

WATERWORKS 2017 RDI FUNDED PROJECTS BOOKLET

Project: Simulating Tourism Water Consumption with Stakeholders

Acronym: SIMTWIST

Outcomes and expected impact:

The project aims to increase the overall coherence and efficiency of the use of European water resources and valorising know-how on water solutions as part of the expected impacts listed in the H2020 Societal Challenge 5. In addition, UN SDG 6 ('clean water and sanitation') and 13 ('climate action') will be addressed by producing new knowledge and innovative solutions with bottom-up modelling. Our proposal focuses on improving the understanding of water consumption by tourism so that effective measures to reduce this type of consumption can be developed and water scarcity can be reduced. In addition, our proposal is future-oriented, incorporating the implications of climate change into simulation games and computer modellings. One of the primary goals of using simulation games is to foster social learning, which can be seen as a type of informal education. Key goals of using computer simulations are to provide early warnings of potential future threats, and to provide a virtual context for policy experimentation, strengthening the institutional capacity for climate change adaptation.

The proposal targets water consumption by individual actors, addressing the decisions they make and the trade-offs they face. Rather than using a 'typical' or 'average' consumer approach, it pays full attention to the heterogeneity among actors and contexts, connecting science to society. Based on the findings about the individuals' water use behaviour, the proposal goes on to explore the effectiveness of a variety of possible policy and management interventions, including labelling and information provisioning, but also pricing strategies and economic incentives. Finally, the project's aim to link micro-level (water use) behaviour to macro-level (water scarcity) challenges also relates to the enabling of sustainable management of water resource, as it contributes to the mitigation of water stress in coastal zones and urbanized deltas.

The project aims to have impact in two distinct ways: through the knowledge that will be produced and through the

methodologies that will be developed and refined. With respect to knowledge: the tourism industry and water utilities in the case study areas will benefit substantially from the new insights into how high tourism-related water consumption is, what its main components are what influence institutions and economic and social incentives have on water consumption behaviour. In addition, policy-makers in the case study areas will benefit from the model simulations regarding policy effectiveness. Some of this knowledge, such as the influence of institutions and incentive structures, will likely be of direct relevance for stakeholders in other tourism destinations in the Mediterranean and beyond. The new practices that may thus emerge can be shared with stakeholders in other destinations as 'best practices', either in written form or through stakeholder conferences.

List of deliverables expected:

- 1.1) Report on current and future water supply
- 1.2) Policy brief on tourism water use
- 1.3) Policy brief on future tourist water demand
- 2.1) Paper on tourism demand scenarios for 2020-2050
- 3.1) Interviews and causal loop modelling with stakeholders
- 3.2) Guidelines on design and execution of participatory processes.
- 3.3) Proceedings of participatory process
- 4.1) Guidelines on HSC methodology
- 4.2) Meeting at the beginning of the project with stakeholders
- 4.3) Meeting at the end the project
- 5.1) Guidelines on ABM development
- 5.2) ABM simulating policies effects
- 5.3) Policy briefs with main conclusions of ABM

Expected research results to communicate and disseminate (in very general terms)	Target groups for communication and dissemination activities:
<ul style="list-style-type: none"> - Policy briefs on water balance on tourism sector - Policy briefs with the main conclusions from the simulation-based policy evaluations - Guidelines on how to analyse hydrosocial cycles in coastal mass-tourism destinations based on tested experiences in Spain and Italy; - Guidelines on how to design and execute participatory modelling processes aimed at the co-production of knowledge on tourism-related water consumption in tourism destinations; - A workshop on tourism sector behavioural modelling in coastal mass-tourism destinations - Proceedings of the results of participatory processes, including social learning sessions. 	<p>Policy-makers and water utilities</p>
<ul style="list-style-type: none"> - A report on best-practices with regard to reducing water consumption and increasing water efficiency in the tourism industry - A list of indicators to be used by the stakeholders and end-users of coastal mass-tourism destinations - A stakeholder meeting at the end of the project to discuss the project's results and to collectively draw up the collaborative research agenda for the years after the project. - Proceedings of the results of participatory processes, including social learning sessions. 	<p>Stakeholders in the tourism industry</p>

<ul style="list-style-type: none">- At least five peer-reviewed articles in renowned journals: 1) Tourism's share in residential water consumption: the cases of Benidorm and Rimini; 2) Current and future water scarcity in Mediterranean tourism centres: an exploratory scenario analysis for Rimini and Benidorm; 3) Understanding water consumption in tourism: eliciting the behavioural rules with participatory modelling; 4) How to reduce tourism water consumption? Exploring policy effectiveness with agent-based modelling; 5) Tourism, climate change and the hydrosocial cycle in Benidorm and Rimini: the intricate relationship between water, power and institutions in two Mediterranean megaresorts.- Incorporation of results and methods in teaching programmes, such as in the courses Environment&Tourism and Tourism Systems Analysis of Wageningen University's BSc Tourism programme.- Papers in the proceedings of conferences and workshops related to various disciplines and transdisciplinary fields, including hydrology, tourism, participatory processes, complex adaptive systems.	<p>Academia</p>

Experiments / Case studies: location, type of experiments:

-Benidorm-Spain

-Rimini-Italy

Water Policy context / project contribution to policies (National, European, International – UN SDGs):

The project aims to increase the overall coherence and efficiency of the use of European water resources and valorising know-how on water solutions as part of the expected impacts listed in the H2020 Societal Challenge 5. In addition, UN SDG 6 ('clean water and sanitation') and 13 ('climate action') will be addressed by producing new knowledge and innovative solutions with bottom-up modelling. Our proposal focuses on improving our understanding of water consumption by tourism actors so that effective measures to reduce this consumption can be developed and water scarcity can be reduced. This clearly addresses the UN SDG 6 target that states: "By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity". In addition, our proposal is future-oriented, incorporating the implications of climate change into simulation games and computer simulations. One of the primary goals of using simulation games is to foster social learning, which can be seen as a type of informal education. Key goals of using computer simulations are to provide early warnings of potential future threats, and to provide a virtual context for policy experimentation, strengthening the institutional capacity for climate change adaptation. As a result, the proposal also addresses the UN SDG 13 target that states: "improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning".