

***An Overview of the International and National Fishery
Policy
Related Issues- a Desk Research***

Contents

Sl. No	Details	Page No.
1	Background	1-2
2	Objectives of the study	2
3	Data and Inputs used for the Study	3
4	Trends in Global Fisheries Policy	3-10
5	Fishery Policy in other countries	10-98
5.1	<i>Details of the policy initiatives</i>	10-71
5.2	<i>Review of the policy initiatives of other countries with respect to the gaps in these policies</i>	71-98
6	Fishery policy of India	99-
6.1	<i>Comprehensive Marine Fishing Policy</i>	99-101
6.2	<i>State Governments' Fisheries Policies</i>	101-114
6.3	<i>Review of the Central/State level Fisheries Policies with respect to the Gaps in these Policies</i>	114-116
7	Discussion	116-120
8	Conclusion	120-124
	Literature cited	125-132

An Overview of the International and National Fishery Policy

Related Issues- a Desk Research

1. **Background**

The Industrial Policy Resolution 2001 of Government of Orissa has identified the fisheries sector as one of the three sectors wherein enterprise development would result in pro-poor economic growth. In this context it stresses the need to assess the current and future self-employment and entrepreneurial potential in fisheries sector especially for the poorer sections involved in the sector.

Orissa is one of the major maritime States, offering vast scope for development of inland, brackishwater and marine fisheries. The State's long coastline measuring 480 km covering an area of 24,000 sq. km with in the 2.02 million sq.km Exclusive Economic Zone (EEZ) of India has huge potential for marine fisheries development. The freshwater resources of the State include 1.16 lakh ha area under tanks and ponds, 2.56 lakh ha reservoir area, 1.80 lakh ha area under swamps & jheels and 1.55 lakh ha water area of rivers and canals. The brackish water resources include 2.98 lakh hectares of estuaries, 32,587 hectares of cultivable brackishwater area, 8100 hectare of backwater area and 9,000 ha of Chilka lake (Orissa Fisheries Statistics Hand Book 2001).

A conservative estimate of fish requirement in the State is about 3.23 lakh tonnes (as per WHO, consumption requirement is 11kg/ capita/ annum). However, the present level of fish production in the State is only about 2.595 lakh tonnes, leaving a net deficit of 1.435 lakh tonnes. Thus the potential for enhancing the availability of fish in the domestic market for local consumption is sizable coupled with increased livelihood security of the producers.

A white paper on public reforms in Orissa places the average per capita annual income of those involved in the fisheries sector at Rs.6,787/- compared to the all India average of Rs.10,204/-. Enhancement of the livelihood and enterprise opportunities in this sector therefore, need to focus on the poor workers involved in fisheries and the small / medium entrepreneurs.

Inadequate infrastructure facilities, information and communication channels, expertise, etc., in the State, are identified as the limiting factors in promoting cost-effective and environmentally sustainable methods of harvesting and production; spread of know-how for maintaining high standards of storage and processing of produce for value addition; and effective linkages and networks for profitable marketing of products. As a consequence, Orissa is left with a huge

untapped area for fish production covering varied ecosystems and open water resources like lakes, ponds, reservoirs, etc., which have not been harnessed to optimal levels. The existing policy of the State appears to be lacking in a number of aspects, which normally are required for a well coordinated and sustainable fisheries development and management not only for meeting the nutritional requirement of the people of Orissa, but also for ensuring livelihood security and entrepreneurial development.

Considering these aspects, a detailed exercise has begun to put in place a comprehensive fisheries policy and derivative strategies that will take into account the present status of the legal and regulatory framework, administrative structure and processes, financing mechanisms including subsidies, technology support as well as social and environmental implications, to promote and facilitate economic activities in a sector containing several sub-sectors that are at various stages of development.

As a part of this exercise, a number of desk research/studies have been proposed to be undertaken. One such desk research/study is on the fishery policy related issues, undertaken by the UNDP Project Team during July-September 2005. This report provides the requisite inputs on the fishery policy in vogue both at the international and national level, the documents on which were obtained/collected from various sources such as the Central and State Governments, from the websites and through personal communication. The inputs thus received were reviewed, analysed, compiled, edited and presented in this document. The gaps in these policies and the mechanisms for their implementation, the remedial measures taken or proposed to be taken by the various national and foreign agencies/Governments are also reviewed and incorporated in this report.

2. Objectives of the study

The main objectives of this desk research/study are to:

- review and analyse the fishery policies of different countries and the National Governments,
- assess the pros and cons of these policy initiatives on the fisheries sector, with particular reference to development, management and conservation/preservation of fishery resources in the inland and marine regimes,
- analyse the impacts of these policies on the ecology of the aquatic realm, and on the social and economic status of the fishers and the countries as a whole.

3. Data and Inputs used for the Study

3.1 The Websites of different countries provide valuable information/input on the fishery policy being pursued in those countries; the impact of these policies on the fisheries sector as a whole, the environment and the fishers; the reaction/views of a cross section of the society/people/organisations in some of those countries on the positive and negative impact of such policies; the measures taken by those countries for amending or altering some of the provisions under these policies, etc. These inputs were downloaded, reviewed, compiled, edited and incorporated in this report.

3.2 The Fishery Policy notes/documents collected from various sources such as the Central and State Governments including the 1996 policy of Orissa and those down loaded from the respective websites, were studied/reviewed, analysed, compiled, edited and presented in this report. Basis for analysis, interpretation and comparison of the policy initiatives, include the identification of the essential elements of the policy initiatives with respect to fisheries development and management, their application for achieving sustainability in fisheries and improving the socio-economic status of the fishers and national income.

3.3 The collected and compiled data/information is presented in this report, under the following heads:

- Trends in global fishery policy
- Fisheries Policy in other countries
- Review of the policy initiatives of other countries with respect to the gaps in these policies
- Fishery policy of India
- Review of the Central/State level Fisheries Policies with respect to the Gaps in these policies.
- Discussion
- Conclusion
- References

4. Trends in Global Fisheries Policy

International Fisheries Policy

As stocks decline and fishing pressure increases, fishery management schemes have changed, throughout the world. Fishing fleets have become extremely efficient and mobile, resulting in severe over-harvesting of what was once

thought to be an inexhaustible resource. Inshore waters (adjacent to the coastline) tend to be the most productive fishing grounds, as there is upwelling of nutrient rich waters in this zone. Following the Second World War, advanced technology allowed foreign fishing vessels to move from their home ports to the most productive fishing areas of other countries, causing increased fishing pressure and conflicts over natural resources. As resource rich countries began to see fish stocks decline from this increase in foreign fishing pressure, they explored various management schemes to protect their coastal waters. As early as 1950 Peru, Chile and Ecuador claimed national sovereignty over a 200 nautical mile zone off of their coastlines which was incorporated in the Santiago Declaration of 1952 and backed by other Latin American countries in the Montevideo and Lima Declarations of 1970 (FAO,1997).

Iceland faced similar pressures from foreign vessels and witnessed one-third of total catch being taken by foreign fishing vessels in 1960. To prevent overexploitation of North-Atlantic Cod and to preserve the national economy, which was primarily dependent on fish resources, Iceland extended its EEZ from 50 miles in 1972, to 200 miles in 1975. This controversial policy resulted in the United Kingdom sending Navy ships to protect British fishing vessels in a so-called "cod-war". A report released by the Marine Resources Council in October of 1975 confirmed that the condition of cod stock was "poor" and was in danger of a dramatic collapse.

As coastal States throughout the world implemented national legislation protecting their inshore waters from foreign fishing vessels, the United Nations responded with the adoption of the Convention on the Law of the Sea in 1982. This international agreement gave exclusive management rights to coastal States of waters, and associated resources, within 200 nautical miles from their coastline. This ultimately led to jurisdiction of 38 million square nautical miles of ocean, comprising 90 percent of the world's marine fisheries (FAO, 1997). Because fish are ultimately a common resource, provisions were included in the agreement that require responsible utilisation of fish stocks by optimising use without risking over-fishing. Optimal use of fish stocks is to be determined by each coastal State in the form of a Total Allowable Catch (TAC) as determined by stock assessments. Since the adoption of the agreement, many fish stocks have declined worldwide, but the Convention on the Law of the Seas is still considered to be a highly successful international agreement, because it comprehensively regulates all aspects of ocean resources and uses.

Because fish are migratory and tend not to stay within any one country's jurisdictional borders, complimentary provisions have been developed to control transboundary marine species. The United Nations extended the Law of the Sea to control straddling fish stocks and highly migratory fish species in 1996, and

this agreement entered into force in December 2001. The agreement, establishes detailed minimum international standards for the conservation and management of straddling fish stocks and highly migratory species outside of the EEZ, an area referred to as the high seas. These international standards are then used as recommendations for national conservation and management schemes.

To further reinforce these concepts, the FAO developed a Code of Conduct for Responsible Fisheries, adopted in 1995, which provides the necessary framework for international fisheries management, supporting conservation and addressing social and economic concerns. This voluntary Code conforms to regulations in the international agreements and provides guidelines for fisheries managers, interest groups, fisheries organisations, and non-governmental organisations on how to effectively manage marine resources. It describes the major constraints associated with fisheries management, emphasises the range of data required to make informed decisions, and suggests mechanisms for collecting and interpreting this data. Fisheries management is separated into three distinct stages; fisheries policy and development planning, formulation of management plans and implementation of management action. The Code suggests tools for implementing each of these stages including how to make cooperative decisions and agree on management plans (FAO, 1997).

In part because of the failure of the Convention on the Law of the Sea to protect declining fish stocks, the language of both FAO's Code of Conduct and the United Nations Straddling Stocks Agreement incorporates Precautionary Approach principles. The Precautionary Approach in fisheries is about using a proactive rather than a reactive approach to fisheries management and ensuring that conservation constraints are met before other objectives. Key elements include specifying fishing targets well below safe biological limits so that targets will be reached and limits will be avoided, reversing the burden of proof so that scientific uncertainty cannot be used as an excuse for postponing conservation measures, and using risk-aversion principles in managing fisheries so that when there is a high level of uncertainty about stock size or productive capacity, greater caution is used in setting target catch levels. While these concepts may seem trivial, this approach is unique in the fisheries sector where short-term gains have often taken priority over long-term benefits.

The ecosystems model, which sets aside portions of marine ecosystems, and restricts fishing in these areas, is an effective way to conform to the Precautionary Approach in fisheries management. This method protects critical habitat, preserves key predator-prey relationships, and deals effectively with uncertainties in ocean dynamics. Ecosystem approaches can be useful but are

just one of the many tools that fishery managers must use to effectively sustain fish populations for future generations.

Fishing nations around the world are searching for better ways to manage their resources. The reason is simply that traditional management systems have failed to maintain healthy fish stocks, or to sustain prosperous fishing industries. Recreational and subsistence fishing have suffered also. In both eastern and western nations, in developed and developing economies alike, fisheries have been characterised by depressed resources, over-expanded fishing fleets, low incomes to fishermen, heavy dependence on governmental support and regulation, and conflict among fishing groups. With ever-increasing pressures on fish stocks and growing public demands for sustainable development of natural resources, traditional management regimes are proving to be inadequate.

A policy is a way of achieving some management objective(s). On a global basis, it is now over a decade since Agenda 21, that the Rio Declaration on Environment and Development, and the Statement of principles for Sustainable Use, were adopted by the Earth Summit of the United Nations Conference on Environment and Development (UNCED) in Rio-de-Janeiro in June 1992. This was the major global event to confront the issues of sustainable use of fisheries resources in recent years and it was intended to be a comprehensive Programme of action extending into the 21st century and covering issues such as poverty, consumption, population trends, environmental degradation and equity.

Developing policies

Many objectives viz. employment, food, profits for investors and other economic benefits of various forms, sustainable harvests and thus resources; social stability are sought to be addressed in any policy initiative. Clearly, all such objectives cannot be maximised at the same time - use of fisheries as a social welfare system, as on Canada's east coast, and one obtains neither profits through the creation of wealth, nor sustainability of resources. Single-objective maximisation with the sole objective of the use of sunk capital assets can fail disastrously, as evidenced by the recent events in the Argentine and Uruguay hake fishery, demersal fisheries from New England to the Gulf of Thailand and past practice in many North Atlantic herring stocks (FAO, 1997).

Fisheries Policies

In the United States, the *Magnuson Act*, now the *Magnuson-Stevens Act*, first set obtaining maximum sustainable yield as the legal management target, a criterion that as early as 1977, was being disparaged as a management illusion,

and a dangerous one at that. This subsequently gave way to Optimum Sustainable Yield (Leal, Donald R *et.al.*, 2005). New Zealand is another country in which the management objective is defined in the law in terms of maximising the yield - there, a perspective greatly helped by the development of their offshore fishery during the last 30 years. Further, theirs is primarily an export fishery - the domestic market taking less than 15% of production. (Pearse H. Peter, 1991).

