

# The Conceptual Management Framework for Sustainable Fisheries Development

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지속적 어업발전을 위한 자원관리 개념의 틀

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**Key words** : fisheries management, sustainable fisheries development, Sustainable development reference systems, Cooperative regional fisheries management

## 1. Introduction

Sustainable development has become a key concept in modern environmental and ecological economics as well as in environmental policy analysis. Fisheries, as an industry based on renewable natural resources, must go along the path of sustainable development. This is an international consensus as embodied in the UN Convention on the Law of the Sea (UNCLOS,

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1982), the 1995 United Nations Implementing Agreement on Straddling Stocks and Highly Migratory Stocks (UNIA), and the FAO Code of Conduct for Responsible Fisheries (1995) as well as its series of technical guidelines. A better understanding of the concept of sustainable development is considered to be helpful for fisheries managers to add new elements and criteria to the formulation and evaluation of fisheries policy. This holds especially true for managers to cope with issues related to indirect uses and non-uses values (intrinsic values) of fisheries resources, including targeted and non-targeted species, their ecosystem, and the environment at large.

This paper is thus concerned primarily with the current state of knowledge on sustainable development at the international level and its implications for fisheries management. It begins by exploring the origin and evolution of and the interpretation to the concept of sustainable development. Next, it investigates some events of importance in paving-the-way for the emergence of the concept of sustainable development. Following on from this, the paper goes on to the examination of sustainability issues of fisheries and of what sustainable development implies for fisheries management. It then moves on to a brief introduction to a document recently issued by FAO that constitutes the guidelines as to how to select indicators for sustainable development of marine capture fisheries. This introduction pays a special attention to the elements of the sustainable development reference system (SDRS) and procedures involved in the establishment of a SDRS for fisheries. The paper concludes by highlighting the key points discussed in its main parts.

## **2. Sustainable Development : Origin and Evolution of the Concept**

### **2.1 Origin and Evolution of the Concept**

The concept of sustainable development was originally proposed as a starting point in exploring solutions for balancing some sub-goals, all of which seem to be reasonable enough but often conflicts with each other (IUCN, 1980 ; WCED, 1987), for example,

- The welfare maximization for the present generation ;
- The maintenance of sufficient opportunities for future generations to their welfare maximization ;
- The promotion of economic development with environmental quality and renewable natural resource availability being maintained ; and
- The attainment of economic benefits from renewable natural resources without sacrificing

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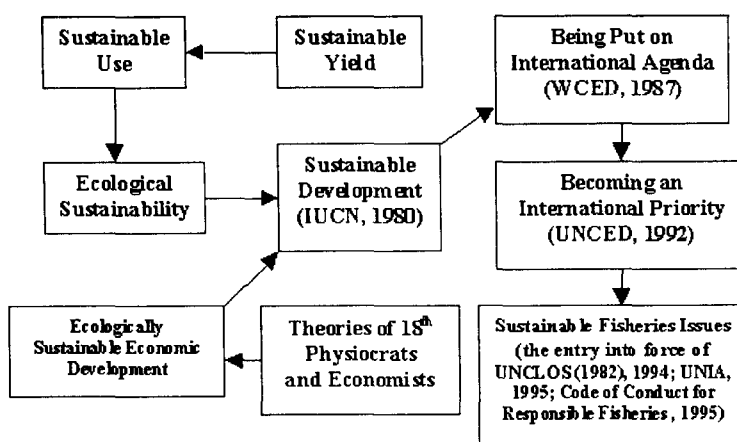


Fig. 1. Origin and Evolution of the Concept of Sustainable Development

biotic and genetic diversity, especially natural systems and species of specific nature.

Nevertheless, it is interesting to note that the historical root of the concept of sustainable development is actually related to theories related to fisheries management. One may note that an older concept than "sustainable development" is "sustainable use" of natural resources. This notion, in turn, originates in the concept and theory of sustainable yield that is initiated in the early 20th century by population biologists like Lotka (1925), Volterra (1931), and May (1976). The link between the two concepts of "sustainable development" and "sustainable use" is the term "ecological sustainability" which was first highlighted by the World Conservation Union in 1980 (van den Bergh, 1996).

On the other hand, if by 'sustainable' we refer to the ultimate natural environmental basis of human activities, interpreted broadly in a socio-economic sense and by 'development' we restrict it mainly to economic development, leaving out broader social-cultural phenomena, we actually use 'sustainable development' as a synonymous phrase for ecologically sustainable economic development. The root of the latter can be traced back to the 18<sup>th</sup> century Physiocrats and classical economists, such as Adam Smith (1723–1790), David Ricardo (1772–1823), Thomas Malthus (1766-1834), Carl Marx (1818-1883), and John Stuart Mill (1806–1873). They had touched upon environmental and resource issues in various ways and explicitly recognized the importance of nature for the economy (van den Bergh, 1996).

