Sustainable Island Futures II

Name	Position and affiliation	topic	time (AST)	
		Welcome and introduction	8.00 - 8.10	10 min
Kryss Facun	PhD candidate, University of Aruba - KU Leuven	Vertical Farming, the practice of cultivating plants on a stacked layer to optimize space.	8.10 - 8.40	30 min
Benjamin Visser	Guestlecturer UOC; CEO 'Samyama Permaculture Transition'	Samyama Permaculture Transition	8.40 - 9.10	30 min
Linda van der Spek	MSc Research intern at Amsterdam Centre for World Food Studies (VU University Amsterdam)	Food security in a Small Island Developing State (SIDS)	9.10 - 9.40	30 min
break			9.40 - 10.00	20 min
Antonio Carmona Baez / Elisabeth Echteld / Eric Mijts	USM / UoC / UA	COVID-19, Food Security and Economic Diversity in Curaçao, Aruba and Sint Maarten	10.00 - 10.30	30 min
Nayla Bezares	PhD Candidate, Tufts University	Assessing Self-Reliance and Sustainability of Agricultural Systems in Puerto Rico	10.30 - 11.00	30 min
Amber van Veghel	PhD candidate, University of Aruba - KU Leuven	Assessing the environmental impact of food systems	11.00 - 11.30	30 min
discussion/feedback/closing			11.30 - 12.00	30 min

Kryss Facun
PhD candidate, University of Aruba - KU Leuven

Vertical Farming, the practice of cultivating plants on a stacked layer to optimize space, is a rising trend being implemented mainly in urban areas to boost local and sustainable food production. Aruba does not fall under a developing state, however due to its size similar constraints with Small Island Developing States (SIDS) regarding the environment, economics and societal structures are the same. Nowadays Aruba has a limited capacity to raise domestic resources and depends on a small number of economic sectors. This makes the island very sensitive to economic shock as we have seen during the recent COVID19 pandemic, so growing vertically and indoors is a great opportunity to become more self-sufficient, and partly independent of agricultural import.

This project is a collaboration between the University of Aruba and the University of Leuven (Belgium) and focuses on indoor vertical farming, optimizing growth conditions with respect to climate and light quantity and quality to grow plants in a controlled space. In addition, a specialty crop (strawberries with a short storage life will be grown), this to diverge from local product and to show proof of concept of independence of import. A local crop (comcomber chikito), whose growth conditions meets the short time span and close relative to cucumbers will be investigated. The goal is to translate knowledge on plant physiology and photobiology, to agricultural and innovative vertical farming applications for real-life situations. Eventually providing locally produced fruits and vegetables, which will add to an economically sustainable food production on Aruba.

Benjamin Visser
Guestlecturer UOC; CEO 'Samyama Permaculture Transition'

Conventional agriculture causes a variety of side effects worldwide, such as loss of biodiversity and climate change. Parallel to this, an alternative is steadily developing worldwide that takes nature as an example and through ecosystem regeneration generates a fair, healthy food supply in which humans play a participatory role. In the Dutch Caribbean, with its semi-arid climate, syntropic agroforestry offers unprecedented possibilities to provide a permanent, decent food supply by means of ecosystem development.

Samyama Permaculture Transition develops permaculture gardens in Curaçao, for individuals, conventional farmers and in neighbourhoods. The 5,000 m2 syntropic neighbourhood food forest in Brievengat is a model example and the first on that scale, where a food forest is set up with and for the neighbourhood. The forest is built with a wide diversity of fruit trees, functional (i.e. supportive) flora, herbs, vegetables, flowers and root species, and uses succession to develop from a bacteria-dominated barren soil to a fungi-dominated mature forest that is also irrigation-free and low-maintenance on the long run.

In 2020, Samyama co-founded the 'Orenda Syntropic Academy' foundation and developed the 'Roadmap 2025', in which in the next 5 years, 25 conventional farmers will be converted to syntropic farming, 25 syntropic gardens will be installed at household level, and 25 neighbourhood food forests will be set up. Additionally, a 2.5% of the island's organic waste is recycled withín these forests. The foundation is thus committed to the professionalization and upscaling of the syntropic (food supply) sector on the Leeward Islands and the Caribbean wide.

Linda van der Spek
MSc Research intern at Amsterdam Centre for World Food Studies (VU University Amsterdam)

Food security in a Small Island Developing State (SIDS): Analysing the impact of an MDG-F JP programme in East Timor.

