



GECAFS Working Paper 4

On the Role of Scenarios in GECAFS Decision-Support

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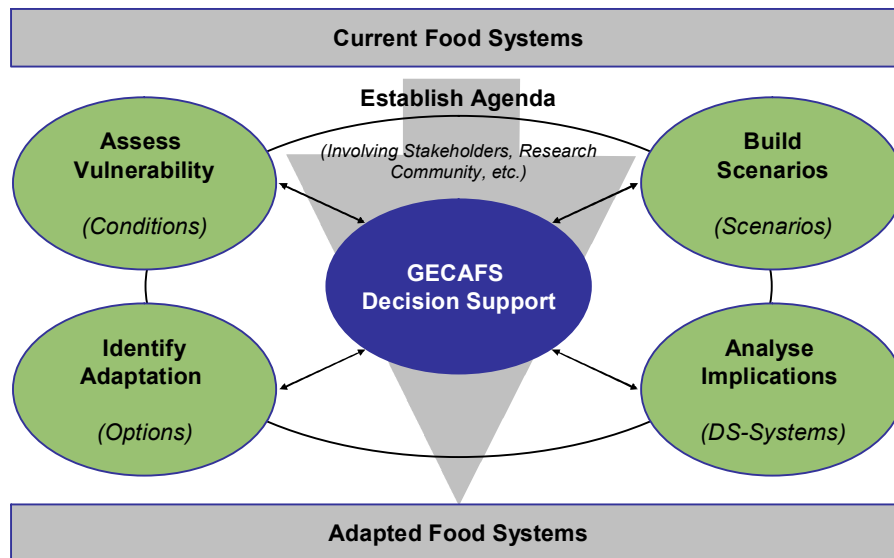
Introduction

The Global Environmental Change and Food System (GECAFS) project aims to

- Investigate how global environmental change affects food security at regional scale;
- Determine options to adapt regional food systems to cope with both global environmental change and changing demands for food;
- Assess how potential adaptation options will affect the environment, societies and economies;
- Engage the international global environmental change and development communities in policy discussions to improve food security.

In other words, GECAFS aims to support decisions that help societies to arrive at future food systems that might be better placed to ensure food security, in particular in the view of likely global environmental changes (GEC). With this perspective, the project brings together research on how food systems function and are vulnerable to GEC - and based on this understanding then assesses the consequences of plausible future developments as well as the feedback of different adaptive responses (see Figure 1). Assessing the consequences of future GEC, however, requires a structured discussion about the certainties and uncertainties of developments that may unfold over the coming years or even decades. Building different scenarios of a range of plausible futures of socio-economic and environmental conditions provides the basis for a discussion about their implications, and is a key element in decision support. This paper describes in more detail the various roles scenario exercises can assume in the context of this decision-support.

Figure 1 – GECAFS Decision Support brings together research to assess vulnerability and adaptation options, and the development of scenarios and analysis of their implications



Role of Scenario Building

Scenarios have been described as *"plausible and often simplified descriptions of how the future may develop, based on a coherent and internally consistent set of assumptions about key driving forces and relationships"* (Millennium Ecosystem Assessment, 2005, see www.ma-web.org). An important step in any scenario exercise is the process of developing and analysing scenarios; and often this process helps the scenario developers to structure and improve their understanding of how a system (e.g. the food system) functions, what the key determinants and driving forces are, and what the main future certainties and uncertainties as perceived by their peers might be. One can argue that this process itself may be more illuminating than its outcome, i.e. the scenarios themselves.

