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# Science FOR DECISION MAKERS

## SUSTAINABILITY INDICATORS

*Measuring our Progress*

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*Science for Decision Makers* is a new series published by the Bureau of Rural Sciences. It describes the latest developments in scientific advice, assessments or tools relating to agricultural, fisheries and forestry industries, including their supporting communities.

Its purpose is to make rural science more accessible to those needing to quickly understand the benefits and implications of the most recent research as a basis for decision-making.

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### KEY POINTS

- >> Indicators are needed to help us achieve our goal of sustainable development.
- >> Indicators should be clearly related to the objectives they are meant to address. Attempts to develop indicator sets often fail to gain broad support because they invest too much effort in specifying indictors and not enough in understanding the objectives.
- >> BRS advocates a process driven by objectives identified through extensive consultation with stakeholders.
- >> Several groups, including the Australian fisheries management agencies, have begun to apply this process.

### INTRODUCTION

There is now broad agreement that sustainable development is the key to a profitable and lasting future. Australia's agricultural, fishing and forestry industries are committed to sustainable development. But how do we know whether we are making progress?

The idea of a core set of indicators to measure sustainability has an irresistible allure and has sparked initiatives at all levels within the public and private sectors. But attempts to date have had mixed success. Are we doing it right?

In Australia, we have defined sustainable development as using, conserving and enhancing the community's resources to maintain ecological processes on which life depends and to increase the total quality of life, now and in the future. Not surprisingly, indicators that

**BOX 1**

**EXAMPLES OF CORE INDICATOR SETS**

**United Nations Commission on Sustainable Development**

*Fifty-seven indicators in four categories*—economic, social, environmental and institutional. Further subdivided into themes and sub-themes.

**Australian and New Zealand Environment and Conservation Council Headline Sustainability Indicators**

*Twenty-four indicators in three categories*—individual and community well-being and economic development; equity within and between generations; biological diversity, ecological processes and life support.

**Australian Bureau of Statistics Measuring Australia's Progress**

*Thirteen indicators in three domains of progress*—economic, social and environmental.

The indicator-driven approach 'puts the cart before the horse' and often fails

measure this broad spectrum of human aspirations are difficult to develop, and consensus on any particular indicator set has proved difficult to reach.

The Bureau of Rural Sciences has developed a structured process for improving the way we develop indicators. We emphasise the construction of a conceptual framework and the spelling out of objectives before moving to the identification of individual indicators. This contrasts with most efforts to date that attempt to develop indicators first, often leading to an unstructured shopping list that subsequently struggles to gain broad support.

In 1992, The United Nations Programme for Action for Sustainable Development, Agenda 21, advocated the development of indicators to evaluate progress towards achieving sustainability at the national and global level.

Since then, work on the indicators has continued through the United Nations Commission for Sustainable Development (CSD), as well as in other international organisations, such as OECD, within individual countries and within various sectors.

Indicator sets are used at the national scale to enable a country to report on its progress towards sustainable development. Some examples of indicator sets are listed in *Box 1*.

Processes to develop core indicator sets often have some typical features:

- support for the process ranges from very high to lukewarm
- limited time for consultation or broad discussion
- enthusiastic nomination of specific indicators by individuals
- significant technical investigation into data availability, measurement methods etc
- 'too many' indicators are proposed, leading to some sort of 'culling' to reach a 'core' set
- lack of support from those not involved in indicator development, but required to implement them.

Problems include inflexibility, over-simplification and the high cost of data collection

There are a number of reasons why this process often fails to develop effective indicator sets.

People may be suspicious of the potential use of the indicators. For example, there is concern that CSD indicators may be used in determining the distribution of development aid. While this is not the intention, these apprehensions need to be addressed.

A specific indicator may be not be appropriate in all circumstances. One size rarely fits all and different countries and regions discover that indicators need to be modified to suit their needs. For example, indicators such as length of hedgerows that are appropriate in some European countries have little relevance in Australia.

Considerable resources are also needed to collect, collate and report on the indicators. These are difficult to justify when the people being asked to collect the information receive no obvious, short-term benefit.

Simple indicator sets have trouble measuring all aspects of human aspirations, or adequately addressing complex concepts. If an indicator set omits aspects that are regarded as important, it is unlikely to receive widespread support.

## An alternative four-step approach addresses these problems and increases chances of broad support

The Bureau of Rural Sciences has suggested a four-step approach to indicator development that would address the problems inherent in the current method. The steps are illustrated in *Box 2*.