Another policy, perhaps more accurately labeled management attribute, is that of 'Responsibility' usually indicated through some expression of a *Code of Conduct for Responsible Fisheries* (FAO, 1995). It is right to consider 'Responsibility' as a policy that it is an operational choice relating to how the fishery is exploited.

Strategically, at the global level, expression of objectives is well achieved in relation to fisheries management, articulated through international and multilateral forums. But, implementation at the national level is variable, and usually wanting. The range of commonly expressed objectives is:

- employment
- social stability and other social-welfare objectives
- creation of wealth/profits
- sustainability of resources (and catches)
- provision of national nutrition
- specific national economic goals, usually, generate export revenues and or influence regional development.

Such objectives have an intuitive appeal, but even among countries with similar management attitudes there are considerable differences in approach. These are common management objectives. Depending on the country, one or some of these objectives are attempted.

The best management policies are those that contain incentives for those at whom they are directed to increase their effectiveness. The first beneficiaries of improved management should be the fishermen themselves. People have the greatest incentive to conserve and husband something - well - when they own it, and when they themselves are most certain of being the beneficiary of investments they make in the property or resource. Icelandic fisheries were among the first to introduce strong property rights, though here too this is a policy that still is a matter for hot debate. But the issue of property rights in fisheries (or access or user rights), the pre-eminent policy issue in fisheries management today, has proved remarkably contentious, both ideologically and operationally.

More commonly, rights-based fisheries management offers the advantages. The trends in adoption of rights-based management in some of the countries are as under (FAO, 1997):

- 1976 Scotia-Fundy herring (weak rights re transferability) and the introduction of co- management with the government
- 1976 Iceland starts with Herring in a Individual Fixed Quotas (IFQ) Programme
- 1980s Holland flatfish and Scotia-Fundy with Scallops through Enterprise Allocations.
- 1983 Icelandic Cod
- 1983 New Zealand starts its Quota Management Systems (QMS) Programme
- 1990 mid-Atlantic Surf Clam & Quahog
- 1990 Most Icelandic stocks
- 1990s Australia (1st the Northern Prawn Fishery) now all states, with, e.g. 6 species under transferable quota management in Western Australia alone
- 1992 Florida Spiny Lobster Fishery (input rights)
- 1995 Alaska Halibut and Sable Fish
 - British Columbia - e.g. 6 species as well as the major ones
 - Namibia - limited durability and restraints on transferability
 - Chile (though here the two step/one step process)
 - UK - but no guarantees of durability of the 'rights' which is resulting in interesting forms of speculation
- 2000 – 2010 Argentina, Peru and Uruguay (?); UK.

The notable feature of this growth in rights based management is that there has been almost no going back! When problems were encountered, they have been solved by strengthening the property rights, not returning to any earlier system. Almost all who have introduced this management system appear to have faced many implementation deficiencies if not failures. Given the benefits, flexibility and robustness of such management systems, and that the problems that have often been encountered, this form of management has survived. Where effective administration is possible, despite the added management costs, which may be significant as they add to government rather than diminish it, this type of management regime has been found to be successful.

The Markets

Fisheries, of all natural resource sectors, are most sensitive to damage by distortions, and of course by subsidies. According to some sources, EU subsidised

the fishing industry in 1997 to the tune of 1.4 billion Euros, or 5400 Euros per fisherman. Both the WTO and GATT were able to address the issue in subsidies in the area of manufactured goods. But despite the similar rationale, the 1994 WTO's Uruguay round of negotiations ended with fish products excluded from their trade agreement; while vessel construction subsidies remained impervious to rational debate on the need to abolish shipbuilding subsidies. In 1992, in an admittedly approximate analysis of data from the late 1980s FAO concluded that annual fishing costs - \$124 billion, exceeded revenues by a staggering \$54 billion. The damage is not only limited to Europe as excess subsidised capacity in the form of surplus fishing vessels is exported around the world. A massive inflow of fishing capacity from Europe into Argentina has collapsed the hake stocks – stocks that also provide the basis of the neighbouring Uruguayan hake fishery. In New Zealand not only are there no government subsidies for fisheries, the fishing industry must pay 100% of management costs.

New Zealand and Iceland now use Individual Fixed Quotas (IFQs) to manage nearly all their commercial fisheries, Canada and Australia use IFQs in quite a few of their fisheries, and the United States, Greenland, and the Netherlands use IFQs for some fish species. Overall, IFQs have generated higher incomes for fishermen, improved product quality for consumers, reduced fleet excesses, and nearly eliminated instances in which the actual harvest exceeded the total allowable catch. The good news is that IFQs eliminate the race for fish, not only by removing restrictions that reduce fishing time but by eliminating excessive fleet size through their transferability.

The closer IFQs are to being secure and durable, the stronger the incentive for fishermen to conserve the resource. In New Zealand, where IFQs are considered property rights and not privileges, fishermen play an active role in enhancing their fish stocks. Through self-imposed levies, quota holders channel their own money into companies whose primary mission is to increase stock abundance over time.

IFQs have proven effective in addressing the problems of the fishery where command-and-control regulations have largely failed. In fisheries where IFQs have been tried, they have ended the race for fish, reduced the excesses in fishing fleets, and helped managers achieve better results in conservation. These accomplishments have taken place without individual processor quotas, without severe restrictions on IFQ transfers, and without sunset provisions.

Given that uncertainty is so pervasive in so many aspects of fisheries management - from agreement on what policy will best achieve society's objectives through to much more technical issues such as how much fish should be harvested from a single management stock - it is little wonder that there have

been a number of management responses, or perhaps more accurately, experts' proposals on what should be done to accommodate such uncertainty. The most common is that of the Precautionary Approach. Though this concept has been expanded to cover most aspects of Fisheries Management, its core concept remains vital that decisions should not be deferred because of lack of scientific proof to support a conservation action. In the management areas, as in Iceland, and many others we are familiar with, the Precautionary Approach remains an emergency measure and not a tool of day-to-day or year-to-year management. In these situations the problem must be recast in the field of risk assessment and risk management. The methods for risk assessment in fisheries exist, but this is a field still in its infancy. The challenge now is to move in to risk management, helping decision-makers to understand the implications of different actions they can take in the decision making context. However, the methodologies are well developed and have been available for decades and are appropriate to the problems to be confronted.

5. Fishery Policy in other countries

5.1 Details of the policy initiatives

5.1.1 *Africa*

The fishery strategy/policy of Africa covers the entire gamut of inland fisheries, coastal and marine fisheries, and aquaculture (Anon, 2005a):

Inland Fisheries:

- Improving fisheries governance and defining resource access, in particular for the poor.
- Enhancing productivity through post harvest management.
- Sustaining production through integrated water resource management.
- Supporting transboundary management.
- Improving market access, in particular for small-scale producers, processors and traders.
- Promoting enterprise development through enabling institutions and policy frameworks.
- Strengthening consideration of inland fisheries in national and regional policies and actions on food security.

Coastal and Marine Fisheries:

- Preparation and implementation of long-term fisheries management plans and supportive policies for sustained production.

- Building capacity of African countries to harness the full benefits of marine and coastal fisheries.
- Improving fisheries governance and participatory management.
- Improving management of the coastal and marine environment.
- Strengthening the access of African fisheries to regional and international trade in fish products.
- Supporting post-harvest activities through adequate investments and policies.
- Promoting enterprise development through enabling institutions and policies.
- Strengthening consideration given to coastal and marine fisheries in national and regional policies and actions on food security.

Aquaculture:

- Developing sector-wide strategies at national level for expansion and intensification of aquaculture.
- Supporting priority aquaculture zones.
- Encouraging private sector investment across the sector.
- Applying proven technologies to increase production.
- Maintaining the competitive advantage that Africa's environment provides for aquaculture production.
- Harnessing the opportunities for small and medium enterprise development provided by expanding domestic markets for fish, including growing urban demand.
- Supporting the emerging regional trade in aquaculture products.
- Harnessing the opportunity of expanding export markets for high-value products to increase investment in African aquaculture production and processing.
- Expanding the adoption of integrated small-scale aquaculture as a means of increasing rural productivity and food security.
- Exploiting the potential of aquaculture production to contribute to food security Programmes.

If investments are made across these areas it is projected that the stagnating or declining fishery production in the region can be stabilized and in a few cases expanded. By improving processing and access to regional and global markets through improved policies and public-private partnership investments in quality control capacity, market information systems, and sector management, it is expected that their contributions to socio-economic development can be enhanced and diversified. In the case of aquaculture, substantial growth in sustainable production is expected to be achieved.

To guide these investments and enhance sustainability of impact, several cross-cutting areas such as the development of sector-wide strategies for fisheries and aquaculture using economic planning approaches and a comprehensive value-chain perspective, are proposed to be supported. Strengthening of the regional capacity for research and development and supporting the technical expertise in the region through networking and improved communications, are to be addressed.

Implementation of this Action Plan shall follow a ‘piloting’ approach with Fast-track Programmes to be identified for immediate action. These shall focus on areas of strategic regional importance and current growth and will provide a learning process for subsequent expansion of activities. In addition, the pertinent lessons and experiences from other regions and sectors are effectively applied to accelerate the development of African fisheries and aquaculture.

This Action Plan serves as an Africa-wide framework for developing specific interventions by stakeholders at Regional Economic Community and national levels, taking into account their on-going initiatives and development priorities. This will enable these stakeholders to expand the scope of their successful initiatives, addressing critical capacity and strategy needs, and linking with relevant knowledge and technologies in other regions of Africa.

5.1.2

Australia

In late June 2000 a major policy review was commissioned by the Australian Government for fisheries and fisheries management to ensure that the fisheries can meet new challenges and changing environmental expectations.

The National Fisheries Policy of Australia is “to achieve optimal levels of compliance with fisheries laws by maximising voluntary compliance and creating an effective deterrent against illegal activity” (Anon, 2004b). Strategic objectives critical to achieving this mission, include:

- Maintaining productive working relationships with stakeholders and developing a partnership approach to fisheries management where possible;
- Pursuing cooperation with fisheries stakeholders to develop and implement fisheries policies and laws that identify potential risks and strategies to lessen them;
- Pursuing cooperation across jurisdictions to form effective alliances between related agencies;
- Integrating compliance strategies into fishery management arrangements at the initial planning stage;

- Monitoring and acting quickly to combat opportunistic as well as organised criminal involvement in fisheries;
- Ensuring that fisheries laws are administered and enforced fairly, reasonably and cost effectively for both fishers and compliance agencies, and
- Maintaining the effectiveness and integrity of compliance staff through advanced training, processes and accountable decision making.

NFA (Victoria) Freshwater Fisheries Management Policy

This Policy seeks to provide a plan for the management of all Victorian freshwater fisheries. It seeks to provide a balance between conservation issues and the legitimate interests of recreational anglers and other users of Victorian waterways. Whilst this Policy has been prepared by Native Fish Australia an NGO, it is not intended to be concerned solely with the interests of native fish, rather it seeks to provide a management structure for both native fish and exotic fish in a way that recognises the value of each to the community and the largely common interest of those concerned with each section of the fishery (Anon, 1999c).

5.1.3

Bangladesh

The national policy objective in the National Fishery Policy of 1998 states: "poverty alleviation through creating self-employment and improvement of socio-economic conditions of the fishers" (Ahsan Dewan Ali, 2005). Specific objectives formulated in the Fifth five-year Plan (1997-2002) are:

- increased fish production for improved nutritional standards;
- increased employment;
- improved environmental management;
- increased export revenues; and improved social and economic conditions for fishers and fish farmers;
- improve the biological and institutional management mechanisms;
- strengthen research, extension and management co-ordination.

5.1.4

British Virgin Islands

Broad policy guidelines, both medium and long-term for the fisheries sector in the British Virgin Islands (Anon, 2005i) are as under:

Policy Goal

- To promote sustainable management and growth of the sector within a diversified economy.

Objectives

- To increase the production of fish for local use and for export.
- To fully exploit the available and under-utilised fish resource.
- To improve the living standards of the fishermen.
- To ensure environmental sustainability within the aquatic areas related to the fisheries sector.

Artisanal/Coastal Pelagic/Pelagic Fishery

Policy Goal

- To strengthen the capacity of artisanal fishermen by encouraging / promoting fishing further off-shore.
- To improve the extension services available to fishermen.
- To revive domestic production/reduce high imports of shellfish.
- To promote fishing as a lucrative occupation.
- To develop the potential for exploitation of pelagic fish stocks.

