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Sustainable Island Futures III

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**Program and abstracts for the
2021 Sustainable Island Futures Symposium III**

hosted by
The Metabolism of Islands & The Sustainable Island Solutions through STEM

December 14, 2021

5:00 - 8:00 PST

8:00 - 11:00 EST

9:00 - 12:00 AST

13:00 - 16:00 UTC

14:00 - 17:00 CEST

Location: Zoom (link will be distributed at the latest 24 hours before start)

Registration link:

[LINK](#)

Please feel free to share this link with your colleagues.

Small island states are characterized by a strong dependency on external resources to meet their basic needs which highly contributes to vulnerability of these territories. The approaches to increase resource security and self-reliance in small island states need to be carefully redesigned considering context-specific challenges and opportunities. At the same time, in order to achieve sustainability and build system resilience, wholistic approaches need to be favored over narrow agendas. Several research collaborations are ongoing to address these challenges, such as the Sustainable Island Solutions through Science, Technology, Engineering and Mathematics (SISSTEM) program at the University of Aruba and the Metabolism of Islands (Mol) research program. These bring together researchers from universities that are concerned about sustainable futures for small islands throughout the world. This multidisciplinary symposium aims to bring together emerging scholars to exchange ideas and approaches for a sustainability transformation in small island states and to foster interdisciplinary and interinstitutional collaboration.

Call for papers is closed



**METABOLISM
OF ISLANDS**

**S I S
S T E M**



Name	topic	time (AST)
	Welcome and introduction	9.00 - 9.05
Keynote: Ben Sonneveld, Amani Alfarra	Sustainable management of freshwater resources for food security and nutrition in Small Island Developing States	9:05 – 9:30
Eirini Skrimizea, Francielle Lacle and Constanza Parra	Islands, tourism and water: Water stress as a symptom of the insularity-islandness tension	9.30 - 9.55
Laura Kozuszek	A Human-Centric Approach to Economic Forecasting and Disaster Planning	9.55 – 10.20
	discussion/feedback	10.20 - 10.30
	break	10.30 - 10.40
Filippos K. Zisopoulos, Daan Schraven and Martin de Jong	Ascendency analysis as a diagnostic tool for the robustness of resource flow networks – Insights from the EU27 and its potential for assessing waste management systems of small islands	10.40 –11.05
Lynn de Miranda	Investigating the effects of UV-filter (suntan-lotion) pollution on the environment	11.05 - 11.30
	discussion/feedback	11.30 –11:40
	closing	11.40 –11:50



Islands, tourism and water: Water stress as a symptom of the insularity-islandness tension

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Tourism increases, diversifies and concentrates water consumption in space and time; it contributes to social-ecological processes that often make tourist destinations vulnerable to water stress. Climate change projections foresee an increase in water stress problems in many tourist resorts. Tourist islands are considered particularly vulnerable to water stress due to their geographic isolation and the limited options for enhancing supply. Despite the significance of the issue, an understanding of the water-tourism complex as a social-ecological phenomenon and as a challenge for the sustainable development of the islands remains under-researched. To address this gap, in this paper, we introduce the “Water-Tourism Social-Ecological Systems framework” based on literature on water and tourism, social-ecological systems, adaptation, vulnerability/resilience, and island studies. We apply this framework to investigate the so far underexplored water stress vulnerability of the island of Rhodes (Greece) through in-depth interviews with key actors and secondary sources. Our analysis eventually connects the water issue to unsustainable development lock-ins related to the insularity-islandness tension. As such, it moves beyond the usual applied management perspective focused on efficient water use and opens up the scope of solutions that are being discussed arguing for the need of bringing forward sustainability transformations in tourist islands. Further elaborating on our work, we conclude with a reflection on the implications for research questions, methodologies and issues to be tackled in small-island states, using the example of Aruba.



A Human-Centric Approach to Economic Forecasting and Disaster Planning

Laura Kozuszek, GS/IR, International Economics and Consulting M.S. Candidate, college of Professional Studies, Northeastern University

The Zipper Philosophy allows economists and disaster professionals at all levels to work together strategically. On one side of the Zipper is disaster management and on the other side are the economists. The idea would be to improve the working relationship to close the gap of missed storms and/or economic shocks that hit communities such as island the hardest. This framework focuses on The Four Ps: policy reform, preparedness actions, proactive measures, and partnerships. Stronger policies at all levels would allow for policy writers to introduce policies that support and encourage economists and disaster management personnel to work side by side to accomplish a common goal of protecting the community they live and serve in. Proactive measures need to be taken seriously as a benchmark to increase the readiness of communities on each level; individual, community, national and spilling over into the international community. Focusing on preparedness efforts instead of always reacting and responding to a crisis allows communities to plan so they may have the supplies they need before the incident occurs. This will allow the chance for resilience methods to work on a local level. Lastly, partnerships that increase our networks professionally, personally, and internationally, will help us rebuild and/or keep building economies that are able to sustain the hard times that are coming. Encouragement of active partnerships between the academic/private sector that economists tend to live in and what truly happens in the real world can allow leaders to interact in a way that is more understood and gives room for the unexpected.



Ascendency analysis as a diagnostic tool for the robustness of resource flow networks – Insights from the EU27 and its potential for assessing waste management systems of small islands

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Ascendency analysis is a systematic method that can provide insights for a balanced transition to a circular economy. It does so by quantifying both the capacity of complex networks to develop as well as their robustness (i.e. sustainability) by considering their efficiency (ability to streamline resources and information) and resilience (ability to withstand shocks), simultaneously. Theoretically, this method opens up a new question: What are practical and theoretical implications encountered when applying ascendency analysis to map the robustness (i.e. interplay between the efficiency and resilience) of resource flow networks at different levels of granularity? To answer this question, first, we present an ascendency analysis of the material and energy flow networks of the EU27 between 2010-2018 using Eurostat data. Then, we discuss what the results could mean for a municipal waste management system that is confined within national geographical boundaries by taking the Netherlands as an example. Finally, we explore how the method could be used to assess the robustness of a more specific material flow network (given the availability of data) by taking as an example the comparison between the plastic waste management systems of two islands (Texel and Sint Maarten). The insights and limitations of the method are summarized at the end.



Investigating the effects of UV-filter (suntan-lotion) pollution on the environment

Lynn de Miranda, MSc by Research in bioscience, Canterbury Christ Church University

UV-filters are widely used in cosmetics and personal care products to protect users' skin from UVA and UVB damage caused by the sun. Globally, an estimated 16,000 to 25,000 tonnes of products containing UV-filters were used in 2014, with modern consumption likely to be much higher. Beyond use in cosmetics and personal care products, UV-filters are also widely used to provide UV-stability in industrial products such as paints and plastics.

Due to human activity and ineffective wastewater treatment, large amounts of UV-filters enter the ocean, where strong currents disperse them across long distances. Although the distance UV-filters can travel is unknown, they have been found in marine environments many thousands of miles from the source. There is also increasing evidence of the deleterious effects that UV-filters have on both human and environmental health. For example, it has been shown that some UV-filters may pose a threat to human health due to their ability to migrate through cellular barriers and cause endocrine disruption affecting both early embryonic, and pubertal development. Environmentally, UV-filters pose a threat due to their ability to bio-accumulate and their potential toxicity to fish, coral, algae and marine mammals.

Islands ecosystems although beautiful, can be ecologically vulnerable due to their location, size, and sensitivity. In this presentation UV-filter research from the past 10 years regarding bio-safety and human health will be summarised as well as how small islands such as Aruba are setting a new world standard for innovative environmental protection policies.