The phrase "sustainable development" was first discussed by WCN/IUCN in 1980 in its publication entitled "World Conservation Strategy". However, it is the World Commission on Environment and Development (WCED, 1987) that made the goal of sustainable development

become an international agenda. The UNCED in 1992 was labeled as a landmark in the history of international negotiations when sustainable development was first time confirmed by governments attending the meeting as an international priority. The origin and evolution of the concept of sustainable development is graphically described in Fig. 1.

A question naturally follows : What is the difference between the terms of sustainable yield, sustainable use, and ecological sustainability? We will now turn to make a brief distinction of these terms.

The theory of sustainable yield suggests, "if the harvesting rate of a natural resource is kept lower than its regeneration rate, harvesting will be sustained and can continue indefinitely." This theory has been applied to the harvesting of simple biotic (e.g., fish). A well-known example of the application of the theory is the concept of maximum sustainable yield (MSY). Gordon's theory (1953) indicates that if biological resources are exploited at level below their maximum sustainable yields (MSYs), these resources can provide benefits on a sustainable basis and can attain an economic optimum, i.e. where marginal revenues equal marginal costs. Compared to the broader objectives of sustainable development, however, the objective of fisheries management established by this theory is narrow in scope because it only concerns the maximization of a sustained yield of a single species directly targeted by fishermen without considering the quality of the yield, with the ecosystem and environment being ignored.

To avoid the shortcomings suffered by the theory of sustainable yield, the notion of sustainable use does acknowledge the full range of environmental functions rather than focusing only on the extractive use of homogenous resource stocks. It denotes a strategy that aims to maintain the renewable resource base by setting a conservation objective on economic activity, i.e. resource extraction should not exceed natural regeneration and emitted waste be kept below the assimilative capacity of the environment. It also takes larger and more complete environmental entities into consideration, for example, the sustainable use of an ecosystem, a habitat, or a regional sea. It is this theory that later became the very rationale of the large marine ecosystem (LME) management.

Ecological sustainability means the maintenance and/or prolongation of socially valuable environmental components, processes and systems. It was highlighted by WCN/IUCN (1980) and WCED (1987) in respect to economic development. This notion actually implies sustainable use, i.e. rates and intensities of environmental use that do not lead to long-term or irreversible reduction in the environment's capacity for resource regeneration and waste absorption (van den Bergh, 1996).

It is also worthwhile to make a distinction between sustainable development and sustainable

growth. The former does not necessarily mean "sustainable growth". Sustainable development incorporates the idea of a development pattern that the natural foundation of economic activities is maintained, with or without economic growth. However, the notion of sustainable growth is used to denote the maintained increase of a one-dimensional indicator of growth, such as GNP.

## 2.2 Interpretation to the Concept

The most influential and widely cited Brundtland definition (in "Our Common Future", WCED, 1987) ties the issue of sustainability to future generations. It states "*Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" [Emphasis added].

Until now, however, there has been no consensus on how to exactly interpret the concept although, as noted earlier, sustainable development became an international priority in 1992. The definition problem is that we cannot say in any detail the exact make-up of dynamic human and natural sustainability. Much of the debate about definitions is actually about the different aspects of sustainability that authors have focused on,<sup>1)</sup> which, in turn, reflects a number of different values, e.g., perceived differences in the importance of economic well-being, ecological integrity, and social legitimacy. It seems that the debate involving sustainability is not a positive issue but rather a normative one that cannot be solved only by resorting to scientific inquiry. Nevertheless, there is still a common thread in current definitions, that is, humanity's current development path is not sustainable and the necessary changes in human activities will be enormous and will by no means be an easy task if we are to move to a sustainable path.

Fundamentally speaking, sustainable development represents a new philosophy based on two ethical concerns : One is the anthropocentric dimension of "intergenerational equity" and the other, ecocentric dimension of concern for "inter-species justice". It emphasizes that a balance of interests must be made between people now and in the future, and between man and other species (van den Bergh, 1996). Thus, the concept of sustainable development represents a worldview totally different from the principle of survival of the fittest, as proposed by Darwin as a dominant rule of the evolution of nature.

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1) For example, Toman et al. (1998) notes that there are three elements related to the debate on the concept of sustainability : (1) the relationship between sustainability and measures of economic welfare ; (2) the question of monetary versus non-monetary indicators ; and (3) the physical or special scale over which sustainability is assessed.