Strategies

- Facilitate more efficient fishing by training of fishermen in improved fishing techniques.
- Establish fingerling supply centres for aquaculture.
- Encourage ventures into fish farming and demarcate some Bays for this type of fishery.
- Promote long-line fishery.
- Establish a Government supported venture into purchase of an equipped trawler for long-line fishing.
- Conduct scientific studies to verify BVI's fish resource stocks, spawning seasons and fish migratory patterns for developing effective management measures.
- Establish fishermen cooperatives.
- Increase the vessels involved in long-line fishery to ten.
- Explore opportunities for export and enhance local consumption.
- Purchase of a well-equipped multipurpose/training vessel for the Conservation and Fisheries Department.
- Increase surveillance efforts/protect the fishing banks from illegal fishermen.

- Provide security of fishing boats within BVI's fishing banks/territorial waters.
- Government to ensure a guaranteed market and appropriate price for landed catches.
- Enforcement of regulations on marine turtles.

Recreational Fisheries

Policy Goals

- To harness the revenue earning potential of the fishery.

Strategies

- Increase fishing licence fees across the board, particularly for foreign-based vessels while giving a waiver for locally based sport-fishing vessels.
- Encourage local investment in the fishery, particularly Big Game Sport Fishing.
- Streamline registration of vessels and licensing of foreign vessels involved in sport fishing.
- Define terms/conditions for operating issued licences and permits.
- Regulate the fishery by putting in place conservation measures to protect targeted species from over exploitation e.g. open/closed seasons, size, catch landing, etc.
- Promotion of the BVI as a sport fishing venue.

Economic Performance

Policy Goal

- Enhance the diversification of the economic base through strategic fisheries management and investment initiatives.

Strategies

- Increase GDP contributions from fisheries by 10%.
- Increase/Categories commercial fishing license fees.
- Increase government investment for provision/maintenance of facilities such as landing sites.
- Provide access to loans for purchase of vessels and equipment.
- Provide customs duty except for fishing vessels and equipment.
- Establish local bait industry.

- Invest in aquaculture/mariculture and demarcate certain areas for the type of fisheries.

Fish Marketing and Distribution

Policy Goal

- To enhance consumer confidence in purchase of locally caught fish products.
- To develop an effective marketing strategy.

Strategies

- Revitalization of the BVI Fishing Company.
- Streamline present marketing system.
- Provide incentives for fishermen to use facilities provided at the BVI Fishing Complex.
- Explore potential for exportation of unexploited fish species.
- Conduct a research to determine extent of ciguatera in BVI fish stocks.
- Obligatory testing of all species for ciguatera poisoning.
- Rehabilitate processing and preservation facilities at the BVI Fishing Co.

Surveillance and Enforcement

Policy Goal

- To reduce loss of revenue from illegal fishing activities and licensing of fishermen.

Strategies

- Establishment of a Fisheries Surveillance and Enforcement Unit manned by trained officers.
- Provision of a patrol boat with improved sea-going ability.
- Training and use of local fishermen in surveillance.
- Promote the use of Police Air Patrol Unit for surveillance duties.

Legislation

Policy Goal

- To improve the enforcement of the existing fisheries legislations.

Strategies

- Establishment of a fisheries surveillance and enforcement unit.
- Training of personnel in enforcement duties.
- Procurement of a well equipped surveillance vessel.

*Infrastructure**Policy Goal*

- To improve the maintenance of facilities for the procurement of fish landed by fishermen.

Strategies

- Improvement of dock site at BVI Fishing Company.
- Establishment of more landing sites with basic amenities of water, electricity, storage shed and security.

*Resource Management and Conservation**Policy Goal*

- To rejuvenate overexploited stocks of fish.

Strategies

- Demarcation of more fisheries protected areas/demarcation of dive areas for fisheries protection.
- Set regulations for conservation of overexploited reef fish stocks as well as exotic fish species.
- Conduct an assessment of BVI's fish stocks.

*Data Management**Policy Goal*

- To strengthen the capacity for data collection within the fisheries unit.

Strategies

- Establishment of information management unit within the Conservation & Fisheries Department.

- Employment and training of more data collectors.
- Procurement of equipment.

Policy for the enhancement and protection of fisheries and the related marine ecosystem.

This addresses issues on conservation of fish resources (stocks) and protection of associated marine ecosystem, involving the following:

- establishment of marine protected areas.
- protection of fisheries breeding habitats e.g. mangroves/sea grass beds.
- definition of appropriate fishing techniques/practices.
- definition of closed and open seasons for fish species.
- conservation of endangered species.
- exploitation of abundant species e.g. pelagics.
- resolution of conflicts with tourism activities.

Policy for the appropriate management and control of potentially environmentally damaging activities such as land reclamation and dredging.

This addresses issues on:

- impacts of developmental activities on the environment.
- land based sources of pollution.
- pollution from tourism activities.

Policy to promote the economic development of fisheries.

This involves

- illegal exportation of fish.
- landing of catch in the territory.
- domestic fish marketing.
- duties/taxes on fishing equipment.
- access to loans by fishermen.
- provision of infrastructures.
- revision of licence fees and registration of boats.

5.1.5

Bulgaria

The fisheries sector is important for the economy of the Republic of Bulgaria, especially in some less developed areas and along the Black Sea and the Danube River coasts.

With the objective to implement structural measures in the area of agriculture and fisheries an Agency (to the State Fund “Agriculture”) known as SAPARD was established with a Council of Ministers Decree from the 6th July 2000. The Agency will co-finance targeted projects, in conformity with the priorities identified in the National Agriculture and Rural Development Plan (2000-2006), among which are improvement of production, processing and marketing of fish and fish products (including aquaculture), so that they comply with the EU standards (Anon, 2000b). The plan includes the following measures eligible for support related to fisheries:

Measure 1. Improvement of processing and marketing of agricultural and fish products. According to this measure, processing establishments will be financed in order to improve the hygiene and quality of the fish products to meet the requirements of the EU.

Measure 2. Development and diversification of the economic activities. This measure aims at creating possibilities for diversified activities generating alternative income (for example from agri-tourism, sports fishing, etc).

Based on the experience gained from using the pre-accession funds under the SAPARD Programme, the Republic of Bulgaria will achieve capacity to apply the Financial Instrument for Fisheries Guidance (FIFG) to provide structural aid for the reconstruction and modernisation of the fishing fleet (without increasing its fishing capacity after the accession of Bulgaria to the European Union), for the modernisation of port facilities, development of aquaculture, processing and marketing of fish and fish products and socio-economic measures.

5.1.6

Cambodia

The strategic goals that are being adopted to guide fisheries sector development (Anon, 2004d; World Bank, 2004a) include:

- All living aquatic resources should be harvested within their sustainable limits by 2010;
- Governance systems and procedures that allocate resources use rights and obligations through democratic means and community participation are in place and fully operational by 2010;
- The supply of fish and fishery products will keep pace with increasing demands to safeguard the nutritional standards, and the social and economic well-being of communities depending on fisheries for their livelihood;

- Effective and adequate support is provided to help private sector development and expansion in fisheries, in particular aquaculture where Cambodia has significant comparative advantages; and
- Critical habitats used for fisheries and aquaculture are safeguarded.

Specific Objectives

The specific objectives, related to each goal are outlined below.

“Ensuring all living aquatic resources should be harvested within their sustainable limits by 2010”.

- The extraction of living aquatic resources follows what is safe and prudent under precautionary principles for the management and administration of living aquatic resources;
- A scientific base to support the management and administration of Cambodia’s living aquatic resources is established and operational; and
- The authorities in close collaboration with local communities carry out monitoring and enforcement.

“Establishing governance systems and procedures that allocate resources use rights and obligations through democratic means and community participation are in place and fully operational by 2010”.

- Local communities carry out the allocation of resources use-rights and use obligations at local levels;
- Regional fisheries councils (community based) adopt revolving management plans for all fisheries and aquatic resource usages;
- Long term (five year) revolving fisheries management plans are prepared and adopted to guide the use of living aquatic resources and their habitats;
- Scientific information, statistics, stock assessments, social and economic information forms the basis for the preparation and implementation of management plans; and
- The fisheries service plays a supportive role to local communities and the local administrations in establishing and implementing community based fisheries management systems and procedures.

“Ensuring the supply of fish and fishery products will keep pace with increasing demands to safeguard the nutritional standards, and the social and economic well-being of communities depending on fisheries for their livelihood”.

- Fish production from capture fisheries, both inland and marine fisheries, is reduced to conform to the sustainable capacity of the aquatic resources and habitats;
- The production of fish and other aquatic resources from aquaculture and farming fisheries is increased to compensate for the anticipated reduction from capture fisheries and increasing demands; and
- Market forces drive fisheries sector development and private sector investments in fisheries and aquaculture, including production, trade, processing and marketing.

“Providing effective and adequate support to help private sector development and expansion in fisheries, in particular aquaculture where Cambodia has significant comparative advantages.”

- All necessary technical support to support private sector fisheries and aquaculture development is available from DOF and its supportive agencies;
- Institutional financing is available to support private sector development with working capital and investment credits;
- A favourable business environment that is conducive to private sector investment and development prevails; and
- Special measures and projects initiated to support poverty alleviation and alternative (to capture fisheries) employment opportunities in aquaculture and farming fisheries sub-sectors.

“Ensuring critical habitats used for fisheries and aquaculture is safeguarded.”

- All fishing and aquaculture activities are carried out in a manner that conforms with sound environmental and ecological principles;
- Local parameters for environmental management is established and adhered to; and
- Local communities under the guidance and support of the fishery service, carry out local monitoring and evaluation of compliance with sound environmental principles.

The main elements related to the management of marine fisheries mentioned in the policy are:

- To create job opportunities and upgrade the livelihoods of people in local communities;
- To ensure equitable access to and distribution of fisheries benefits including export earnings;

- To extend the institutional responsibilities of fisheries management to fishing communities;
- To enhance the protection and sustainable use of fishery resources;
- To promote aquaculture and mariculture to fulfill the nutritional requirements of the people and to reduce the catch of wild resources; and
- To encourage the integration of fisheries management with overall rural development in fishing communities.
- To designate zones that should be reserved for conservation as well as those that would be kept open for sustainable use.

5.3.7 Canada

Shifts in world markets, declines in harvests of traditional species, maturing of existing markets and changing harvesting and processing technologies etc., have led to the formulation of the Emerging Fisheries Policy in 1996 to clearly lay out the requirements that must be met and the procedures to follow before a new fishery can be initiated.

A cornerstone of the new Canadian fishery policy is provision for the establishment of a scientific base with which stock responses to new fishing pressures can be assessed. This new policy replaced the "Policy on Under-utilised Species" which was no longer adequate in the current environment. Not only does the Emerging Fisheries Policy provide applicants with a transparent process to follow, it also gives the fishery managers a procedure that can be applied fairly and consistently (Anon, 2001a). This policy is also precautionary in its approach to the development of new fisheries. The objective is to diversify fisheries and increase economic returns while ensuring conservation of the stocks and realising the sustainable use of fisheries resources.

This policy applies to all new fisheries undertaken in marine or freshwater areas where the Department of Fisheries and Oceans (DFO) manages the fishery. Aboriginal people have the constitutional right to fish for food, social and ceremonial purposes. This right is second only to conservation. DFO has a policy of promoting increased aboriginal participation in the management of fisheries, especially through co-management agreements, as well as providing economic development opportunities in existing and new fisheries.

Management of new fisheries follows an integrated approach that blends science and business principles and effective involvement of government, industry and other parties to ensure fisheries are ecologically and economically sustainable. It requires decisions on roles and responsibilities with regard to management, enforcement and scientific components within each exploratory harvest plan. DFO continues to foster and develop emerging fisheries in co-operation with

Provinces and Territories. Provinces and Territories have an economic development mandate and, as such, have interest in the development of new fisheries that offer alternatives for the preservation and development of coastal regions and communities. In this role, Provinces and Territories, if required, provide assistance - financial and otherwise - to corporate and individual proponents throughout the development process. In addition, the licensing and inspection (other than for export) of fish processing facilities, including those involved with emerging fisheries initiatives, are Provincial/Territorial responsibilities.

The Canadian Vision for the Management of New Fisheries is "*Healthy and abundant fishery resources supporting sustainable uses.*" Fisheries involving new species and/or stocks that are not utilised or not fully utilised, and not currently covered by a management plan. In achieving this, the new fisheries policy is guided by the following:

- New fisheries must provide for a reasonable scientific basis for their management. The process by which new fisheries will be managed must include the requirement for stock assessment information in the early stages. Proponents will bear responsibility to maximise collection of scientific information from catches and for co-operative work with DFO scientists who will be responsible for analyzing the data/information obtained.
- New fisheries should contribute positively to the economical viability of a fishery enterprise on an ongoing basis.
- All requests from applicants must include proposals that outline research, management and conservation approaches as well as cost of these approaches.

