3. Presenting the framework

This chapter introduces the IAA framework, guides the reader through the core processes and highlights the range of issues that need to be considered. The chapter also presents a range of potential approaches and methodologies that might be used throughout the assessment and advice process in order to enable autonomy, creativity and flexibility of the individuals or teams undertaking such activities. It is important to recognize here that, while the presentation of the framework follows a relatively linear mode, in practice the process should be reflexive, adaptive and continuous.

OVERALL FRAMEWORK

Assessments that support decision-making processes for management must be demand-led, timely and appropriate to the questions asked or problems identified by policy-makers, managers or stakeholders. The advice should prioritize issues, construct and inform on alternative choices and suggest means of achieving appropriate action, making explicit the trade-offs involved. Legitimacy and consensus are achieved through participatory and transparent processes. They are further supported by the implementation of a monitoring protocol providing feedback information for adaptive learning. To be fully comprehensive, assessments should carefully consider the relevant scales and boundaries of resources, ecosystems, communities and institutions. They must capture information both historic and current, intra- and intersectoral, recognizing the multiple dimensions of sustainable livelihoods.

A general process of participatory assessment for decision-making can be conceptualized as a double loop with feedback connections, which is usually subdivided, partly arbitrarily, into discrete steps for the sake of convenience (see Figure 2). Examples can be found in most methodological publications (e.g. Brown, Tompkins and Adger, 2001 and Walmsley, Howard and Medley, 2005).

The general assessment cycle is largely independent of the type of assessment – strategic, operational or problem-focused – and includes the following steps:

1. **Preparation of the assessment.** Also referred to as framing, scoping, preliminary appraisal or pre-assessment, this step aims at providing the preliminary information on: (a) the fishery, management and other relevant contexts; (b) the issues at stake; (c) the objectives and constraints already identified; (d) the information sources potentially available; (e) the competencies needed and potential partners; (f) the communication channels available, etc.

2. **Assessment process *sensu stricto*.** During this phase, the approach and methods to be used are selected, the data needed are collected and the analyses undertaken. The options available are identified and analysed before presentation to the "clients" (e.g. decision-makers at central or community levels). The expected outcomes of the various options are specified to the fullest extent possible. Uncertainties are identified and their potential consequences assessed *ex ante*. The term "**diagnosis**" has been suggested, which combines pre-assessment and assessment and is linked explicitly to subsequent management action (Andrew *et al.*, 2007).

3. **Use of the assessment outputs.** The results of the assessment, and in particular the options available and their implications, are communicated to the stakeholders and decision-makers and analysed before selection in the advisory and decision-making processes. While fishers and other stakeholders are involved in both processes, as contributors of knowledge and as negotiating parties, the role of science is usually (but not always) limited to the advisory phase. The expected

FIGURE 2
Flow diagram of a general integrated assessment and advisory process
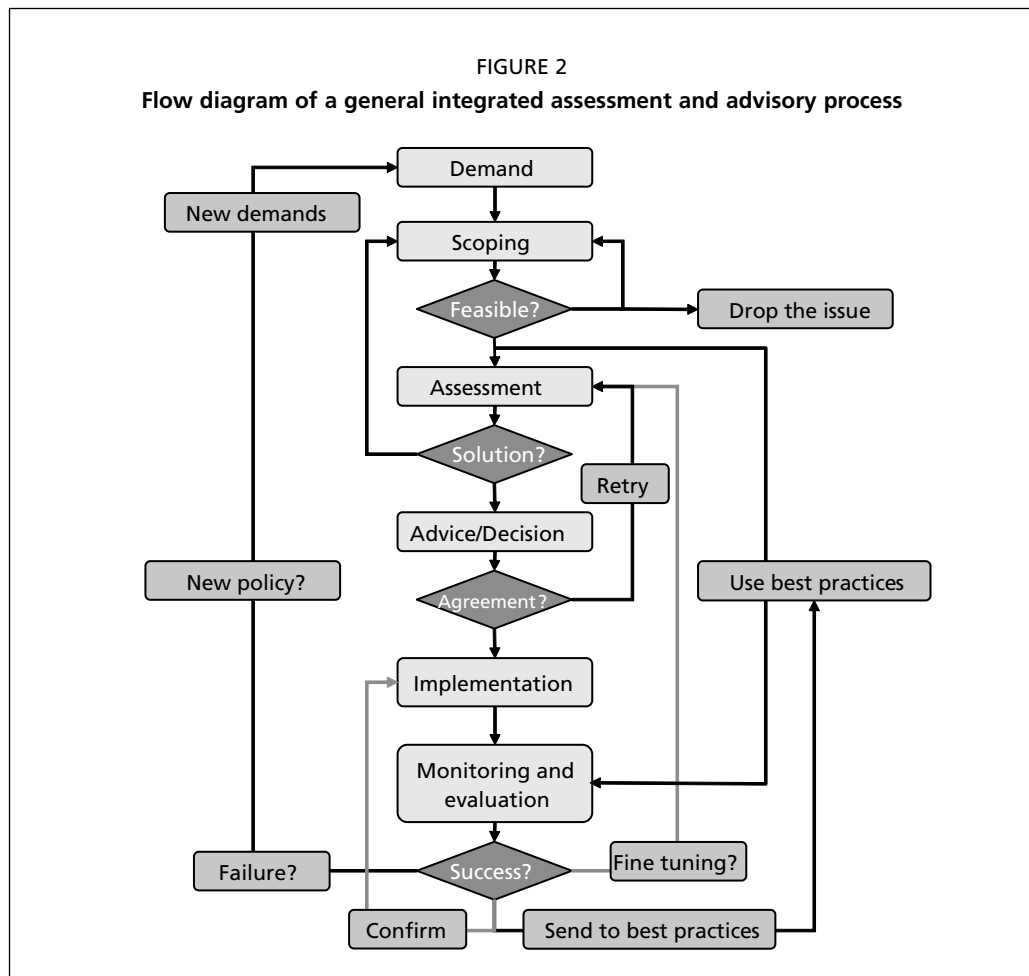
outcomes of the various options are specified to inform the negotiation process. Other communications, e.g. with the media, will strongly depend on the political context in which the assessment takes place.