### **2.3 Events Paving the Way for the Emergence of the Concept**

Some of the important previous events that play an important role in the emergence of the concept of sustainable development include (van den Bergh, 1996) :

- The *Stockholm Conference on the Human Environment* and the establishment of the *United Nations Environment Programme (UNEP)* in 1972 ;
- The '*Limits to Growth*' report (Meadows et al., 1972) ;
- The '*US Global 2000 Report to the President*' (Barney, 1980) and its reaction work '*The Resourceful Earth*' (Simon and Kahn, 1984) ;
- The '*World Conservation Strategy*' (WCN/IUCN, 1980) ;
- The *IIASA*<sup>2)</sup> report '*Sustainable Development of the Biosphere*' (Clark and Munn, 1986) ; and most importantly
- The UN report of '*Our Common Future*' (WCED, 1987). In general, the reaction to the latter report has been very positive, mainly because of its political effect and stimulus for scientific research.

## **3. Implications of Sustainable Development for Fisheries Management**

### **3.1 Sustainability Issues of Fisheries**

Different author may define fisheries differently from different perspective (see, for example, McGoodwin, 1990 ; Ross, 1997 ; FAO, 1997). From a systems perspective, however, fisheries may be defined as a system that consists of fish, fish habitat, people who fish and communities where fishermen live. It is clear that there are at least four basic elements to a fishery : the resource itself, its aquatic environment, the people who harvest the resource or change the condition of its aquatic environment, and institutional arrangements that govern the fishery.

Similarly, FAO (1999) identifies five critical components in the fisheries system, namely the ecosystem, the economy, society, the technology, and governance. The ecosystem includes the fishery resources that are one of the basic inputs of fishery process and other aspects of ecosystems that affect fishery resources' productivity. The economy is the reflection of cost and benefits within the fishery, and cash flows into and out of the fishery. The technology is one of the main determinants of fishing capacity and fishing effects on environment. The society

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2) The International Institute for Applied Systems Analysis (IIASA) is a non-governmental research organization located in Austria. The institute conducts inter-disciplinary scientific studies on environmental, economic, technological and social issues in the context of human dimensions of global change.

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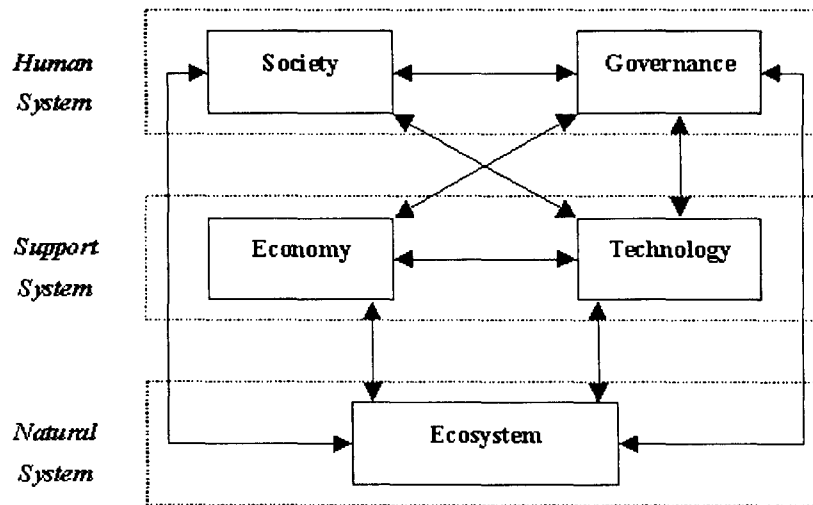


Fig. 3.1 The Interaction between Components of Fisheries System

component consists of non-monetary costs and benefits which, nonetheless, constitute inseparable parts of human welfare, such as scientific, aesthetic, religious, recreational, and non-use value. Governance includes the norm, institutional arrangements, and substantive policies that govern the system. The five components may be grouped into three subsystems : human, support, and natural systems, as shown in Fig. 3.1.

Clearly, fisheries are a complex, adaptive, and dynamic system. The system itself also consists of a number of complex, adaptive, and dynamic subsystems, each of which may be further divided into some subsystem or components. All the subsystems permanently co-evolve in a way of mutual interaction. Moreover, the ability for change and evolution must be maintained if the systems are to remain viable and sustainable. In other words, the sustainability of fisheries can only mean sustainable development of all the subsystems and components of fisheries.