Guiding Principles

- Conservation will not be compromised - a precautionary approach will guide decision making. Information on the abundance, distribution, and productivity of the target species is identified as the key scientific requirement for development of precautionary management strategies.
- The potential impact or interaction of any new fishery or gear on associated or dependent species, fishing or gear type and on habitat will be assessed.
- Based on biological and environmental information, including input from industry, provinces/territories and the public conservation standards will be established, conditions for harvesting will be set and their application monitored.

- Users are accountable for compliance with conservation standards for meeting harvesting conditions.
- In allocating personnel and financial resources, priority will be given to the research, management and enforcement of established fisheries.
- Users, through partnership arrangements, will participate more in the management of the fishery.
- Aboriginal peoples will be provided access to the resource consistent with the law and government's responsibilities.

Canada's Oceans Strategy

As a policy framework, Canada's Oceans Strategy has the overarching goal – to ensure healthy, safe and prosperous oceans for the benefit of current and future generations of Canadians. The policy framework is intended to guide the coordination and management of ocean activities including fisheries (Anon, 2002b).

As set out in the Oceans Act, the Strategy is based on the three principles of sustainable development, integrated management and the precautionary approach. These three principles guide all ocean management decision making. Application of these principles is premised on a sound base of scientific and traditional knowledge. The scientific knowledge required to make oceans management decisions encompass both natural and social dimensions. It is derived from sources inside and outside Canada and its governments. Under the Strategy, the Government of Canada commits to ensuring that these three principles serve as guides and tests for assessing future oceans management decisions.

Three policy objectives or outcomes have been identified for the advancement of oceans management activities:

- *Understanding and Protecting the Marine Environment;*
- *Supporting Sustainable Economic Opportunities; and*
- *International Leadership.*

The sustainable development principle rests at the core of Canada's Oceans Strategy. It recognizes the need for integration of social, economic and environmental aspects of decision making, and that any current and future ocean resource development must be carefully undertaken without compromising the ability of future generations of Canadians to meet their needs. While this principle applies to all ocean management considerations, from an operational perspective, this Strategy commits the Government of Canada to ensure its implementation through the process of integrated management planning.

The conservation and sustainable use of fisheries resources is one of the key goals within the objective of Supporting Sustainable Economic Opportunities under the Canadian Ocean Policy. So too is the development of aquaculture in a manner that supports public confidence and industry competitiveness. Fisheries managers and scientists are developing a renewed approach toward management that is based on conservation, objectives-based fisheries management techniques within an ecosystem's context. This requires working more closely with commercial, recreational and Aboriginal licence holders and fleet sectors to promote greater involvement in, and responsibility for, operational management activities.

The Policy framework for management of fisheries on Canada's Atlantic Coast (Denis DeSantels, 1999) addresses a broad range of fisheries management challenges including:

- Continuing threats to conservation and stock rebuilding;
- High management costs and complex regulatory system for many fisheries;
- Excess participation and other impediments to economic viability leading to continuing demands for increased fisheries access by provinces, communities and resource users;
- Uncertainty of the access and allocation process continues to undermine the department's efforts to promote stability and provide incentives to reward positive conservation practices; and
- A high dependence on the Minister and the department for decision making; and
- Resources users share little responsibility for the management of fisheries and the decisions taken.

These challenges are addressed through policy strategies designed to achieve the four objectives laid out in the policy framework. The policy framework has two core objectives – Conservation and Sustainable Use and Self-reliance – and two supporting objectives – A Stable and Transparent Access and Allocation Approach and Shared Stewardship. Nine principles serve to guide fisheries decision-making and act as a guide to evaluate the consistency of future fisheries management decisions against the framework's objectives.

5.1.8

China

China's fisheries have entered a rapid growth period since 1985. The average annual growth rate was 13.6%, much higher than the world average, which was 1.5%. The total fisheries production in China was about 25 million tons in 1995 and 44.3 million tons in 2002 and ranked first in the world and accounted for

about one fourth of the world's total. The contribution of capture fisheries to this total fish production in 2002 was 16.6 million tones and that of the aquaculture production was 27.7 million tones. The fish consumption per capita was 4.6 kilograms in the early 1980's and was up to 21.5 kilograms in 1996 and 27.7 kg in 2002 (FAO,2004c).

However, the problems now facing China include the following:

- the policies were not implemented well in some areas;
- few efforts were made in the exploitation on the waste waters, waste shoals and waste depressed lands ("three wastes");
- serious fish diseases in aquaculture;
- weak in technical extension system and infrastructures;
- decline of inshore fishery resources and deterioration of water environment;
- weak in management;
- fishing in offshore and long distant waters has been constrained due to a new international marine law.

To overcome these problems and to put the fisheries development and management in China in the right track, a policy initiative with the following general principles was enacted to:

- accelerate aquaculture;
- protect and rationally utilise the inshore fishery resources;
- further develop fisheries in long distant waters;
- take vigorous measures to promote fish processing and trade;
- strengthen management system.

The China Ocean Agenda 21 formulated by China in 1996 put forward a sustainable development strategy for China's marine programmes (Anon, 1996a, 98). The basic ideas of this strategy are to effectively safeguard the state's marine rights and interests, rationally develop and utilise marine resources, give positive protection to the marine eco-environment and realise the sustainable utilisation of marine resources and the marine environment as well as the coordinated development of the work in this field. In this regard China abides by the following basic policies and principles:

- Safeguarding the new international marine order and the state's marine rights and interests.
- Overall planning for marine development and control by rationally developing and protecting the offshore areas, and exploiting the coastal land and sea areas in a unified way.

- Rationally utilising marine resources and promoting the coordinated development of the marine industries.
- Simultaneously planning and implementing the development of marine resources and the protection of the marine environment.
- Reinforcing oceanographic technology research and development.
- Setting up a comprehensive marine management system.
- Actively participating in international cooperation in the field of marine development.

China adopts a policy of developing and utilising the marine resources in a comprehensive way, so as to promote the coordinated development of the marine industries.

Chinese Aquaculture policy

Aquaculture growth in China is almost exclusively a result of government policies. There are three main phases of the Policy that characterise the Chinese aquaculture development. The first, which covers the period before 1949 and during which aquaculture development was slow, is poorly documented in terms of policies. The second phase, which runs from 1949 to 1978, is characterised by tight government control and policy prescriptions. It is a period of the traditional economic system whereby all decisions, including the three fundamental production related decisions, namely what to produce, how to produce and for whom to produce, are made by government policy-makers and planners. In this period, input from producers, consumers, market forces and signals were ignored in the production decision making process. This period can best be described as a period of highly centrally-planned economic policies. In the third period, from 1978 onwards, economic and policy reforms were established to allow producers to make production decisions, including marketing. This period can be referred to as a period of free market economy policies (Ulf Wijkström and Jiansan Jia, 2002).

Regardless of the period in which these policies were developed, they were either established to guide the development of the sector as a whole, or to respond to specific issues such as that of seed, feed, appropriate production technology and investment, which were identified or perceived as impeding or capable of impeding the development of the sector.

Before 1979, the guiding principles for fisheries and aquaculture in China emphasised marine fisheries and fishing. Freshwater fisheries and aquaculture were underrated. The principle of the "*Regulation on Breeding and Protection of Aquatic Resources*" promulgated by the State Council on 10 February 1979 was to protect aquatic resources. Through this regulation, fishing was restricted by

area, time and species. To some extent, the protection of aquatic resources led to the development of aquaculture in the whole country. The Directive Notice of the State Council first pointed out that to develop aquaculture was one of the main tasks for the fishery sector. It also defined the aim and set target of aquaculture development. Ways and means used to achieve the target were as follows:

- Make full use of the available water areas to develop aquaculture and establish as many freshwater and marine aquaculture production bases as possible. These bases obtained the necessary support in the form of investment capital, equipment, feed and fertilizers from the central and local government;
- Further expand the stable and high output fish ponds in suburban areas and adopt integrated farming systems and cage culture systems wherever suitable areas exist. The investments required for fish culture in the suburban areas such as capital and equipment were provided by the city's development Programmes;
- Encourage grass-root units to expand the water areas and mudflats suitable for aquaculture. These suitable coastal areas should also be used for aquaculture, not only for fishing. Inland areas with suitable water bodies should be used for aquaculture by 1985.

To further foster and boost the sustainable and rapid development of aquaculture, the State Council issued another *"Directive Notice on the Approval and Implementation of the Instruction of the Ministry of Agriculture to Further Expedite the Development of the Fishery Sector"* in 1997. This Notice demanded further reform and liberalisation of the market to further strengthen the development of aquaculture and a radical change of the structure of the fishery sector and approaches to promote the growth of the economy.

The Notice also set the following additional guidelines to further develop the sector:

- ❖ Productivity improvement or higher output per unit of input will be the major effort to further develop the aquaculture sector. This can be achieved by improving the technology employed, promoting the use of high value species and by adjusting species mix or choice of the species cultured based on market condition;
- ❖ Strong efforts shall be exerted to step up the greater and wider cultivation of the under- or unutilised "three uncultivated lands" (water surface, mudflat, flooded land suitable or fit for aquaculture) to make full use of the 'cultivable' aquatic lands;
- ❖ Aquaculture licences for newly cultivated aquaculture lands can be given to local collectives or villages. These licences can be distributed to

producers on a 'production-by-production' contract basis, rental basis or temporary lease transfer basis and even by auction;

- ❖ The Chinese aquaculture industry should be further liberalised and market regulations enacted and enhanced to promote the large-scale development of the industry;
- ❖ Aquaculture and the other agricultural industries should be equally developed in all possible regions of the country. Ecologically sound or ecosystem-based agriculture systems like integrated fish-livestock-silkworm-mulberry bush farming systems or fish culture in paddy fields should be actively promoted;
- ❖ In regions where the incidence of poverty is high or where poverty is endemic, especially in the mid-west region of China that is rich in or well endowed with aquaculture resources, aquaculture should be adopted not only as the source and means of livelihood and food security but also as the main engine to drive the economy of the region in the fight against poverty and malnutrition;
- ❖ Enterprises, either public or private sector businesses engaged in aquaculture in the newly cultivated lands from the "three uncultivated lands" or in education or research in aquaculture such as in the production or development of aquatic seed and new species should be exempted from the agricultural special product taxes as an incentive;
- ❖ Available fiscal support and other assistance from all levels of government for developing aquaculture should be kept and/or even increased, if necessary to promote aquaculture investments;
- ❖ As aquaculture production bases in suburban areas are the main suppliers of aquatic products for the cities, the acquisition and requisition of land for aquaculture should be prioritised and conversely denied or disallowed if aquaculture land is being taken out of aquaculture for other non-aquaculture use unless such requisition is in the national interests or for the common good of all citizens in the area;
- ❖ More investments should be made in the production of quality seed and fish health management to promote sustainable aquaculture development and management;
- ❖ Aquaculture health management problems, in particular the treatment of fish diseases should be solved by the guiding principle of "prevention first, prevention and treatment combined" through the establishment of a network for fish disease protection at different levels throughout the country.

These guidelines and prescriptions for action under the new general policy for aquaculture illustrate the Government's commitment to developing the sector in a sustainable way.

The Government's policies and other timely interventions have greatly contributed to the rapid development of aquaculture in China in the past twenty years. However, as the industry developed it soon became apparent that there were serious inherent structural problems, which needed to be addressed if the industry was to grow further (Ulf Wijkström and Jiansan Jia, 2002).

In the main aquaculture production areas, the supply of aquaculture products of some traditional species exceeded demand, which resulted in depressed prices. Aquaculture diseases broke out and spread rapidly. All these developments greatly affected the efficiency of the aquaculture industry and depressed producers' incomes.

In response, in 1999, the Ministry of Agriculture released a new document called the "*Guiding Instrument on Adjusting the Structure of the Fishery Sector*" which was designated to restructure the fishery sector including aquaculture.

As far as aquaculture is concerned, the content/provisions of this Instrument can be summarised as follows.

The guiding rationale is that more effort will be made to develop new markets and/or expand existing ones, increase demand for fish through market promotion and develop new value-added products as well as improve the quality of aquatic products through technological innovation, provision of improved infrastructures and facilities and reform of the legal system.

The guiding principles of the structural reform of the sector are:

- promotion of open market operations by fostering the establishment of competitive marketing services, analysis of market demand and supply conditions and provision of market and price intelligence to producers and consumers alike to increase the efficiency of the aquaculture industry;
- to capitalise on favourable regional comparative advantages such as under-exploited natural resources endowment, growing and under-supplied markets and available advanced technology by investing in aquaculture development;
- greater reliance on technology to further strengthen the resilience and health of aquaculture through promoting technological innovation on aquatic seed quality and fish health management
- respect of farmers' rights to make production decisions.