Fifty per cent of East Timor's under-fives are stunted, which is globally only surpassed by Burundi and Eritrea. The Millennium Development Goals Achievement Fund's Joint Programme (MDG-F JP) aimed at improving the country's Food and Nutrition Security (FNS) conditions. Yet, in absence of baseline surveys, appropriate sample designs and adequate monitoring the MDG-F JP's actual impact on the nutritional status of East Timor's population remains largely unexplained. This study addresses this research gap by analysing a wide range of multifaceted historical socio-economic and biophysical determinants that promote or restrict the program's success. The major scientific challenge is to attribute the impact of the MDG-F JP on changes in children's malnutrition status, amidst many confounding and unobserved variables. Our approach is as follows: DHS data from 2009-2010 and 2016, covering the timespan of the MDG-F JP, will register changes in children's anthropometry over the years. Next in a pseudo-experimental setting we compare groups that lived in one of the four districts that received the MDG-F JP to otherwise similar groups that lived in districts where no MDG-F JP intervention was planned. The comparison includes a spatial analysis of agronomic profiles to investigate the interaction between local agricultural productivity and FNS outcomes for under-fives. In-depth stakeholder interviews contribute to position the findings in effective and sustainable cross-sectoral strategies that can upscale food policy interventions to other, yet, unvisited sites on the island.

Antonio Carmona Baez (USM) / Elisabeth Echteld (UoC) / Eric Mijts (UA)

Title: COVID-19, Food Security and Economic Diversity in Curaçao, Aruba and Sint Maarten

The socio-economic impact of the COVID-19 pandemic upon the island states of Curaçao, Aruba and Sint Maarten has exacerbated the need for both economic diversification and the bolstering of food security. This study aims to explore shifting patterns in community-centered local food production initiatives and how they can contribute to innovative economic diversification strategies to increase pandemic resilience. Central to this project is the participation of local stakeholders and community members in the design of data collection and interpretation. This research addresses the creativity at the individual level but also at the level of communities, neighbourhoods and institutions. How can we explain the resilience of society to offer help and solutions via a wide range of initiatives at the level of food systems? What can we learn from this, how can positive elements be retained/safeguarded and which aspects can make a contribution to a structural reshaping of society?

In April 2021 the project was granted funding by the Dutch ZonMw research funding agency.

The execution of this research will provide currently unavailable comparative baseline data that can be used to inform evidence-based policy aimed at: 1.) increasing local sustainable agricultural development; 2.) increasing food and nutrition security; 3.) developing innovative small and medium business enterprises supporting agricultural development; 4.) building regional consortiums; and 5.) promoting economic diversity. In this contribution, the goals, methods and outlines of the project will be presented.

Nayla Bezares
PhD candidate, Tufts University

Title: Assessing Self-Reliance and Sustainability of Agricultural Systems in Puerto Rico

Background: Climate change threatens both local agricultural productivity and upstream food supply chains. In Puerto Rico (PR), local food production supplies less than 20% of total food intake and recent climatological events have heightened awareness of the fragility of current food system structures. A number of disadvantageous conditions press on the relevance for a resilient food system in PR including high unemployment rates, low average household incomes, high prevalence of chronic conditions, and high vulnerability to climate change effects. While increasing food self-reliance has been proposed as a strategy for food systems resilience, a comprehensive assessment of the local agricultural carrying capacity has not been conducted. Additionally, the impact of expanding agricultural activities has not been assessed for PR. Therefore, assessing the environmental, economic, and social impacts of increasing local food production would provide valuable information for the development of comprehensive policies and programs that address food systems resilience in PR.
Proposed Aims/Methods: The overall purpose of this proposal is to assess the sustainability of food resilience strategies in PR such as increasing local food production and the proliferation of highly diverse agricultural systems. The long-term goal of this project is to provide policymakers with relevant information to develop support structures that incentivize wellbeing among food producers and consumers in PR. This proposal will apply modeling approaches to estimate the land carrying capacity to feed the local population and estimate impacts of local food production across environmental, economic, and social categories.

Amber van Veghel
PhD candidate, University of Aruba - KU Leuven

The scientific field of assessing the environmental impact of food systems and of food consumption is growing rapidly. Assessments often occur at a global, continental, national or provincial level. This research focuses on calculating the environmental impact of the food basket at an island level. We will quantify the environmental impact of Aruba’s food basket, considering both imports and local production, with the system boundaries from farm-to-retail/restaurant and will assess where hotspots of environmental impact are located. Environmental impact will be calculated by means of life cycle assessment with the SimaPro software which covers 16 different environmental impact indicators, such as climate change, land use and eutrophication.