But how can we achieve the sustainable development of all the components of the fisheries? This will require the orientation of fisheries policy towards a change to a situation in which the exploitation of resources, the direction of investments, the technological development and institutional changes are all made consistent with future as well as present needs. As indicated by FAO, "the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure ... [that fisheries] development ... is environmentally non-degrading, technologically appropriate, ecologically viable and socially acceptable" (FAO Council, 1998, as cited in Kite, 1999).

### 3.2 Implications of Sustainable Development to Fisheries Management

By the systems perspective, it follows immediately that managing fisheries for sustainable development will deal with a wider range of considerations than just survival of the fish stocks and the attainment of economic benefit from fisheries, as is generally indicated by the conventional fisheries theory (see, for example, Gordon, 1953). To put fisheries under a sustainable development context will require improved fisheries management and changes in the perception of the main stakeholders to correctly address the trade-off between the present and the future needs in relation to the depletion of fish stocks as well as the harmful effects of fishing activity, coastal settlements and waste disposal on the wider marine ecosystems. This naturally puts forward new requirements for fisheries management. As suggested by FAO (Kite, 1999), sustainable development of fisheries will require management to focus more effort on

- Increased awareness of factors beyond the conventional fields of fisheries management ;
- Stronger institutions and legal frameworks ;
- Greater participation by all stakeholders in the fisheries management process ;
- Better integration of fisheries management into coastal area management ;
- Control of land-based activities that degrade the marine environment ;
- Stronger control of access to co-resources ;
- Improved collection and sharing of information about fisheries and their environment ;
- Improved understanding of the socio-economic characteristics of fisheries ;
- Stronger systems of monitoring and enforcement ;
- Measures to deal with uncertainty and variability in natural resource and ecosystem dynamics ; and
- Strengthening community commitment to responsible use of natural resources.

It is imaginable that, to tackle all those issues, management will need a large amount of information on dimensions well beyond fish stocks and fishing activity. Without an appropriate set of indicators as a tool, it will be very inconvenient, and sometimes it may be impossible, for management authority to collect, organize, interpret and communicate various kinds of information. In this respect, indicators can assist in communication and enhance transparency, effectiveness and accountability in natural resource management through their planning, assessment, analytical, communication, warning and mobilization, and co-ordination functions (Bossel, 1999).

For a better understanding the role played by indicators in management, let's consider the following situation. If we take fisheries as a fishing vessel and the fisheries management agency as the captain who steers the vessel, then indicators can be viewed as the instruments



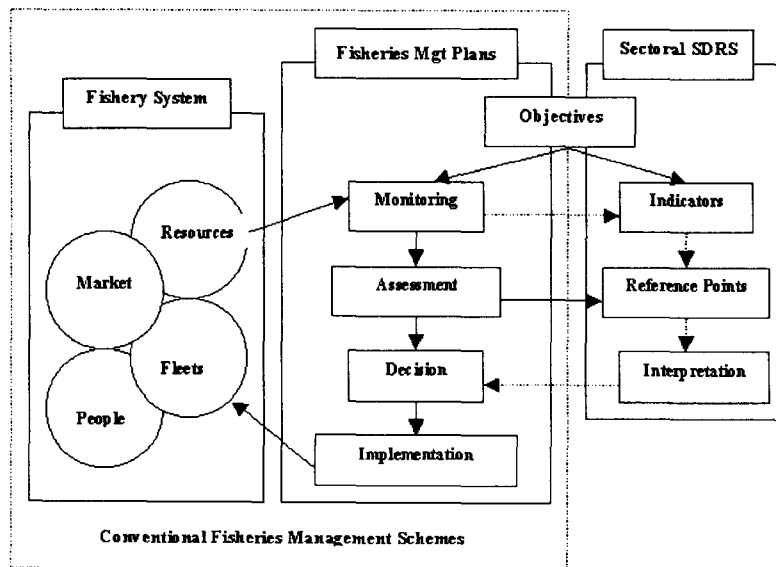


Fig. 3.2 Relationship between Conventional Management Scheme and a SDRS (modified from Kite, 1999)

on the deck of the fishing vessel that show the captain the orientation and speed of the vessel, the remaining fuel, and the state of the operating systems necessary to ensure that the vessel can safely continue its running. Just as the deck instruments do, indicators summarize large quantities of information into the few relevant signals needed by the captain in decision-making. However, indicators will only signal potential hazards in the vessel's pathway. The responsibility for judging risks and changing direction rests still with the captain.

As noted earlier, conventional fisheries management is usually focusing on management of the target stocks within a management unit such as a fishery. The modern trend is to broaden the concept of management to include more dimensions of the fisheries system, other fisheries, and system components that are previously less studied and considered by management authority. The FAO has recently devised a sustainable development reference system (SDRS) that is considered to be a necessary management tool. Fig. 3.2 shows the relationship between the conventional fisheries management system and a SDRS. The remaining part of this paper will give a brief introduction to the SDRS devised by FAO for marine capture fisheries.