The future objectives of fisheries development and management in China include:

- a. two essential changes: the change of economic systems (from planned economy to market economy), and the change of economic growth patterns (from extensive to intensive);
- b. a well organised industrial structure;
- c. well supported by scientific and technological researches;
- d. a total fishery production up to 45-50 million tons and the contribution of aquaculture up to 65% by 2005.

5.3.9 European Union

The *Common Fisheries Policy (CFP)*, (EU, 2002, 03, Anon, 2004g) is the European Union's instrument for the management of fisheries and aquaculture. It was created to manage a common resource and to meet the obligation set in the original Community Treaties. Because fish are a natural and mobile resource they are considered as common property. In addition, the Treaties which created the Community stated that there should be a common policy in this area, that is, common rules adopted at Community level and implemented in all Member States.

The first common measures in the fishing sector date from 1970. They set rules for access to fishing grounds, markets and structures. It was agreed that, in principle, Community fishermen should have equal access to Member States' waters. However, in order to ensure that smaller vessels could continue to fish close to their home ports, a coastal band has been reserved for local fishermen who have traditionally fished these areas. Measures were also adopted for a common market in fisheries products. A structural policy was set up to coordinate the modernisation of fishing vessels and on-shore installations.

All these measures became more significant when, in 1976, Member States followed the international movement and agreed to extend their rights to marine resources from 12 to 200 miles from their coasts. Member States also decided that the Community was best placed to manage fisheries in the waters under their jurisdiction and to defend their interests in international negotiations. After years of difficult negotiations the CFP was born in 1983.

The CFP takes into account the biological, economic and social dimension of fishing. It can be divided into four main areas dealing with conservation of fish stocks, structures (such as vessels, port facilities and fish processing plants), the common organisation of the market and an external fisheries policy which includes fishing agreements with non-Community members and negotiations in international organisations.

The CFP sets maximum quantities of fish that can safely be caught every year. The CFP takes into account the biological, economic and social dimension of fishing. From scientific studies on the main stocks the Council of Ministers decides on the amount of fish that EU fishermen will be allowed to catch the following year. These maximum quantities, called total allowable catches (TACs), are divided among Member States. Each country's share is called a national quota.

To limit the capture of small fish so that they can grow up, a number of technical rules have been adopted. Minimum mesh sizes are fixed. Certain areas are closed to protect fish stocks. Some fishing gears banned and more 'selective' techniques, which facilitate the escape of young fish and limit the capture of other species, are made compulsory. Minimum fish sizes are set, below which it is illegal to land fish. Catches and landings have to be recorded in special log books.

The EU's structural policy helps the fishing sector adapt to today's needs. Funding is available for projects in all branches of fishing and aquaculture and for market and development research. Funding is available for modernisation of the fishing fleets as well as for getting rid of excess fishing capacity. For each Member State, fleet restructuring is planned within multi-annual guidance programmes setting out objectives and the means to achieve them.

This policy was part of the first set of common measures. The objective was to create a common market inside the Community and to match production to demand for the benefit of both producers and consumers. These original objectives have been complemented by the creation of the Community single market and the gradual opening up of world trade.

At the bilateral and multilateral levels, fisheries agreements became necessary when distant-fishing vessels from the Community lost access to their traditional grounds following the extension of fisheries zones. Fishing rights for such vessels have been negotiated with many non-Community countries in return for various forms of compensation whose nature depends on the interests of the third country concerned. The Community is also involved in negotiations with international organisations and regional fisheries organisations to ensure rational fishing.

The authorities in the Member States have to ensure that CFP rules are respected. The Community Inspectorate ensures that all national enforcement authorities apply the same standards of quality and fairness in their enforcement.

The first CFP review in 1992 showed that if there are too many vessels for the available resources, technical measures and control alone cannot prevent over-fishing (Jensen C.L, 1999). The amount of fishing has to be regulated too. In order to make the common fisheries policy more effective, the link between its component parts was reinforced. Control measures were also developed to ensure that rules are respected throughout the industry. New technologies are being used to transmit data to the authorities and to monitor larger vessels through satellite tracking systems.

A second review was carried out in 2002. The run up to this review will be used, among other things, to adjust enforcement and marketing measures and to undertake a consultation process on the future of the post-2002 CFP.

Community Fishery Policy

Entry of Denmark, Ireland and United Kingdom into the Community, in 1973, resulted in a need to consider the Common Fisheries Policy (CFP) for the nine Member States which formed the EC in that moment. In 1981 the Common Fishing Market Policy was approved (NFFO, 2003).

The new comers had major commercial fishing interests in the North Sea which took over ten years to be harmonised after tough negotiations. In this way, in January 1983 an agreement was reached on establishing a Common Policy on fishing resources. Negotiations were marked by the sinking of herring and cod fisheries in the North Sea and ascertainment of a dangerous and irreversible over-fishing situation had been reached as well as the exhaustion of these species.

Today, there are four key areas in the Common Fisheries Policy: Fishing Structures; Fisheries Management and Conservation; Fishery Markets; Foreign Relations. Out of these four areas, environmental considerations specially insist on the two first ones.

In the case of Fisheries Management and Conservation, two measures are taken: Total Allowable Catch (TAC) and Technical Conservation Measures (TCMs). That is, limiting the number of tons of commercial specie caught in Community waters, establishing minimum measures related to catch, using gear designed to reduce the capture of immature/juvenile fishes, protecting zones and reproduction and breeding periods, “nurseries”, reducing associated catch or discards, etc.

Appropriate fisheries management may achieve the recovery of threatened fisheries. This is the case of herring fisheries in the North Sea, closed between

1977 and 1980 due to fishing fall in fish catch, and managed since 1996 with a spectacular increase in biomass and fisheries boom (Jensen C.L, 1999).. With respect to fishery structures, the CFP seeks to adjust the fleet's fishing capacity to the real possibilities of the fishing grounds, improve the quality of fishing processes, create protected zones in order that vulnerable stocks can regenerate, improve environmental management on aquaculture, etc. To assist the sector to carry out these measures, the EU created the Financial Instrument for Fisheries Guidance (FIFG) and the Pluri-annual Orientation Programmes (POP). These last two basically destined to balance fleets. While this Structural Fund has no specific measures on environmental matters included in the 2000-2006 Programme, FIFG has centred a significant part of its aid on adjustment of the fishing effort and on renewal and modernisation of the fishing fleet.

These acts include an environmental component that tends to the conservation of resources and to a more appropriate management. In addition, modernisation and renewal of the fleet, has the possibility of providing more efficient vessels from an energetic point of view, increasing the crew's safety and the quality of life at work, that contributes to improving the environment and the sector's sustainability. Although this specific measure will be limited in the new CFP, the aid concerning safety and quality of life on board and the quality and hygiene of fishing products will be maintained.

Over the Programme period 2000-2006, investments in installations and modernisation of productive installations (aquaculture, transformation and marketing of products) referring to the use of techniques or collective installations that significantly reduce the effects on the environment, would have bonus for financial aid, although it would come from national co-financing (Regulation EC N° 2792/1999).(Anon, 2004g).

Objectives of the New Common Fisheries Policy

The future CFP needs clear and coherent objectives and principles. The new CFP capable of providing sustainable development in environmental, economic and social terms aims at:

- responsible and sustainable fisheries and aquaculture activities that contribute to healthy marine ecosystems;
- an economically viable and competitive fisheries and aquaculture industry which will benefit the consumer;
- a fair standard of living for those who depend on fishing activities.

In order for the CFP to function effectively, it is essential that good governance principles are embodied into the Policy. The new CFP must, therefore, aim at ensuring:

- openness and transparency, in particular by improving the quality and transparency of the scientific advice and data on the basis of which policy decisions are taken;
- participation, through greater and broader stakeholder involvement from conception to implementation of policy, including at local and regional level;
- accountability, through a clearer definition of responsibilities at European, national and local level;
- effectiveness, through decision-making processes whose results are properly evaluated, controlled and complied with and
- coherence with other Community policies, in particular environment and development policies, through a cross-sectoral approach.

5.3.10 Ghana

In its document "Ghana-Vision 2020," the government set forth a development strategy aimed at creating a stable macroeconomic environment and implementing a decisive structural transformation to foster strong economic growth and a broad-based improvement of living standards (Anon, 1999a). The strategy envisages steps to achieve balanced social and regional development, and encourage private sector activity and export orientation.

Marine demersal stocks and small pelagic fishes suffer from over-fishing and unsustainable fishing methods, while the large pelagic species, especially tuna, are underexploited. The government intends to develop fisheries in a sustainable manner by improving the institutional and legal framework for proactive management of the fisheries. In particular, the government will promote private investment in fisheries, particularly in tuna, and will encourage co-management systems in artisanal fisheries.

5.3.11 Greece

The objectives of fisheries management are the rational exploitation of fisheries resources, the protection of vulnerable areas and species that are overexploited, with the main scope being the sustainable development of the sector.

The fishing management is conducted in the frame of European legislation as far as the conservation of large pelagics is concerned. Structural policy and management of fishing capacity is governed by the framework of the Common

Fishery Policy. Other measures, like renewal and modernisation of vessels and socio-economic measures were also endorsed in respect of the sustainable development of the sector.

For the conservation of aquatic living resources, the Greek legislation provides a series of measures for the prohibition or restriction of fishing activities in spawning and nursery areas, protected areas and during critical periods for juveniles and reproduction (Anon, 2003c).

5.1.11

Guyana

Fisheries policy and regulations of Guyana are guided by the provisions of the Fisheries Act of 1957, the Fisheries Regulations of 1959, the Fisheries (Pin Seine) Regulations of 1962, the Fisheries (Aquatic Wild Life Control) Regulation of 1966, and the Maritime Boundaries Act of 1977 (FAO, 2000b).

The general objectives, strategies, and global targets for agricultural development set out in the Draft Agricultural Development Plan (1987-1990), in which fisheries has been identified as one of the sub-sectors for special attention at a national level, were used as a guide to develop the major objectives in the Draft Fisheries Management and Development Plan.

The six major objectives adopted for the Draft Fisheries Management and Development Plan, were:

- The rapid increase in aggregate output and productivity to impact on the growth of the national economy significantly.
- The achievement of nutritional self-sufficiency and food security.
- The maintenance in good working order and the optimal utilisation of assets related to production.
- The generation of increased employment and income in the sector.
- The intensive utilisation of the country's flora and fauna to meet non-food basic and cultural needs, such as those related to energy, clothing, home construction and furnishing, and arts and crafts.
- The increase in net foreign exchange earnings.

The overall strategy (Anon, 2005j) was to provide services and pursue policies that were supportive of improved technology and cultural practices to promote the growth of fisheries production; to diversify fisheries production and processing; and to achieve the necessary cost efficiency for competitiveness. In striving to implement this strategy, it was agreed that emphasis should be placed on the following:

- ❖ Making optimum use of the existing production capacities before seeking to establish additional capacity.
- ❖ The allocation of resources where they could obtain optimal use and would yield the greatest foreign exchange benefits.
- ❖ Development of new products and by-products of traditionally produced items by using techniques, which are appropriate.
- ❖ The promotion of regional self-sufficiency in food and other items including those for daily use, thereby reducing the hinterland's dependence on the coast for supply of important basic commodities.
- ❖ Provision of direct and indirect incentives, including:
 - the adoption of producer-oriented policies, especially in the areas of pricing, marketing, supply of essential inputs, and import concession;
 - improvement of service delivery systems relating to the provision of technical training and advice, credit and input distribution, and statistical and resource capability information for planning and marketing purposes;
 - maintenance and expansion in all regions of production award systems in areas of activities that are consistent with those emphasised in the Plan.

The overall strategy recognised the dualistic character of the fisheries sub-sector, that is, an export oriented sector of large scale commercial production of shrimp (prawns) compared with the equally important domestic oriented small scale/artisanal production of finfish. However, the increasing scarcity of some species, and therefore the need to husband those stocks, was not duly recognised, nor was the need to withdraw the State from production activities and instead strengthen its regulatory role.

The following additional factors have influenced current fisheries policies (Anon, 1996b, 2002d,2005j) in practice in Guyana:

- ❖ The establishment of the 200 miles fishery zone and exclusive economic zone by most countries, and the global agreement of conditions arising from this development as set out in UNCLOS.
- ❖ Changing economic circumstances and policies in Guyana, demanding the removal of subsidies to the industry.
- ❖ The current international accord of the "Code of Conduct for Responsible Fishing" (FAO, 1995).
- ❖ The HACCP requirement for quality control in fisheries that is being introduced by the major importing countries such as the United States, Canada, and the EEC.

