

# Deltas Under Pressure - New Transition Pathways towards Resilient Food



## Introduction

Wageningen University and Research and various stakeholders propose new transition pathways towards resilient food systems in Deltas Under Pressure and develop tools to support these transitions. Essential elements of the food system will be integrated and combined, connecting field, farm, regional and national levels to increase future food security

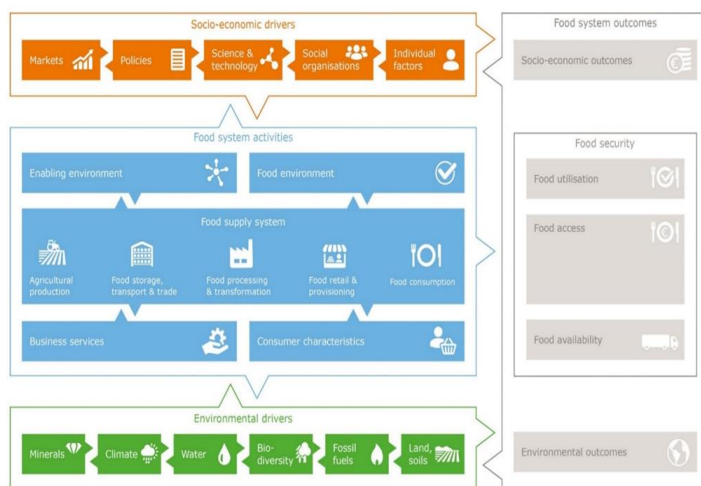
## Deltas Under Pressure

Delta regions are strong contributors to food production and other environmental services. However, they are also particularly vulnerable to the effects of climate change. Typical stresses for Deltas are: drought, salinity, acidity, humidity, flooding/waterlogging, subsidence, pest and other diseases (exacerbated by above abiotic stresses).

Availability of fresh water of sufficient quality and maximisation of the use of salinizing regions is an essential component of food systems in Deltas. Changes are happening rapidly and in a complex setting – it is difficult to foresee what a sustainable transition pathway could look like.

## Food Systems Approach (FSA)

This 2019-2022 Knowledge Development program aims to deliver an analytical framework and recommendations and tools for food system transition pathways of Deltas under Pressure, utilising the concept of the Food Systems Framework. This FSA consists of three building blocks (environmental drivers, food system activities, socio-economic drivers), that affect the food system at different levels and time horizons.



*The Food System Approach (FSA): a way of mapping the relationships of the food system to its drivers*

## Project Team

An interdisciplinary research team of WR will contribute to Zero Hunger by combining their interdisciplinary knowledge in the Agri-Food and Water domains to shape the transitions towards sustainable food systems in a changing climate.

The involved expertises and researchers are:

- Wageningen Economic Research: Stijn Reinhard, Maria Naranjo
- Wageningen Environmental Research: Catharien Terwisscha van Scheltinga, Ab Veldhuizen
- Wageningen Food & Biobased Research: Raymond Creusen, Norbert Kuipers
- Wageningen Livestock Research: Theun Vellinga, Charlotte Verburg
- Wageningen Marine Research: Marnix Poelman, Dolfi Debrot
- Wageningen Plant Research: Gerard van der Linden, Greet Blom-Zandstra, Lotte Klapwijk
- Wageningen Centre for Development Innovation: Esther Koopmanschap

## Information

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## Research Key Questions

Key is to address what is needed for viable and feasible transition pathways for the food system in deltas under pressure.

Various sub-topics are:

- Which components of the Food System Approach can and need to be addressed?
- This approach includes the analysis of the expected development of the drivers of the food system and potential adaptation scenarios for
- Impact of salinity: Plant production (fresh, brackish and saline water-bottom systems and options), Livestock production (fresh water, brackish and saline zones) Coastal production (coastal marine to inland production)
- Impact of floods and drought: e.g. optimal water management
- Optimal governance frameworks and decision making on adaptation at farm level and regional/national level
- How can we optimally utilize the multidisciplinary approach involving several of WUR's science and applied research groups to provide integrated knowledge and solutions facilitating a transition towards a more food and water secure future, starting with on-farm levels studies in Vietnam, and behavioural/regional/national level studies in Bangladesh.
- How can we effectuate these solutions and ensure utilization of the developed knowledge and tools in a (practical) case study in Bangladesh/Vietnam, and analyse how these solutions can be adapted by Bangladesh farmers and extrapolate the outcomes of this study to Bangladesh and vice versa?
- How can we increase the application of these solutions into adaptation strategies of farmers, fishermen and possibly other target groups?
- How can we mobilise stakeholders to actively engage in anticipating possible challenges, exploring new approaches and share lessons learnt?

## Process

The project starts with communication with possible interested parties for two case studies, one in Bangladesh (national level as entry point) and one in Vietnam (local level as entry point). Jointly a research approach for the cases for 2020-2022 will be elaborated, where the research takes place side-by-side with implementation processes.

The various partners within Wageningen Research will also bring their knowledge together and elaborate the Food System Approach for deltas. A report is foreseen by the end of 2019.