## 4. Sustainable Development Reference System (SDRS)

### 4.1 Elements of a SDRS and their Concepts

To understand the sustainable development reference system, it is necessary first to know

**Table 4.1 Concepts and Definitions Related to SDRS (based on Kite, 1999)**

Concept	Definition
Framework	A structure used for selecting and organizing indicators and reference points, and based on a particular set of dimensions.
Dimension	The class used for describing a system, for which criteria, indicators and reference points is needed.
Scale	Determining the degree of resolution required for the definition and reporting of the indicators. In principle, a SDRS could be established at global, regional, sub-regional, national, sub-national, or fishery level, depending on its purpose.
Objective	Indicating what one is trying to achieve within the overall principles of sustainable development ; often hierarchical, referring to specific scales within the system and encompassing all the dimensions and relevant criteria of sustainable development.
Criterion	Representing those properties that will be affected by the process of sustainable development ; It has the relevance with the dimensions of the framework and is selected to reflect specific objectives ; usually independent of scale.
Indicator & reference point	An indicator is a quantitative or qualitative value, a variable, pointer, or index related to a criterion ; its functions reveal the variation of the criteria. A reference point indicates a particular state of a fisheries indicator corresponding to a situation considered as desirable, undesirable, or requiring immediate action. The position and trend of indicator in relation to the target or limit reference points or value indicate the quality that presents state and dynamics of the system. They provide the elements needed to assess the situation and act as a bridge between objective and actions.

**Table 4.2 Potential SDRS Frameworks and Corresponding Dimensions**

Frameworks	Dimensions	
General SD Framework	Human Subsystem	Environmental Subsystem
FAO Definition of SD	Resources ; Institutions ; People	Environment ; Technology
FAO Code of Conduct for Responsible Fisheries	Fishing Operations ; Integration into Coastal Area Management ; Aquaculture Development	Fisheries Management ; Post-Harvest Practices and Trade ; Fisheries Research
Pressure-State-Response Commission on SD Indicator Framework	Pressure ; Response	State
	Environmental ; Social	Economic ; Institution

**Table 4.3 Selected Criteria and Indicators Related to Governance Dimension of Fisheries**

Dimensions	Criteria	Indicators
Governance	Compliance Regime	The existence of a compliance regime ; effectiveness of the regime ; the existence of outstanding disagreement ; integration of global rules ; compatibility between local and higher level enforcement.
	Property Rights	Existence of well defined and recognized property rights ; compatibility with sustainability goals ; acceptance by major stakeholders
	Transparency and Participation	The transparency of fisheries management ; involvement of major stakeholders in making and applying rules of the game ; effective communication between stakeholders ; capacity to elicit, receive, and use information from all stakeholders
	Capacity to Manage	Resources availability at all levels ; compatibility between formal and informal governance structures ; higher level authorities facilitating lower levels of management ; co-management.

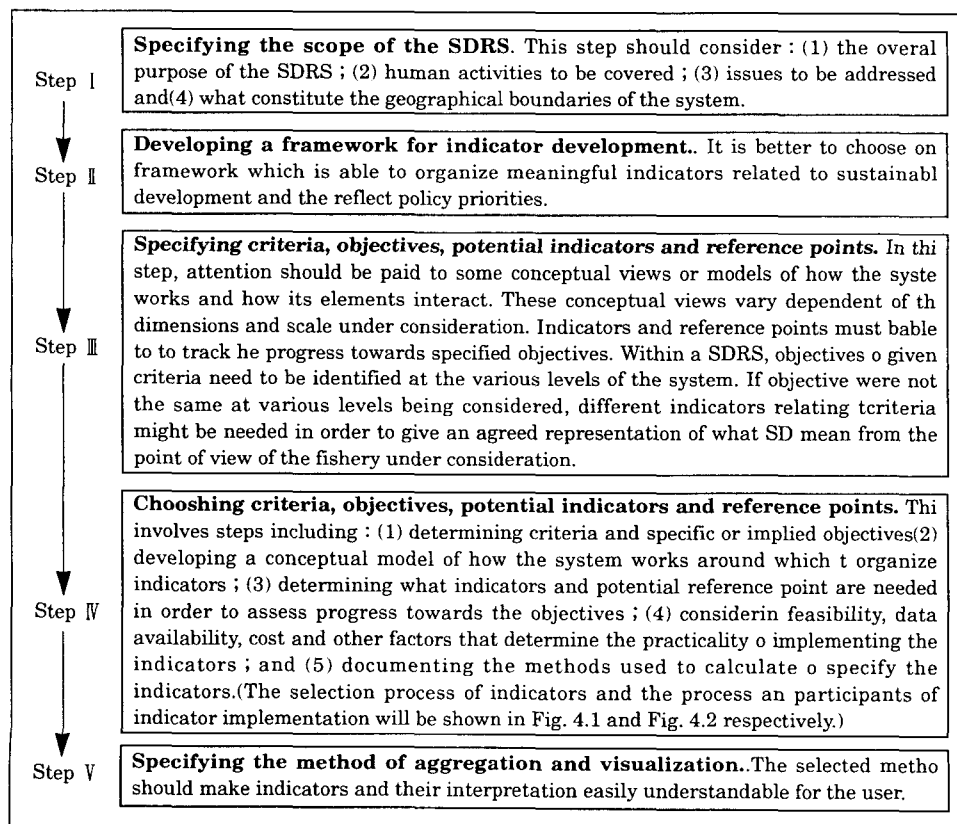
the elements of an SDRS and their definitions. Different documents may use different elements in designing an SDRS. The concepts and definitions used by FAO for establishing the SDRS for marine capture fisheries are listed in Table 4.1.