In general, scenarios can serve a variety of different purposes that can be roughly categorized in three main groups: science and research, education and information, strategic planning and decision support. The differences can be explained by taking the issue of GEC (e.g. water scarcity) as an example. In the category of science and research, scenarios would be used to explore the joint consequences of various assumptions about future developments, often integrating the understanding about GEC (e.g. water scarcity) across scientific disciplines. In the grouping of education and information, scenarios provide a platform that allows illustrating how GEC (e.g. water scarcity) may unfold under different assumptions on future developments. And in the context of strategic planning and decision-support, scenarios provide a backdrop to discuss various ‘what-if’ options, both with regard to how GEC (e.g. water scarcity) may impact societies and how response options may play out. In practice, most scenario exercises aim to achieve a combination of different purposes. Indeed, as noted above, the value of a scenario exercise is often the dialogue between different stakeholders and/or experts; i.e. the scenario process provides a platform for, say, scientists and policy-makers to engage in a discussion about their respective perspectives on plausible future developments. Thus, by assuming an active role in GECAFS decision support, scenario exercises can meet different, mutually beneficial purposes:

Purpose 1: To bring individuals or groups from different communities together, to discuss their respective understanding of a current situation and their perspectives about plausible future developments, i.e. to build a set of scenarios together. Thus, a scenario exercise can offer a space for stakeholders from different regions and / or backgrounds to come together in a joint endeavour, and thus link people that may otherwise have not met or even known they share a common concern. In past exercises, this often has led to a sense of community among participants, also resulting in further exchanges of opinions even after the actual scenario exercise. In a recent GECAFS scenario exercise in the Caribbean, for example, the participants from different countries and professional backgrounds developed a strong shared sense of ownership of the scenarios developed together over the course of two three-day workshops (see GECAFS Report 2, 2006).

Purpose 2: To build up a shared understanding about system dynamics. An essential denominator in any scenario building process is some shared view about the current situation. If stakeholders and/or researchers come into the exercise from very different perspectives, the discussion evolves not only around possible future pathways, but necessarily also touches upon the understanding of the starting point of any future developments and the system's dynamics themselves. These discussion can unveil where and how different stakeholders in a decision process differ in their views, and ideally help to resolve – or at least understand – any mismatches. Commonly, the aim of developing a set of scenarios jointly, leads to a 'common language' or 'shared understanding' about how elements within a system (e.g. food system) are connected, how the system functions, and how it might be configured in the current situation. In scenario exercises that, for example, bring together policy-makers and researchers with the aim of decision support, a mutual learning exercise unfolds *en passant*: Researchers learn to understand better the reasons of the current policy agenda, while policy-makers are informed about the latest research findings.

Purpose 3: To explore how GEC may affect food systems and food security. A scenario exercise offers a setting in which different assumptions about driving forces and about how they may develop over the coming years are explored in a systematic manner. This allows exploring different consistent combinations of driving force developments (e.g. assumptions on future socio-economic development and corresponding GEC) and what the future consequences for a system are (e.g. the food system). On the one hand, this helps identifying 'robust trends', i.e. those trends that can be seen across a wide range of assumptions. On the other hand, this process highlights what the critical uncertainties about future assumptions are, i.e. which trends are most uncertain and which would have the biggest impacts. In other words, it a scenario exercise can be of use in assessing which decisions 'really matter'.

Purpose 4: To assess the consequences of different adaptation options to GEC. The step of assessing the likely outcomes of different decisions, and thus be able to weigh them up against each other, is at the core of a scenario exercise. Thinking through plausible pathways, their implications and consequences of different response options to future developments in a structured manner in a scenario exercise, provides a backdrop against which the effects of different decisions can be assessed. In particular, this process of highlighting a range of possible options and their consequences allows a scenario exercise to be valuable in any decision support process. It should, however, be noted that any scenario project aimed at supporting a decision process, needs to be planned accordingly, and should actively involve either those taking a decision, or those that offer immediate advice to whomever takes the decision.

Concluding remarks

The different roles that a scenario exercise in a GECAFS decision support context can assume are outlined above, and in most cases a scenario process will contribute to achieving all of the purposes to some degree. Nevertheless, the main outcome of a scenario exercise will largely depend on how the process is designed and which stakeholders and / or experts are invited to participate. Ideally, participants will come from very different backgrounds and/or regions, so as to ensure a certain degree of cross-fertilisation and community building described in Purposes 1 and 2 above. At the same time, however, it is important that participants do have some common interest, that allows them to have a vested interest in the discussions, as only this will lead to an active discussion in view of Purposes 2 and 3. And finally, when aiming to support actual decisions as suggested in Purpose 4, it is crucial to involve those that are part of the decision process.