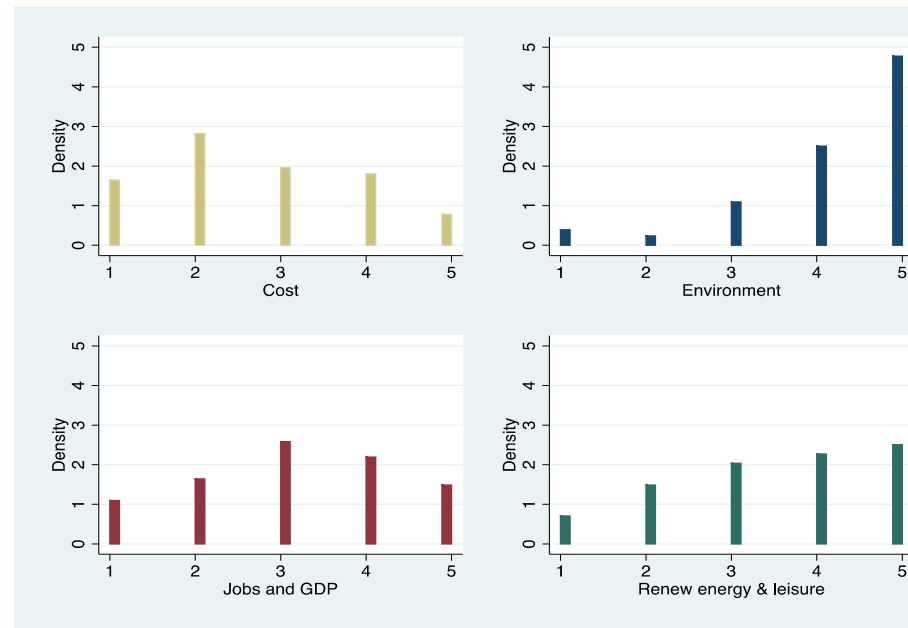
## Tourists:

- WTP: Negative for design 1 (86.5 NT\$), Positive for design 2 - recreation, energy modules- (tax per day is 53.66 NT\$).
- Reasons affecting their choices (follow-up question):

**Environmental considerations** were important reasons that affected the stated preferences followed by the

Presence of **renewable energy** and **leisure facilities** in the platform.

**GDP impacts and Job creation and cost:** affected moderately their stated preferences.





Thank you for your attention!

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