Table 4.2 gives the potential SDRS frameworks, through one of which a SDRS can be established. Selected Criteria and Indicators for Economic and Governance Dimensions of fisheries are illustrated in Table 4.3. Contents in both tables are based on Kite (1999).

#### 4.2 How to Establish a Sustainable Development Reference System

The sustainable development reference system (SDRS) is defined as "a system of representation of the sustainability of a system of exploitation (e.g. a fishery or a fishery sector), composed of reference points (selected on the basis of objectives, constraints and limits)" (Kite, 1999). The SDRS generally includes a set of indicators covering broad ecological, social, economic and institutional objectives. One goal of an SDRS is to bring together the overlapping perspectives of all dimensions of sustainable development. Through organizing

Box 4.1 Procedures for the Development of an SDRS (based on Kite, 1999)



and using a set of indicators, the SDRS will facilitate the measurement of achievement and progress in sustainable development. It can also provide an incentive to review strategies for achieving sustainable development. In addition, through the implementation of procedures for producing indicators of fisheries sustainable development, the SDRS can be a powerful way of promoting cooperation between stakeholders (managers, fishermen, NGOs, traders, local communities and community leaders, etc) and of signaling commitment to governance for sustainable fisheries. In the case of straddling, highly migratory, or transboundary stocks, indicators and reference points should be developed through cooperation with states sharing the same stocks and should relate to jointly agreed objectives among countries concerned.

The development of a SDRS involves five steps, as shown in Box 4.1.