As a consequence of these factors and the evolution of thinking about fisheries management, the major operational objectives of current fishery policy of Guyana, could be characterised as follows:

- improved management of renewable natural resources to achieve long-term stability and sustainability;
- expansion of export earnings;
- restructuring of government services;
- development of new cost recovery mechanisms for extension and other services to industry;
- development of effective education and training programmes;
- expanded production from aquaculture through private investment and/or joint venture arrangements;
- expanded harvesting of under-utilised marine fish species through private investment and/or joint venture arrangements;
- upgrading of seafood product quality and food health standards to protect and promote export markets;
- improved legislation and regulations, and expanded surveillance and enforcement capabilities, to protect Guyana's marine resources within the EEZ;
- development of new structures to promote industry and producer participation in resource management and regulatory activities;
- development of new strategies to reduce poverty, to protect food supplies, and to promote socio-economic development in coastal and inland communities, and specifically concerning the participation of women in the fishery.

5.1.12

Iceland

The fishery policy of Iceland aims at achieving sustainable utilisation of marine resources and basing management decisions on the best available scientific grounds (Anon, 2005e). The major policy initiatives include the following:

Conservation and sustainable utilisation of the living marine resources in Icelandic waters

The objective set by the Government is to ensure that utilisation of commercial marine stocks in Icelandic waters will provide maximum long-term biological yield and economic results.

Harvesting strategy is based on scientific grounds and on utilising the catch with minimum waste and maximum production value. Fisheries management shall provide implicit encouragement for the proper treatment of living marine

resources and the most economic use of all fisheries inputs. Decisions shall be based on clear premises and the preparatory process shall include extensive consultation. Decisions shall be actively enforced through effective surveillance and control.

Rules shall be developed providing for the utilisation of individual commercial stocks. In formulating such catch rules, the precautionary approach shall be followed with the aim of achieving maximum long-term yield.

Support shall be given for the development of selective fishing gears which are safe for the environment, the resource and the catch and their use shall be encouraged. The Ministry sets rules aimed at ensuring good handling of the catch. Discards of usable fish are prohibited and fisheries shall be managed with the aim of decreasing the possibility of such practices.

Fishing is prohibited in designated areas or with the use of certain types of fishing gear in order to protect spawning fish and juveniles. Ocean areas are kept under surveillance in order to enable prompt action.

Processing regulations shall always be aimed at preserving the wholesomeness of seafood products from catch to consumption. The use of best production technology shall be promoted together with environmentally appropriate practices. The aim is to utilise the whole catch.

Research policy

The policy is to have an effective marine research and research in seafood processing carried out in Iceland to ensure application of the best scientific knowledge in each instance. Co-operation with domestic and foreign scientific institutions and other parties is sought for this purpose.

Research shall be carried out on the marine ecosystem, commercial marine stocks, fishing gear and in oceanography and emphasis placed on multi-stock research. Active participation in international co-operation, for instance within the International Council for the Exploration of the Sea, is important to obtain a critical assessment of the methods used in Iceland and for the application of the results of the most recent research.

Research on the handling and processing of seafood is aimed at providing the Icelandic processing industry with continual access to reliable information on how to improve the utilisation of the catch and other processing inputs.

The Ministry places emphasis on research in various disciplines that are applicable in resource management, such as in economics, marketing, law, political science, sociology and geology.

Fishing in international waters

The policy is aimed at sustainable utilisation of the living resources in international waters. Decisions on fisheries management are to be based on the best scientific evidence available. The Fisheries shall be managed in accordance with appropriate international rules, by competent institutions or organisations. Only those adhering to set rules should be granted permission to fish in these areas.

Emphasis is placed on basing utilisation of stocks in international waters on catch rules, on having effective surveillance systems and a management system that can react promptly to indications of changes in the ecosystem.

Research in international fishing areas shall be increased and use its influence to ensure that the parties carrying out research in each area are duly rewarded.

Pollution and effluents

Increased research on ocean pollution will be promoted through environmental monitoring and investigation into the effects of pollution on the ecosystem and seafood products. Concluding international agreements and necessary measures for preventing all discharges of persistent and radioactive pollutants into the oceans from threatening the biosphere, will be given adequate emphasis.

Energy consumption

The Icelandic seafood industry is encouraged to keep energy consumption to a minimum and use renewable sources of energy wherever possible. Emission of substances contributing to global warming shall be reduced as much as possible, taking into consideration the nation's dependence on the fisheries.

Trade

In the international arena, Iceland will promote free trade in fish and fish products, together with the elimination of government subsidies which encourage over-utilisation of living marine resources and damage to their environment. The Ministry of Fisheries opposes the use of market access restrictions as a tool for influencing utilisation of marine resources.

5.1.13 Indian Ocean Southern African Development Community (SADC) member states

Broad goals

In common with many countries, SADC Member States generally have a range of potentially conflicting objectives for the fishery sector. It is not uncommon to find for instance that policy aims to increase domestic fish supply in order to contribute to food security goals whilst attempting at the same time to increase foreign exchange earnings from the sector (SADC, 2005). Although achieving both goals simultaneously is not always impossible, as resource exploitation levels increase, trade-offs between goals are increasingly required if the sustainability constraint is to be respected. Most countries explicitly recognise the need to ensure conservation and sustainability, but the implications of this constraint for the nature of the contribution that the sector might make to economic development could benefit from further reflection. In particular, the role of fisheries within the macroeconomic context of the different SADC countries could be usefully explored. In Mauritius, the 1998 Ten-year plan explicitly recognises that the potential for further development (in capture terms) of marine capture fisheries is limited and that therefore the focus must switch to maximising returns from existing fisheries.

Stakeholders

There is a tendency in SADC States to see the fishers who exploit the resource as the principal stakeholders. Emphasis may be placed on fisher groups (such as co-operatives and associations) because these are easier to identify and assist. However, it is acknowledged that a wide range of potential stakeholders exist in fisheries.

Participation in the definition of fisheries policy

SADC countries tend to consult widely in the formulation of fisheries policy. In South Africa, stakeholder input is channeled to the Minister through a statutory body (the Consultative Advisory Forum) and Mozambique uses a similar approach with the Minister advised by a Fisheries Administrative Commission (SADC, 2005). In Mauritius a very broad consultative process, involving a series of workshops on key issues with stakeholders, was followed in the development of the 10-year plan, and Tanzania and Zanzibar followed a similar approach when developing policy. Countries which do not yet utilise similar approaches might usefully draw on the experience of other SADC Member States in order to develop mechanisms to incorporate a broader range of stakeholders into policy-making.

Gender issues

Where the gender issue is specifically addressed it is in terms of ensuring equality of rights. In the case of both Seychelles and Mauritius, the issue is not specifically addressed but this seems to be because it is felt that gender has never been a barrier to access to jobs or business opportunities. Where gender might be a problem, it is not clear from the national reports to what extent women suffer either because they are paid less than men (or nothing at all) for doing the same work or because they do not have the same opportunities as men to attain posts of responsibility and better-paid work generally (SADC, 2005).

Prioritisation of the goals of national fisheries policy

When asked to prioritise the goals set out in the Code of Conduct, it is interesting that almost all national reports placed first the objective of ensuring that “excess fishing capacity is avoided and the exploitation of the stocks remains economically viable”. Countries should therefore be encouraged, and where necessary assisted by FAO, to implement the International Plan of Action on Overcapacity. In pursuing the goal of avoiding excess capacity, countries take into account the fact that only economically-based management instruments appear capable of achieving it (SADC, 2005).

5.1.14

Jamaica

The primary agency with the responsibility for the management, development and regulation of fisheries and aquaculture is the Fisheries Division, Ministry of Agriculture. The main policy instrument guiding the development and management of the capture fishery is the Fishing Industry Act, 1975 and the Fishing Industry Regulations, 1976 and the Morant and Pedro Cays Act, 1907 (Kong Andre, G, 2004.). There is no existing legal frame work for the management and development of aquaculture. However, the establishment of a new comprehensive Fisheries Act is in a very advanced state, and this should be enacted by early 2006. The new Fisheries Act provides for the employment of appropriate capture and culture fisheries management and development strategies.

FAO provided technical assistance to the Fisheries Division of the Ministry of Agriculture, to develop for the very first time a national fisheries policy framework and strategic plan. It is expected that the policy and plan will provide guidelines and activities that will mitigate the decline in the capture fisheries, and improve the economic, social and environmental state of both the capture and culture sub-sectors.

The model used by the Fisheries Division in developing the policy and strategic plan was one of stakeholder consultation and participation in the development process. To this end the Fisheries Division embarked on a series of consultative meetings with stakeholders throughout Jamaica that began on 18 August 2003 and continued into November 2003. Stakeholders included capture fishers, the aquaculture industry and Government agencies which have complementary and or convergent mandates in Jamaica.

The results of the stakeholder consultations formed the basis for the drafting of the national fisheries policy document. This draft was then presented, discussed and further refined by the stakeholders at two regional meetings, the first in Montego Bay in March 2004 and the second in Kingston in April 2004. The draft policy and other specific consultations were used to guide the direction of the new fisheries legislation. Final reports on both the policy and strategic plan and on the legislation are expected to be available by July 2005.

5.1.15

Japan

Japanese fisheries can be divided into three main types: 1) distant-water fisheries, 2) off shore, and 3) coastal fisheries. These three categories are quite different both in terms of resource management and fishing techniques used. The three types of Japanese fisheries have distinct characteristics in terms of how they are managed (FAO, 2000c). The following will highlight the three management systems but will provide information on the coastal type fisheries that are of special importance to fishing communities due to the number of people employed.

The principal laws that regulate fishing activities in Japan are “The Fisheries Law”, the “Living Aquatic Resources Protection Law” and the “Law Concerning Conservation and Management of Marine Living Resources.” These laws were amended in 2000-01 to be in line with the "Basic Law on Fisheries Policy". The central and prefecture governments regulate fishing efforts in terms of fishing method, gear use, fishing seasons and other technical measures (FAO, 2000c).

Coastal fisheries

The basis for the management of coastal fisheries is a fishery right system divided into three types i.e.,

- Common fishery rights
- Demarcated fishery right
- Set-net fishery right

with the common fishery right system being the most common and “normal” practice. The demarcated right system is used in the mariculture industry. The set-net fishery right is exclusively used in set net fishing operations. Coastal fisheries are characterised by small-scale operators with strong community links and are of particular importance to the coastal regions. Due to serious problems of depletion of some of the coastal resources, a system of Total Allowable Effort (TAE) has been introduced.

The right to fish is granted by the prefecture government to the local Fishermen’s Co-operative Association (FCA) with responsibility for a particular geographical area and whose membership are fishers from communities within this area. These rights granted to the FCA are exclusive but the rights cannot be transferred to others and only members of the FCA can fish in the area where the right is applicable. Rights to fishing given by the prefectures specify season, area closure and other regulations but do not set harvesting limits. Subsequently the FCA sets specific rules within the framework laid out by the prefectures. Any resident in the area of the FCA can become a member under certain conditions and start fishing but in practice, as fishing rights are transferable within families, this does not often happen.

For the purpose of the Japanese census, planning and implementing community-based fisheries management (CBFM), FCAs often set themselves up as (or merge into) Fisheries Management Organisations (FMO). FMOs are usually gear specific groups of fisheries (members of FCA) and according to the 1998 census the number of FMO totaled 1734 and have the following functions:

- Management of fish stocks, fishing grounds and catch/harvest
- A voluntary association of fishers
- Active management of resources within its geographical area

Distant water fisheries

Participation in distant water fishing is limited through licences issued by the central government. Licence conditions specify gear use, fishing grounds, fishing season, base port and other relevant conditions. Due to the importance of the Japanese long distance fisheries operations, Japan is a member of several international frameworks for the conservation and management of tuna stocks.

Japan participated in the negotiations for establishing the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. Furthermore, Japan has participated in the “Interim Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean”

and has carried out resource evaluation and other measures for tuna and tuna-like species in this area.

Japan has been making efforts towards the establishment of an appropriate framework for the management and conservation of tuna and tuna-like species. In this regard, an interesting private initiative was the launch of the Organisation for the Promotion of Responsible Tuna Fisheries (OPRT). The activities of this organisation include the scrapping of tuna long-liners engaged in IUU fishing activities, while listing of tuna vessels and eco-labeling with the purpose of ensuring responsible high seas tuna fisheries.

Off shore fisheries

Off shore fisheries are regulated through a TAC system introduced in 1997 combined with licenses that are issued by prefecture governments. Today the TAC system which includes 7 major species of high economic value which are caught in large volumes needs management options. The most important off shore fisheries that are all managed with TACs include Alaska pollack, jack mackerel, sardine, mackerel, saury, common squid and snow crab.

The seven fish species that are subject to the TAC system covered about 30% of total fishing in Japan during 2000. The TAC system assigns TAC allocations to each fishery separately, not to individual fisherman. TACs are set by the central government (Fisheries Agency).

As part of fisheries policies relating to the EEZ, the total allowable catch (TAC) system has been introduced with a view to establishing a framework for the conservation and sustainable utilisation of fishery resources.