## Progress in Australia is being achieved by some industry sectors

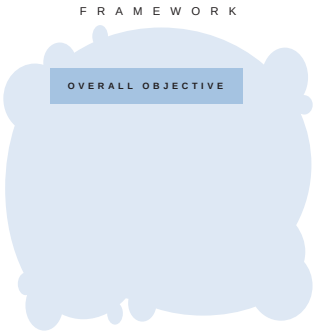
An evaluation of sustainability must measure performance to date and predict performance into the future. We have not yet achieved this on a national level. However, some sectors are making progress at an industry level.

## Fishery and forestry industries are leading the way

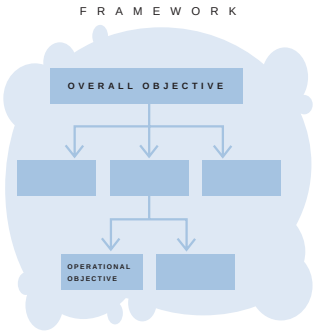
The Australian fisheries management agencies have an ambitious project underway to develop a national ESD reporting framework. (See *Case Study*). The Australian forest industry has also made significant progress. The Montreal process, Regional Forest Agreements, and the development of the Australian Forestry Standard, have articulated objectives and incorporated indicators into a continuous improvement cycle.

**BOX 2**

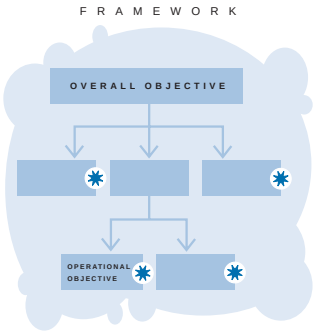
### FOUR-STEP APPROACH TO INDICATOR DEVELOPMENT



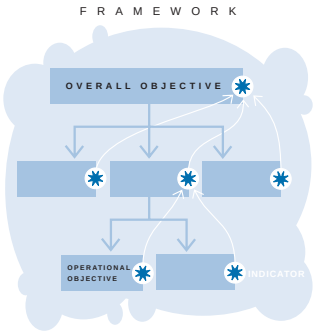

**STEP ONE** Develop a conceptual framework. The framework should clearly define who or what is being evaluated. It should explore the meaning of 'sustainable development' and articulate our visions and aspirations in achieving it. This would be in the form of an overall objective such as increasing total quality of life.




**STEP TWO** Sub-divide the overall objective into successively more specific objectives until we get down to objectives that can be measured. These are operational objectives. Their identification requires extensive consultation involving all stakeholders.




**STEP THREE** Identify indicators that address the operational objectives. An indicator often follows fairly easily once an operational objective has been defined. Technical effort is not wasted on indicators that are not relevant.




**STEP FOUR** Aggregate indicators at lower levels to form a core set if this is needed for reporting convenience. This does not mean destroying the information at lower levels. Information should remain accessible at whatever level of detail is required.

CASE STUDY

# NATIONAL REPORTING FRAMEWORK FOR **AUSTRALIAN FISHERIES**

Australian fisheries management agencies have begun an ambitious project to develop a national reporting framework to demonstrate how well they are meeting the objectives of ecologically sustainable development (ESD).

The project was initiated by the former Standing Committee on Fisheries and Aquaculture (SCFA) composed of the directors of all Australian fisheries management agencies, and is continuing under the new Natural Resource Management Standing Committee. The project is advised and supported by a reference group consisting of Environment Australia, industry, non-government organisations and other relevant stakeholders. The Fisheries Research and Development Corporation contributes funding to the project.

Each reporting unit is a fishery, as defined by the management agency. The framework is designed to document a fishery's contribution to ESD where ESD is defined as:

> *using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.*

ESD has been divided into eight major components relevant to fisheries:

**Contributions of the fishery to ecological wellbeing**

- Retained species
- Non-retained species
- General ecosystem

**Contributions of the fishery to human wellbeing**

- Indigenous wellbeing
- Community and regional wellbeing
- National social and economic wellbeing

**Ability of the fishery to contribute**

- Governance arrangements
- Impact of the environment on the fishery

These components are further sub-divided into more specific sub-components (*Figures 1 and 2*). For example, the generic component tree for 'general ecosystem' (*Figure 1*) covers effects on the biological community, and on air, water and substrate quality. Taking the generic component tree as a starting point, each fishery can tailor the component tree to suit its circumstances, expanding some sub-components and collapsing others.