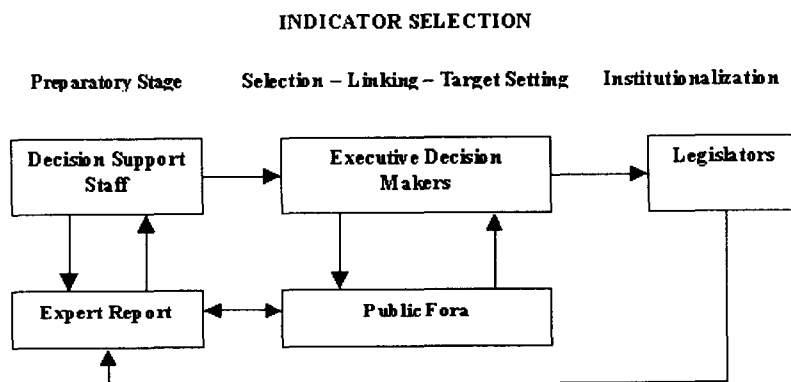


Fig. 4.1 Indicator Selection Process Structure

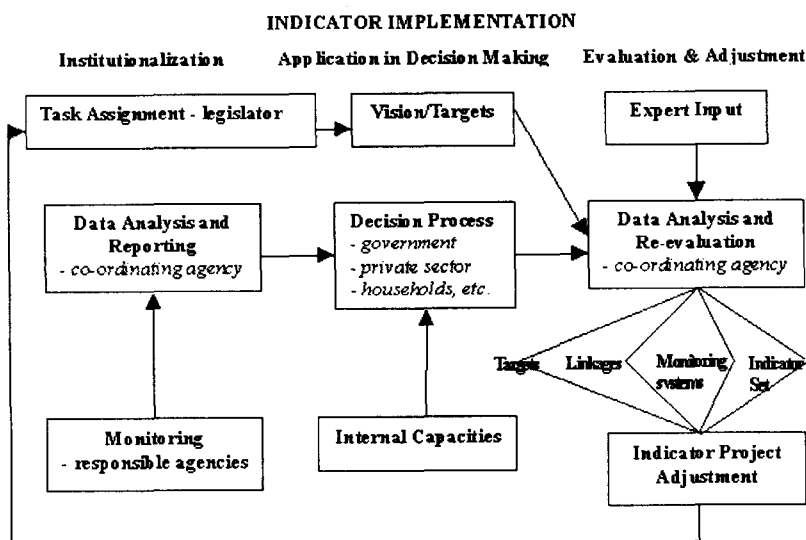


Fig. 4.2 Process and Participants of Indicator Implementation

Indicator selection process and a general scheme of the implementation of measurement projects and the application of indicators is respectively shown in Fig. 4.1 and 4.2 (both are based on Hardi and Pinter, 1995, cited in Hardi, et al., 1997).

In addition, these guidelines also give a detailed information on practical issues in developing and implementing an SDRS (e.g. organization and process, the requirement for data and knowledge, communication, and capacity building) as well as how to test, evaluate and report an SDRS. It is noteworthy to note that these guidelines recommend the adoption of a checklist approach and a questionnaire approach for its simplicity and inexpensiveness in the development and evaluation processes of an SDRS (for detailed description see Kite, 1999).

### **4.3 The SDRS and Cooperative Regional Fisheries Management**

The previous discussion has already suggested that the construction of an appropriate sustainable development reference system is very needed for management agencies to bring fisheries under the context of sustainable development. This holds especially true to the management of marine fisheries in countries bordering the Northeast Asian seas, including China and Korea in the case of the Yellow Sea ; China, Korea, and Japan in the case of the East China Sea ; and Korea, Japan, and Russia as long as the Japan Sea (or the East Sea) is concerned.

Researches show that the semi–enclosed Yellow/East China Sea has to be seen as a unit of ecosystem and the Japan Sea as another independent ecosystem (see, for example, Valencia M. J., 1996). From the respective of ecosystem–based fisheries management, there should be a unified management plan effective on the whole range of an ecosystem (Choe, et al., 2000). Unfortunately, there has no such a management plan either for the Yellow/East China Sea or for the Japan Sea. Marine living resources in both of the two ecosystems are currently a multinational commons subject to the management of individual nations or agreements signed bilaterally. As a result, a country may establish a set of management objectives different from others. Also, the same event arising from resource exploitation may be interpreted differently by countries concerned under different criteria or national interest. For example, the status of certain species may be considered as in an urgent need of protection by one country but in a moderate level of exploitation by others. It follows naturally that different interpretation may lead to different action which, in turn, may contribute positively or negatively to the conservation of shared resources.

Efforts to bring marine resources in these seas under national jurisdiction, which is arguably considered to be good for resource conservation, are currently under way. However, it is not an

easy task due to the physical feature of these seas, the different position taken by countries in the determination of their EEZs, and historical territorial disputes involving certain islands (Paik, 1993). As a result of these efforts, some bilateral fisheries agreements have been concluded and become a transitional measure to manage marine living resources in the region. Therefore, it is hardly expected that these separately elaborated bilateral agreements would not carry with them mutually contradictory objectives.

Indeed, the need for a unified regional management regime has become a consensus, especially in the academic circle of the region (see, for example, Valencia, 1996 ; Choe, et al., 2000). One of the current issues is where to start the multinational cooperation in the management and conservation of shared resources. A possible starting point is to negotiate a sustainable development reference system at the regional level. This is because the development of a SDRS is basically expert-driven and science-based and therefore, will be less controversy. A SDRS at the regional level will have to integrate management objectives embodied in various bilateral agreements and adopt a consistent method to collect, organize, and communicate information. It will also employ common criteria to assess the status of marine living resources and the ecosystem and interpret information gained from monitoring and research activities. With a common SDRS, decisions and action made by management authorities under different jurisdiction will easily converge rather than diverge if based on the same judgment on the exploitation, management, and conservation of shared resources. This will no doubt contribute to sustainable development of the Northeast Asian fisheries.

## 5. Conclusions

The UN Conference on Environment and Development (UNCED) in June 1992 was labeled as a watershed event in the history of international negotiations. This mainly because of its excellent contribution to the popularization of the concept of sustainable development through a series of agreements, in particular Agenda 21, formulated at this conference. The aspiration for sustainable development reflects human progress in cognition : earlier models of economic growth and development is not appropriate since they tended to focus on short-term gains at the expense of long-term aspiration, lacking a balanced judgment on the costs and benefits of various policies.