4. **Monitoring and *ex-post* evaluation**. In order to assess the quality of the assessment itself, to gain new and better information and to check the performance of the implementation, a monitoring programme should be set up. The information it will collect (e.g. in relation to a set of indicators) will be used for an *ex-post* evaluation. Its results may lead to the pursuit or modification of the action.

In an environment characterized by large uncertainties in the natural and human subsystems, assessments need to be regularly revisited in order to check their continued relevance and validity as well as the performance of the assessment process. This requires the institutionalization of feedback loops at appropriate time scales.

The remainder of the chapter will introduce and discuss the different phases of the IAA framework. The progressive phases of the process are represented diagrammatically in Figure 3.

SCOPING PHASE
The scoping phase is, in many respects, a rapid version of the assessment itself, progressing through similar steps for orientation and logistical purposes. The domains to be covered will depend on the specific demand for assessment but are likely to include the resource, the community and their environment (taken in the broader sense). It is at this level that, among other issues:

- The stakeholders' willingness to participate in the assessment is ascertained and stimulated.

FIGURE 3
The progressive phases of the integrated assessment and advisory process
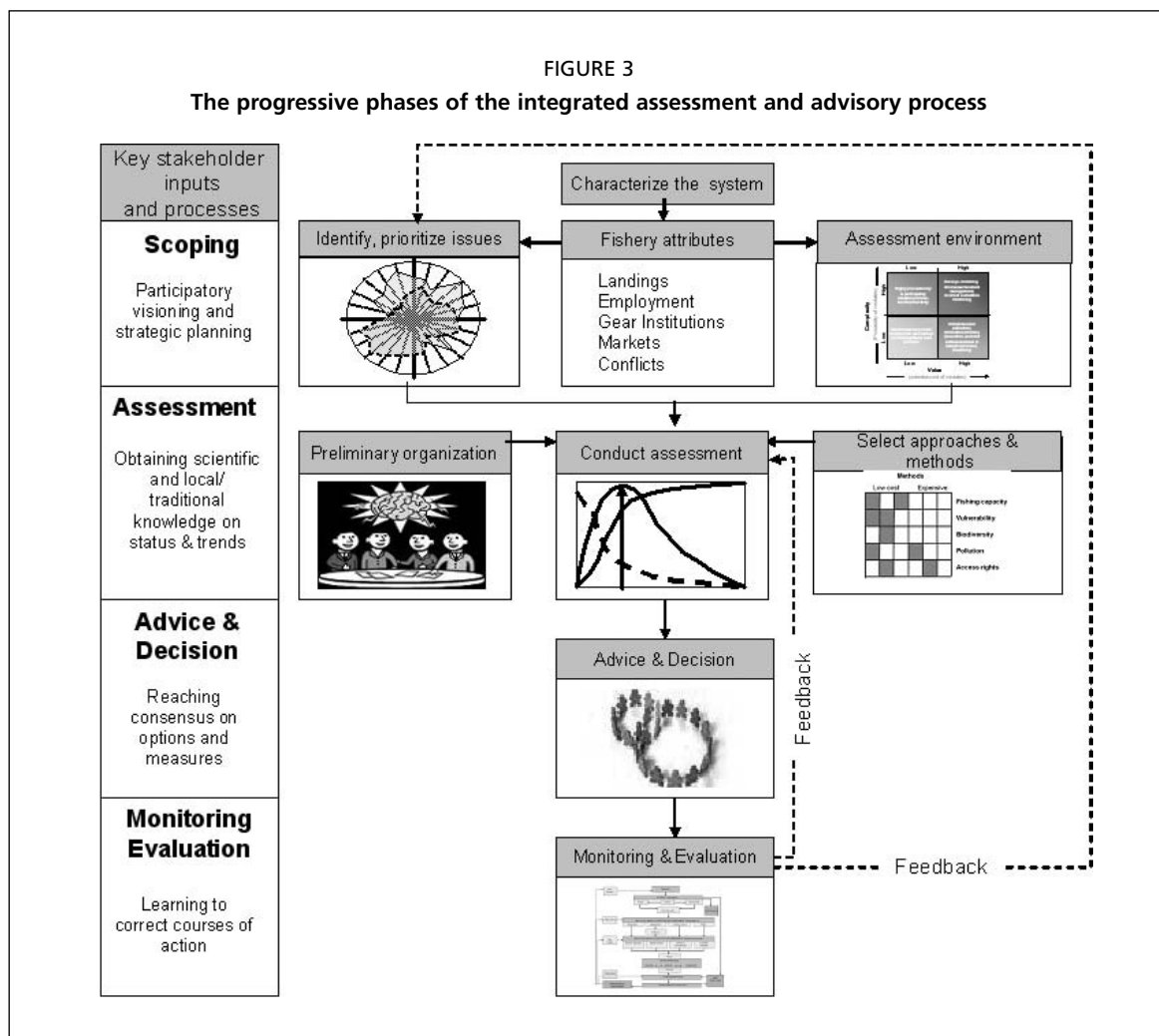
- The question to be assessed, as posed by the management authority or by stakeholders, is specified or reformulated.
- First perceptions are gained as to whether a diagnosis and a possible compromise/ response can be found.
- Working hypotheses are formulated, which the assessment itself can test.

