



Food system boundaries: how they are defined and what that implies for research outcomes and policy recommendations

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Objectives and methods

A food system is defined in different ways, and which factors and stakeholders are or are not included in the analysis determine the research results and policy recommendations. In this paper we explore the question of how system boundaries can be established and what this could mean for our research. Awareness of the relationship between who decides on what is researched and how, and with whom involved as stakeholders and experts helps to weigh the contributions of recommendations to desired FS transformation.

Results, solutions and contribution to transitions

System thinkers argue that it is impossible to apprehend the whole system in any objective sense and that we make subjective choices about what belongs to it and what not. That leads to two conclusions: 1) any system analysis will no more than a partial analysis, leading to partial conclusions and recommendations, where important interactions in the system and problems can be overlooked; 2) important to be transparent about the arguments underlying the establishment of system boundaries, and what a system boundary means for the scope of analysis and impact that recommendations of the study can have.

Based on Ulrich's (1987) Critical System Heuristic Questions, the paper proposes a methodological framework for boundary judgement with which choices regarding the demarcation of a system analysis can be made explicit:

- Motivation: who is the client or beneficiary/whose interests are to be served? What is the purpose and should be the consequences? What is the measurement of improvement or measure of success?
- Power: who is the decision maker? What resources or conditions of success can those involved control? What conditions of success are part of the decision environment, and can the decision maker not control?
- Knowledge and expertise: Who is involved as a competent provider of experience and expertise? What counts as relevant knowledge?
- Legitimacy: who is treated as a legitimate stakeholder? What is the basis of legitimacy within the project (e.g. positional authority, scientific method, democratic processes, consensus)?

Next, several food system projects of Wageningen Research are evaluated for choices made about objectives, scope and scale of each project.

The table in the next column maps out which food system drivers, activities and outcomes are covered in each project. The main observations from this table are:

- Most projects highlight socio-economic drivers as main factors impacting food system activities and outcomes; less projects take environmental drivers into account;
- All projects cover production, except the Post-harvest assessment tool project;
- No project other than Seaweed includes all food system activities;
- All projects deal with food security impacts of a subset of food system activities;
- A majority of project look at nutrition security (i.e. address explicitly food safety and/or quality as measures of success)
- Half of the number projects focus on either environmental or socio-economic impacts, the other half on both dimensions.

Project	Drivers			Food system activities					Food system outcomes			
	Environmen- tal	economic	Socio-	Production	Storage/trans- port/trade	Processing	Food retail & provisioning	Consumption	Food security	Nutrition security	Environment al outcomes	Socio-econ- omic outcomes
Dhaka Food Systems												
Deltas under pressure (B)												
Deltas under pressure (V)												
Nyeri-Kibera												
Post-harvest assessment tool												
FS in LFA East-Africa (E)												
FS in LFA East-Africa (U)												
Seaweed												

Other observations are:

- while trade-off analysis and interdisciplinary collaboration are critical elements of systems analysis, few projects develop a trade-off analysis and teams are sometimes quite monodisciplinary;
- Explicit choices about which stakeholders are/should be involved seem to be avoided.

What's next?

There is no single answer to the question of where to draw the line of the food system. There is therefore no correct or incorrect definition of a food system; a demarcation is the consequence of choices, often of a practical nature, logically based on a theory (of assumed relationships, or a 'theory of change') and on subjective values of what is considered important. The methodological framework of boundary judgment helps to make these choices explicit. It is recommended that this be a standard part of the design of any food system analysis.

Questions for audience

- Have you had discussions in your own research team about the limits of the system, the focus of the research and made conscious choices about the exclusion of stakeholders
- Is the presented framework useful to structure discussions about system boundaries at the start of the research?



[optional] Key publications

- All posters will have a link to the Kennis Online site where all publications are mentioned.
- Possible to note 1 to 3 key publications