In order to secure a sustainable level of outputs from culture fisheries, it is important to apply proper management in respect of the quantities of fry to be released as well as the types and quantities of feeds to be given. It is essential that mariculture be implemented within the carrying capacity of farms and that proper measures taken to reduce any damage and loss of fish due to fish diseases.

Policy Aims

Current Japanese fishery policy is mainly focused on improving the productivity of fisheries and increasing fisheries production. While doing so, emphasis is given to rehabilitation of the state of fishery resources within the EEZ so as to increase fish production while reducing excessive fishing effort. The TAC system

is properly implemented in the light of the Law Concerning Conservation and Management of Marine Living Resources, to increase the effectiveness of fisheries management.

Fisheries management needs to be strengthened to widen regulatory measures to cover wide-ranging migratory species and to improve control methods for multi-species and multi-gear fishing. Also, it is important to evaluate the effects of fish farming on wide-range migratory species in order to maintain and increase fish resources.

Currently, a key objective in national policies is to implement responsible fisheries so as to conserve and manage fisheries resources on the basis of scientific evidence. Also, it is of importance that the government plays an important role through active participation in the conservation and management of fish resources in international waters.

Rehabilitation and sustainable utilisation of fishery resources within the EEZ will help stabilise not only fisheries enterprises, but also revitalise production activities in fishing centres, which will be indispensable for converting fishing and related activities into an attractive industry.

Giving due consideration to the current situation, Japan has developed an outline new fisheries policy focused on proper conservation and management of fisheries resources, and sustainable utilisation of those resources.

5.1.16

Korea

Korea's fisheries policies focus on sustainable fisheries (Young-Gyu Kim, 2004). Korea's coastal and pelagic fisheries are confronted with declining fishery productivity due mainly to depleted fisheries resources from oversized fishing fleet and uncontrolled fishing activities. Some types of coastal and pelagic fisheries that use similar fishing gear and fishing methods will be integrated and / or rearranged. The use of fishing gear with high fishing intensity such as gill net and fish pots will be restricted and, at the same time, a system calling for fishing gear to be marked to identify the owner will be introduced to prevent illegal, unreported, and unregulated fishing activities and careless disposal of wasted fishing gear. Korea's pelagic fishery advanced to the Indian Ocean for tuna fishing in 1957, and began to see positive developments in a consistent manner by the mid-1970s. However, with the 1973 and 1979 oil shocks and the 1977 proclamation by major coastal states of the 200 Exclusive Economic Zone, Korea's fishing grounds for pelagic fisheries have been greatly curtailed. Also stricter regulations by coastal countries impeded Korea's fishing activities.

Incidentally, Korea's aquaculture industry is threatened due to excessive production activities and increases in cheap import products. Also, repeated natural disasters such as typhoons and red tides have caused increases in the recovery costs. Therefore, the Korean government has taken counter-measures such as suspending issuances of new licenses for dried laver, brown seaweed, fish, and oysters, with an aim of keeping output of cultured fisheries at a reasonable level. If fishermen renounce their licenses, due to natural disasters such as typhoons, structural readjustments are conducted in close connection with disaster recovery efforts. A switch to a permit system from the current report system for land based fish farms focuses on controlling reckless construction of fish-farming grounds.

Korea's stock assessment and management policy including the Total Allowable Catch system(TAC)

Since 1995, the Korean Government has rearranged the concerned statutes to prepare a legal basis for enforcing the TAC system, and prepared institutional frameworks such as the criteria of quota allocation, catch report system, and control and surveillance. The government has been implementing these measures since 1999. Nine commercial species are under the TAC system, such as mackerel, sardines, jack mackerel (pelagic large scale per seine), red large crabs (pelagic pots), large crabs (pelagic gill nets or pots), purplish Washington clams, pen shell (fishing by driving), blue crabs (gill nets) and top shell in Jeju Island (artisanal fisheries). The Observer Programme has been operated in tandem with the TAC system, to promote the successful implementation of the TAC system. The Observer is responsible for guidance and management activities, such as managing the systematic catch, collecting scientific data for marine life resources, and checking the status of compliance with concerned laws and ordinances.

Korea's Policy to Regulate and Eliminate IUU Fishing

The Korean government has prepared the changes in the international fishery order and the IUU fishing cases by Korean fishing vessels. It also has made great efforts to revise and develop relevant laws and regulations along with administrative systems in order to implement the action plan. Additionally, the Korean government is authorised to impose both judicial penalties – such as imprisonment or fines and administrative punishments such as suspensions of fishing licenses – to deter unlicensed fishing activities or violations of the restrictive regulations.

The Ministry of Maritime Affairs and Fisheries, National Maritime Police Agency, and local governments jointly administer the guidance and control of

illegal fishing. They also perform on-the-spot surveillance activities by arranging fishing supervision vessels and Marine Police patrol vessels all over the sea areas. Recent stricter surveillance by Korean Government and enhanced public awareness among fishermen about the sustainable management of fisheries resources has greatly contributed to eliminating illegal fishing.

Management Policy for Marine Ecosystem

The productivity and profitability of fisheries resources are threatened, faced with declining fishing grounds with the proclamation of the EEZs by the coastal states, resource depletion and marine environmental degradation, due to competitive exploitation among fishermen. In this connection, people are becoming increasingly concerned about how best to manage marine ecosystem.

The installation of marine habitats for artificial fisheries resources – such as artificial reefs, artificial seaweed beds, and submarine forests – shall be expanded to coastal seas. Also, environment friendly fisheries resources will be created to promote the consistent and sustainable production of fisheries products. An appropriate way to ensure this is to release seed that matches the natural environment.

The Korean government encourages fishermen to actively participate in ecological activities for the protection of the marine environment. Such projects as collecting discarded fishing nets, dredging out accumulated pollutants, and introducing the Governments Purchase System of Marine Wastes will promote the restoration of the coastal marine ecosystem to a healthy level and result in preventive measures to stop further deterioration. Also, the government works to protect the marine ecosystem by expanding the designation of marine protected areas.

Additionally, Korea will reshuffle legal and systematic infrastructures to restrain the inflow of land-based pollutants to seas, in order to ensure the conservation of tidal flats, wetlands, protected areas and ecosystem preservation areas.

Some subsidies that help restore fisheries resources and protect the marine ecosystem will be sustained and / or expanded further. Also, even in the case of abolishing or reducing fishery subsidies, a considerable period for implementation and postponement will be required to adjust to the changes in external conditions.

The policies shall be implemented with the focus on the management of coastal and pelagic fisheries resources and the improvement of marine environments.

The ultimate goal, is to pave the way for sustainable fisheries. To this end, the Korean government will try to maintain proper fishing intensity through the continued restructuring, in order to match the quantity of resources. Korea will also drive forward with various government-driven projects to create new fisheries resources, along with settlement and expansion policies for fishermen working self-managed fisheries. Within the TAC system, which prevents over-exploitation of fisheries resources and protects fishing ground environments, the use of formulated feed in farming grounds, and the introduction of the direct payment system – such as a system calling for moratorium years for mariculture grounds will be promoted.

Korea will devote itself to developing the fisheries industry for the North Pacific Rim countries in a sustainable way. To achieve this various policies will be formulated and, Korea will actively participate in the management of fisheries resources in the international arena.

5.1.17

Maldives

The fourth National Development Plan covering the period 1994 to 1996 was organised on a sectoral basis with the following objectives for the Fisheries Sector (FAO, 1998):

- Increasing inshore fish production to levels within the limits of maximum economic yield.
- Effecting strong management for conservation of marine resources. This included providing for marine biodiversity and endangered species protection and regulation and giving emphasis to fisheries resource management and assessment.
- Improving the legal framework for effective management of the resources and development of fisheries.
- Strengthening EEZ surveillance.
- Encouraging sustainable exploitation of marine resources in the EEZ.

The Fifth National Development Plan covering the period 1997 to 2000 was prepared on a somewhat different basis, presenting a hierarchy of six national objectives to guide development efforts, and nine key issues together with specific measures (Anon, 2005g). Items of direct relevance to the development and management of the Fisheries Sector include:

National Objectives

- To secure sustainable improvements in the living standards and quality of life of the population by pursuing appropriate growth strategies.

- To ensure the sustainability of physical and natural resources by focusing on appropriate development and sound management.

Priority Issues and Specific Measures

- Pursue appropriate growth strategies. Stimulating and fostering the fishing industry, and particularly focusing on MIFCO, and encouraging further investment by the private sector, to maximise returns to local fishermen.
- Implement sound environmental and natural resources management. Some of the specific measures to address this issue are: (i) Ensure that the future planning is for sustainable development and that sound environmental assessment and management is an integral part of all future national, regional and sectoral planning exercises. (ii) Ensure that all existing development activities are subject to sound environmental management regimes and practices. (iii) Ensure that effective environmental law, institutional arrangements and enforcement are in place to develop and maintain a sustainable development regime including the strengthening of the capacity of the National Commission for the Protection of the Environment.
- Establish sustainable and balanced provision of infrastructure and delivery of services: This will be ensured through developing an infrastructure plan and public sector investment Programme across the country.
- Enhance the national education and skill level for employment.

The specific measures to ensure this are: (i) Restructuring, streamlining and upgrading institutions responsible for the delivery of technical, further and higher education and vocational and in service training and improving accessibility to these services. (ii) Seeking external assistance to significantly upgrade the country's technical, further and higher education and vocational in-service training capacity.

The central theme of Maldives fisheries policy relates to promoting the optimal utilisation of fisheries resources for social and economic development, within the fundamental objective of ensuring the sustainability of those unique marine ecosystems that comprise the country's primary resource.

5.1.18

New Zealand

Twelve founding principles for healthy fisheries underpins the development of the Fisheries 2010 Strategy (Anon, 2000a, 02a). These principles, listed below help to minimise or resolve conflicts between environmental, economic and social

objectives, and are already enshrined in environmental legislation such as the Resource Management and Fisheries Acts, in the Environment 2010 Strategy, and in international conventions.

Inter-generational Equity:

Use of fisheries resources should be carried out in a manner that sustains our economic, social and cultural values, without jeopardising the prospects of future generations.

Biodiversity: The utilisation of aquatic life should not compromise the existence of the full natural range of genetic material, species and ecosystems.

Environmental Bottom Lines: In managing the risks associated with the utilisation of fisheries, minimum biological standards that maintain ecological integrity will not be compromised.

The Precautionary Principle: Where there is limited knowledge or understanding about the potential for adverse environmental effects or the risk of serious or irreversible environmental damage from fishing, a precautionary approach must be used.

Research, Science and Technology: Research is crucial to gaining a better understanding of the environmental risks relating to the use of fisheries resources. Risk management strategies must be based on sound scientific research. In determining research priorities for fisheries, consideration should be given to the local, national, and international, and ecological dimensions of sustainable management.

Protecting our International Competitiveness: New Zealand will assist in protecting the international competitiveness of its fisheries businesses by improving its clean, green image, working with its trading partners to advance common interests, and playing a positive and active role internationally without getting out of step with other countries where this would significantly affect competitiveness.

Sustainable Property Rights: Fishing rights must be specified in a way that provides certainty and allocates responsibility to individual resource users to ensure that private and collective decisions achieve sustainable outcomes.

Least-cost Policy Tools: Government interventions should be evaluated to ensure that they are necessary and, if so, that the 'least cost' policy tools are adopted to achieve the desired environmental result.

Pricing of Infrastructure: The cost of access to fishery resources should reflect all costs related to providing such access including the cost of establishing and maintaining the necessary infrastructure. For instance, this would include the cost of research, administration and enforcement directly related to the Quota Management System (QMS) being met by the commercial fishing industry.

Internalisation of External Environmental Costs: Fisheries management policy should ensure that the un-priced environmental and spillover effects (or external costs) associated with fishing are 'internalised', that is, they are assessed and consistently charged, where appropriate, to those who cause the effect.

Defining the Limits of Fishery Resource Use and Substitution: To achieve sustainable management, there is a need to recognise opportunities for substitution of other production methods, while accepting community requirements for limits on depletion.

Social Costs and Benefits: Policies should be formulated and implemented to ensure that environmental, social and economic goals are mutually supportive.

5.1.19 *Norway*

The Norwegian Vision is to 'develop an efficient, competitive, sustainable sector attracting a competent workforce', with an expectation that the fisheries sector would contribute substantially to their economy in a 10 to 20 years perspective. The Government gives priority to the marine sector. (Ludvigsen Svein, 2004).

The vision is reflected in the Government's strategy for the sector, which includes;

- traditional fishing,
- ocean ranching,
- food processing industry, suppliers, as well as new industries based on bio-prospecting and biotechnology.

Research will be the main tool to further develop the marine sector.