Descriptions of different assessment processes in the literature diverge slightly as to the amount of new information generated during this phase as opposed to simply collecting and articulating existing knowledge. The scoping phase is useful in analysing threats, opportunities and constraints faced by the fishery, in general and in relation to the specific demand.

This phase is important to obtain a preliminary identification of the key parameters of the assessment, for example: (i) system boundaries (e.g. geographical, ecological, institutional and political); (ii) system dimensions (e.g. ecological, techno-economic, socio-cultural and institutional) and their relative importance; (iii) system components, such as sectors involved, people concerned, type of resources, types of fisheries, operational institutions; (iv) Interactions, e.g. between dimensions, relations of authority, trade flows, conflicts, alliances; (v) respective roles of stakeholders concerns, including decision-makers (central or local), sources of knowledge (key informants), partners and facilitators; (vi) relevant time scales, e.g. from operational (seasonal, annual) to strategic (5–10 years); (vii) data availability (and data gaps) and sources of uncertainty, analytical approaches/methods potentially usable; (viii) participation capacity and optimal participation, i.e. comprehensive enough but not so large as to

stall the process; (ix) potential obstacles to eliminate or circumvent; (x) value of the fishery (in economic and social terms; (xi) ecological threats, etc. The different steps to be followed in scoping an assessment will obviously differ according to context and specific conditions of the assessment. To begin with, the different steps that might constitute a scoping process include characterizing the system attributes, identifying and prioritizing issues and characterizing the assessment environment.

Characterizing system attributes

During this step, the available and relevant information will be identified and located regarding: the subsector, area, fishery (or fisheries), resources, competing activities, historical evolution, production and value statistics, markets, the institutional set-up, the preceding crises and the solutions applied, their fate and outcome, key local authorities and potential informants (knowledge holders). This information will help in forming an early judgement on the knowledge and institutional environment within which the assessment will need to take place.

Identifying and prioritizing issues

SSF systems have a very large number of relevant dimensions related to the human and natural subsystems and the current management or governance structure. The situation may also be characterized by a number of opportunities and threats that condition their present functioning and future trends. Some of the threats may be internal (institutional flaws), while others may stem from external drivers (e.g. climate; markets). External drivers have not been emphasized in conventional approaches to fisheries management. The scoping phase involves examining all the key dimensions of the system to identify the most relevant issues on which the detailed assessment should focus. The "entry points" for the assessment will usually depend on the way the issues materialize, e.g. the reason for a conflict or the need for the intervention.

A practical way to proceed is, starting from the entry point, to scan the issues at stake with the managers, the stakeholders and the assessment partners systematically (e.g. through interviews, literature, etc.), obtaining a comprehensive set of relevant and often interconnected issues, turning on the "issue radar" (Figure 4).

Having catalogued the issues, it will be necessary to determine their relative importance for the problem at stake. This initially will be done qualitatively (e.g. defining relevance as high, medium or low, for example, in relation to risk). Connecting the degree of relevance on each vector, a first indicative kite diagram of relevant issues will emerge. This will be a useful guide for the discussion with stakeholders as well as for identifying better what disciplines (i.e. partners) and approaches may be needed for the assessment. It is important to note that in order to conduct a full and comprehensive scoping exercise, all the issues represented in the diagram (and perhaps more) should be considered.

The holistic nature of this initial phase re-iterates the difference between conventional assessment and management approaches and more recent perspectives. It is emphasized that a comprehensive and holistic perspective can be adopted without getting mired in details and complexities. A simple, qualitative, ranked checklist developed from a stakeholder dialogue meeting that considers all four quarters of the issue radar is still going to be more useful to assessment and advice for SSF management than a very detailed fish population dynamics assessment survey that completely ignores an understanding of social and institutional issues.

Characterizing the assessment environment

During the scoping phase, identifying a common pathway for the assessment, among partners, with its time and financial implications, requires a set of criteria on which this decision can be based. It is argued that the most important criteria determining