Although many other definitions are also in use, the most widely cited definition on the concept of sustainable development is the Brundtland definition. The different conceptions of sustainability are actually linked to various sets of values, e.g., perceived differences in the

importance of economic well-being, ecological integrity, and social legitimacy. This reveals that the settlement of debate around sustainable issues of human activities cannot be solved by science alone.

Fishing, as one of the most ancient human activities based on renewable natural resources, is in crisis now. There must be significant changes in the pattern of resource exploitation, the direction of investments, the orientation of technological advance and institutional arrangements if we are to ensure that fisheries development in a way of environmentally non-degrading, technologically appropriate, ecologically viable and socially acceptable. At the international level, a legal framework of principle for managing fisheries towards sustainable development already exists in UNCLOS (1982), UNIA (1995), and the FAO Code of Conduct for Responsible Fisheries (1995).

The objectives of fisheries sustainable development are obviously broader than that of the conventional fisheries management which is usually aimed at the maintenance of fish stocks and the preservation of fish habitats with direct interests to fisheries. Managing fisheries for sustainable development is a multi-dimensional and multi-level activity, which must address a wider range of considerations. Thus, it follows naturally that the conventional issue- or sector-specific management must give its way to a comprehensive and integrated scheme based on a systems perspective. This will require a large amount of information on dimensions well beyond those concerned by the conventional fisheries management.

Clearly, the task of management would become laborious, or even impossible, without a set of indicators and an appropriate framework to select, organize, represent, and communicate various indicators. This explains why management authorities need a reference system as an effective tool to manage fisheries and to track progress towards sustainable development.

It is noteworthy to point out that, in the case of straddling, highly migratory, or transboundary stocks, indicators and reference points should be developed through cooperation, and should be related to jointly agreed objectives, among countries concerned. This may form a good starting point for countries in the Northeast Asia to negotiate a close multilateral fisheries cooperation regime.

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## 지속적 어업발전을 위한 자원관리 개념의 틀

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### 요 약

최근에 지속적 발전(sustainable development)은 환경정책 분석뿐만 아니라 현대 환경, 생태 경제학에 있어서 중요한 개념이 되어왔으며, 이 개념은 어업에 있어서 특히 중요한 국제적 이슈(issue)가 되고 있다. 어업은 갱생자연 자원에 입각한 산업으로서 지속적 발전의 길로 가야만 한다. 이것은 1982년 UN해양법 협약(UNCLOS), 1995년 UN 경제왕래성 어족과 고도회유성 어족에 관한 집행협약 (UNIA), FAO의 책임있는 어업(the Code of Conduct for Responsible Fisheries)을 위한 국제규범과 일련의 기술지침서에서 구체적으로 표현함으로써 국제적 합의가 이루어 지게 되었다. 지속적 발전의 개념에 대한 심층적인 이해는 어업 관리자가 어업정책의 수립과 평가에 대한 새로운 요소와 기준을 설정함에 있어서 중요한 의미를 부여한다. 이것은 특히, 어업관리자(정부와 단체 그리고 어업자)가 어업관리목표 어종 및 비관리목표 어종과 어종의 생태, 그리고 환경을 포함한 어업자원의 직접 사용 가치와 비사용 가치(즉, 내재 가치)등에 관련된 문제를 다루는 것을 그 내용으로 한다.

따라서, 이 논문은 국제사회에서 지속적 발전과 관련된 지식의 현 주소와 어업관리에 있어서 갖는 함축적 의미와 주로 관계된다. 이 논문은 지속적 발전에 대한 개념의 기원과 형성과정, 개념 구조를 상세히 고찰함으로써 어업의 지속적 발전을 위한 어업관리정책 수립을 위한 방향설정에 기여하게 될 것이다. 또 이 논문에서는 지속적 발전의 개념하에서 어업의 지속성과 지속적 발전이 어업관리에 어떠한 의미를 갖는지 고찰한다. 그 하나로 이 논문에서는 FAO에서 최근에 제시한 해양어업의 지속적 발전지표를 어떻게 설정하는지에 대한 가이드라인을 분석 고찰 하였다. 이 FAO의 지속적발전지표는 지속적 발전의 평가체계의 구성요소와 어업에 대한 지속적 평가체계[sustainable development reference system(SDRS)]를 수립하는데 있어서 필요한 관련 절차에 관해 특별한 의미를 부여해 줄 것으로 생각한다. 마지막으로 본 논문에서는 SDRS가 지역어업 협력체계 구축에 있어서 어떠한 역할을 할 것인가를 강조함으로써 결론을 내리고 있다.