For each of the lowest level sub-components, the fishery completes a report which includes the operational objective for that sub-component, the indicator to be used to measure performance with respect to that objective and the associated management responses.

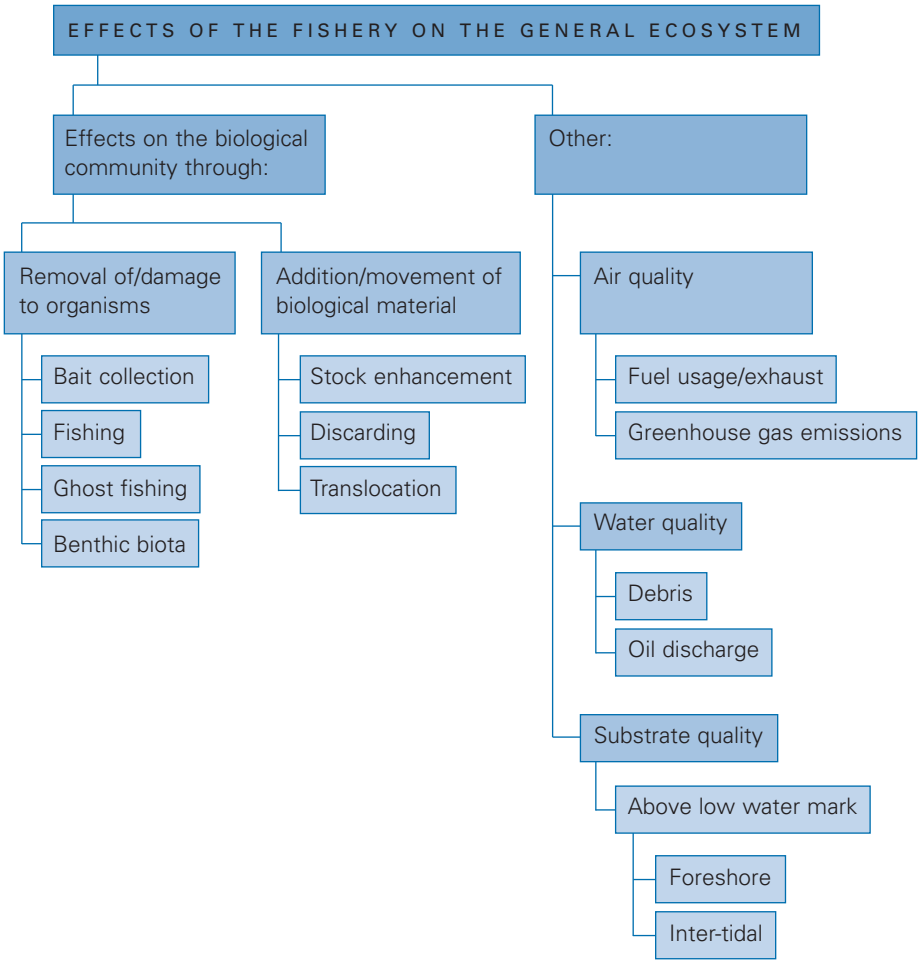
The approach differs from 'top down' approaches where a set of indicators and performance measures is imposed on all fisheries without regard to their individual circumstances.

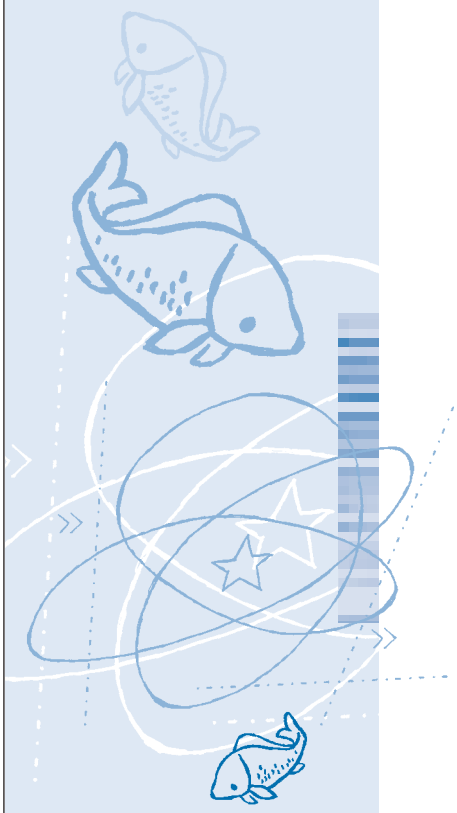
## PROGRESS TO DATE

Nine case studies have been used to apply the framework to various fishing methods and jurisdictions. Each case

FIGURE 1

EXAMPLE ONE OF THE EIGHT GENERIC COMPONENT TREES

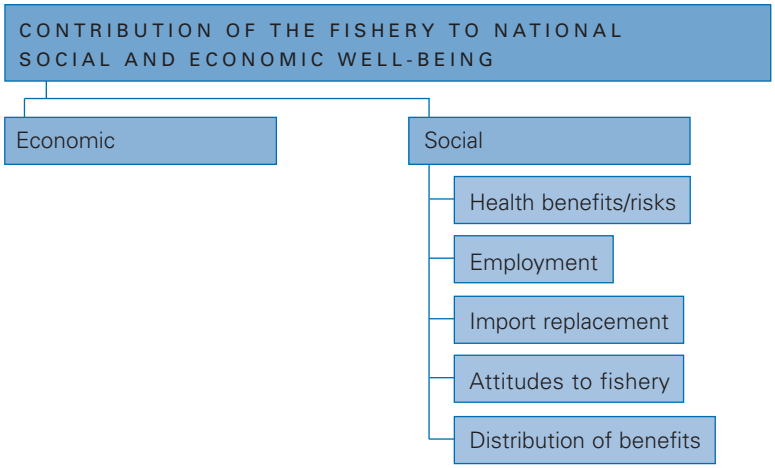


CASE STUDY 1 *continued on page 6*

FIGURE 2

EXAMPLE TWO OF THE EIGHT GENERIC COMPONENT TREES

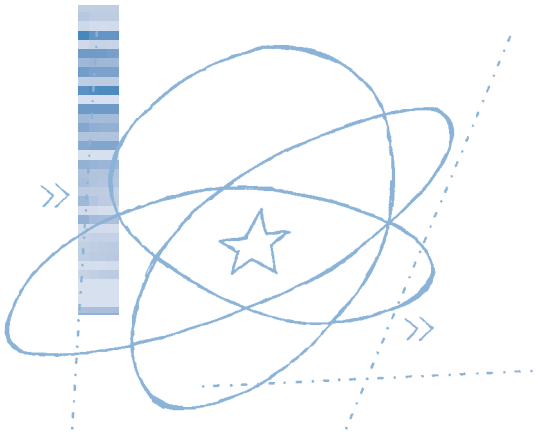



study began with a two-day workshop at which stakeholders developed a set of component trees and started to identify operational objectives and associated indicators and performance measures. The component trees have been very useful in promoting and structuring discussion. At the higher levels, the trees tend to be similar for all fisheries, whereas at the lower levels they diverge considerably in response to the different types of fisheries and the social, economic and bio-physical environments in which they operate. A 'how to' guide has been published to assist other fisheries to apply the framework. (www.fisheries-esd.com).

## THE WAY FORWARD

It is intended that this national reporting framework will be progressively applied to all Australian fisheries and will become an integral part of fisheries management. Although the primary goal is to assist and improve fisheries management, the reporting framework is also intended to address an increasing number of environmental and other requirements imposed by legislation, certification schemes, and consumer and community demands. With a comprehensive, national approach, individual fisheries should be well placed to show how they are performing against ESD objectives.

**ACKNOWLEDGEMENT:** *This material is derived from a Fact Sheet prepared by BRS for the former Standing Committee on Fisheries and Aquaculture.*



## CONCLUSION

National and international experience demonstrates that the search for a core set of indicators to tell us everything we want to know has a very low success rate. The search needs to be directed not at indicators, but at understanding what we want to achieve. This is a consultative process requiring time and thought. However, once it has been achieved, the technical details regarding measurement and reporting of indicators can be addressed relatively quickly and generate a real indication of how we are performing.

The Bureau of Rural Sciences advocates the development of a framework that specifies overall and operational objectives. Indicators are a means to report against the objectives, not an end in themselves. Achievement of common objectives, rather than measurement of common quantities, becomes the basis for reporting progress and is more likely to be accepted on industry, national and global scales.

Specification of objectives should be the focus of the process, not indicator development

Consultation is critical in this process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