5.1.20

Philippines

The fishery policy of the Philippines (BFAR, 2004) aims to:

- a. achieve food security as the overriding consideration in the utilisation, management, development, conservation and protection of fishery

resources in order to provide the food needs of the population. A flexible policy towards the attainment of food security shall be adopted in response to changes in demographic trends for fish, emerging trends in the trade of fish and other aquatic products in domestic and international markets, and the law of supply and demand;

- b. limit access to the fishery and aquatic resources of the Philippines for the exclusive use and enjoyment of Filipino citizens;
- c. ensure the rational and sustainable development, management and conservation of the fishery and aquatic resources in Philippine waters including the Exclusive Economic Zone (EEZ) and in the adjacent high seas, consistent with the primordial objective of maintaining a sound ecological balance, protecting and enhancing the quality of the environment;
- d. protect the right of fisherfolk, especially of the local communities with priority to municipal fisherfolk, in the preferential use of the municipal waters. Such preferential use, shall be based on, but not limited to, Maximum Sustainable Yield (MSY) or Total Allowable Catch (TAC) on the basis of resources and ecological conditions, and shall be consistent with the commitments under international treaties and agreements;
- e. provide support to the fishery sector, primarily to the municipal fisherfolk, including women and youth sectors, through appropriate technology and research, adequate financial, production, construction of post-harvest facilities, marketing assistance, and other services. The protection of municipal fisherfolk against foreign intrusion shall extend to offshore fishing grounds. Fish workers shall receive a just share for their labor in the utilisation of marine and fishery resources;
- f. manage fishery and aquatic resources, in a manner consistent with the concept of an integrated coastal area management in specific natural fishery management areas, appropriately supported by research, technical services and guidance provided by the Senate; and
- g. grant the private sector the privilege to utilise fishery resources under the basic concept that the grantee, licensee or permittee thereof shall not only be a privileged beneficiary of the State but also an active participant and partner of the Government in the sustainable development, management, conservation and protection of the fishery and aquatic resources of the country.

5.1.21

Somaliland

The Government of Somaliland has launched its first Strategy for Poverty Reduction and Economic Recovery 2004 – 2006 (SPRER). The SPRER is an

attempt to mobilise popular support for the country's development process, articulate a long- term plan for achieving these strategies and to provide a guide for formulation of medium- term objectives. The strategy (Ahmed H. O. Gulaid "Omane", 2004) aims to achieve the following national objectives within the coming 3 years:

- Revitalise and restore economic growth in order to generate more income and reduce poverty,
- Improve social services to the people so as to promote sustainable social welfare,
- Promote good governance characterised by transparency, accountability and discipline.

The SPREER identifies the fisheries sector as a priority sector due to its great potential for generating employment and income, enlarging and enhancing the nutritional intake of consumers, and increasing foreign exchange earnings through fish export.

The policy objectives are as follows:

- Maximising the output of the sector in order to raise the income levels of local fishermen.
- Creating new employment opportunities in the fisheries sector;
- Earning more foreign exchange through the export of fishery products;
- Increasing consumption of fish in the local market.

It is generally acknowledged that the most effective development strategy is to make sure that the fishing industry and its development is led by the private sector, while oversight and resource management is handled by the public and/or academic institutions.

The following priority areas were defined for 2004-2006:

- ❖ Rehabilitation of the existing fishing fleet;
- ❖ Addition of more boats to the existing fleet;
- ❖ Provision of sufficient fishing gear and accessories;
- ❖ Improvement of fish handling and processing facilities and techniques;
- ❖ Improvement of market outlets both internally and externally;
- ❖ Promoting research activities and training of personnel;
- ❖ Upgrading existing legal frameworks and formulating other relevant legislatives enhancing sectoral development.

Ever since Spain became a member of the European Community on 1st January 1986, its main lines of environmental and fishery policies have been established under common consensus within other Member States. Spain takes an active part in Community decisions through the Council of the European Union, where each Member State is represented by a Minister. In this Council, with executive and decision-making power, the national policies are coordinated with each matter, seeking the common good.

The Ministers' Council resolutions are subject to the standards and law represented in the Treaties upon which the European Union is governed. The first Treaty came into effect on 1st January 1958 "Treaty of Rome". The second was the object of lengthy deliberations which began with a study of a European Union Treaty, taking the first step with the Single European Act coming into force on 1st July 1987.

On 1st November 1993 the Treaty on European Union came into effect, also known as Treaty of Maastricht. Finally, a variety of changes were made by means of the Treaty of Amsterdam which took effect on May 1st 1999.

The need to reform the CFP

It has been 20 years since the basis for the Common Fisheries Policy were laid down and from 1st January 2003 there is a new CFP. Previously in 2001, the European Commission Communications with respect to the integration of environmental demands and the Environment Integration Strategy in the CFP and the Biodiversity Action Plan in Fishing came up. The publication of the Green Book on fishery, in March 2001, was useful as a starting point for a reform whose main objective is the sustainable development. Its basis is the necessary coordination between the fisheries policy and the Community environmental policy (Anon, 2005h).

Community Environmental Policy

The concern among the citizens of the European Union about the protection and improvement of the environment is more and more significant. This concern has been demonstrated through the texts of Treaties in such a way that it has become the main protagonist of all the Community policy.

The Amsterdam Treaty already includes Environment in Article 2 and highlights the promotion of Sustainable Development as one of the main European Union missions. This New Model of Development is accompanied, as Article 6 of the Treaty points out, by an obligation to integrate environmental considerations in

all actions carried out by the European Union. This provides for integrating environment into energy sectors, transport, agriculture, industry and tourism, fishery, urban environment, domestic trade, international cooperation, etc. The actions carried out by the Member States and by the Regions with financial aid from the Community Funds, integrate environmental considerations in a compulsory manner. Equally, the Community Environmental Policy is reflected in the directives, which aims to achieve this. The Directives on Environmental Impact on Birds and Habitats Directives for the protection of fauna, flora and habitats are especially significant. These Directives may affect extractive fishing and aquaculture.

The new CFP

The reform intends to find solutions to four aspects, viz:

- Conservation of fish population,
- Marine environment protection,
- Ensuring the economic viability of the fishing fleets, and
- Obtaining good quality food products for consumers.

To achieve this, the CFP has established long term objectives, adapting fleet capacity to the capacity of fisheries. Aid for renewal and modernisation of the fleet will be stopped, except for increasing safety and improving workers' labour conditions. In parallel, the CFP will establish more control mechanisms and greater uniformity, favouring the participation of the sector through the Regional Consultative Councils.

In addition to these major reform lines, the CFP is accompanied by several strategies and plans, namely:

- Strategy for sustainable development of European aquaculture
- Mediterranean Action Plan
- Inclusion of environmental protection requirements within the CFP
- Plan for the eradication of Illegal fishing
- Discards reduction Plan
- Measures to stand up to economic and social consequences of the restructuring of the fleet
- The Creation of unique inspection structures.

Regulations

Marine environmental protection and, especially fishery resources' protection is subject to a collection of agreements, regulations and standards at all levels: regional, national, community and international.

Fishing Regulations

Fishing and aquaculture make up an economic sector of great importance to the economy of Spain, as a whole. The Spanish Constitution 1978, invites Public Powers to modernise and develop all the economic sectors, with special reference to the Fishing sector. In this activity, as it happens with the rest of economic sectors, there are two major legislative frameworks.

a) Community and International Framework

Since the integration of Spain in the European Union, Community institutions have assumed great part of the fields that the State had concerning fishing, in accordance with the forecast contained in the 1978 Spanish Constitution. Thus, the Community Right, and therefore the Common Fisheries Policy, has become part of their internal organisation.

Within this Common Fisheries Policy, the European Union has exclusive competence of Marine Biological Resources Management. On the other hand, the great number of Fishing Agreements between the Community and Third Countries, subscribed on behalf of the Member States, contain the regulations that their fleet shall have to respect in these States' waters, with the corresponding obligation of watching over its fulfillment. The Common Fisheries Policy develops the Legal Regulation by means of Establishment Regulations and through Communications. At international level, international agreements lay down compromises for the States that orientate their fishing policy towards specific goals. The objectives stemmed from the Environment Conference and FAO Code of Conduct for Responsible Fisheries, which are part of the Legal Framework applicable to fishery, could be highlighted. Equally, and in commercial field, fishery products trade is framed within the World Trade Organisation Agreements, as may be technical barriers to trade, sanitary and phyto-sanitary measures, etc.

b) National and Autonomic Framework

In accordance with the jurisprudence of the Constitutional Court, the exercise of the State Regulation Authority demands an interpretation of the scope and the State's limits on legislative competence, defined in the Constitution and the Statutes of Autonomy. The Statutes of Autonomy attribute competences for the

development and carrying out of the State's Basic Regulation concerning organisation of the fishery Sector to the Autonomic Community.

The Law 3/2001 on the State's Marine Fisheries, regulates the strict field of marine fisheries, exclusive competence of the State and therefore, prohibited to the Regulation and Executive Act of Autonomic Communities. The Law contains the essential guarantees of the legal certainty in the definition of the Basic Regulation as regards the organisation of fishery sector, what would permit the Autonomic Communities to exert their development and carrying out competences of the State's Legal Framework, establishing the complementary organisations that meet their own interests.

Finally, in relation to aquaculture, it is significant to emphasise that Law 23/1984 on Marine Cultures, aims at the regulation and organisation of marine cultures in national territory, maritime terrestrial zones, rías, estuaries and lagoons in permanent or temporary communication with the sea, territorial sea and the EEZ, both public domain goods and private property (Franz Fischler 1999). All this, with no loss of competences and faculties assumed by the Autonomic Communities.

Protection Regulations and Environment improvement:

Respecting Regulations and Agreements on the fishery activity, whether they are international, Community, national or regional, is one of the major protection guarantees and improvement of the marine environment.

Any of the interventions, acts and policies developed for the protection and improvement of the environment, sooner or later have an impact on the oceans and their resources. Regulations that affect the appropriate treatment of all kinds of waste, protect the continental waters (rivers) that end up reaching the sea. The legislation relating to biodiversity conservation enriches the wealth in the biosphere, which marine environment is an important part of. Regulation on water quality, its treatment and purification affects the sea through the river basins. Regulation on protection and improvement of urban environment affects coastal populations, which evidently, very directly affect the coastal zone. The multidiscipline character of the relations among fishery, aquaculture and the environment, are well known and hence the environment protection is a key to success of fishing and aquaculture operation.

Protection and good use of marine protected areas is a source of employment and opportunities for the local fishery Community, attracting tourism and re-launching catch from controlled fishing.

5.1.23

South Africa

The fisheries policy is founded on the belief that all natural marine living resources of South Africa, as well as the environment in which they exist and in which mariculture activities may occur, are a national asset and the heritage of all its people, and should be managed and developed for the benefit of present and future generations in the country as a whole.

The fishing sector in South Africa consists of three main components:

- formal industrial component which is made up of a number of large and small companies, who harvest, process and market marine on a commercial basis;
- informal component, made up mainly of small operators and independent boat-owners, engaged in subsistence fishing; and
- recreational fishermen.

The new entrants mainly are members of historically disadvantaged communities.

The Ministry of Environmental Affairs and Tourism initiated the process of developing a national marine fisheries policy in 1994. Policy rests firmly on the main objectives and principles listed below:

- Optimisation of long-term social and economic benefits to the nation.
- Promotion of sustainable utilisation and the replenishment of living marine resources.
- Management and development of fisheries shall in all material aspects comply with the principles of the Constitution of South Africa and the long-term objectives and principles of the Reconstruction and Development Programme (RDP).
- Transparency and accountability in marine resource management.
- Fair and equitable access to resources.
- Management of living marine resources will be based on the best available knowledge and multidisciplinary research within the context of sustainable utilisation.
- Participation in resource management.
- Acceptable conditions of employment.
- National and provincial levels of management.
- Acts, regulations and strategies.

There should be a holistic approach to fisheries and the utilisation of marine resources, including the following goals:

- increasing the long-term absolute value contribution of fisheries to the GDP.
- increasing employment opportunities in the harvesting, cultivation, processing and non-consumptive use of living marine resources.
- investigating new resources and the enhanced utilisation of under-utilised resources.
- development of domestic and new markets and the expansion of value-added activities.
- development of tourism and recreation in coastal areas.
- creating and sustaining a stable and internationally competitive industry.
- addressing historical imbalances.

It is the objective of the marine fisheries policy to improve the overall contribution from the fishing industry. Since “fisheries” is relatively a small sector within the national economy, its contribution is expected to remain modest when measured in terms of macro-economic significance. Expansion of the sector's total activity is limited by the natural productive capacity of the living marine resources from which the activities derive, and the necessity to limit and control the total harvesting pressure according to what the resources can sustain on a long-term basis. In spite of these constraints, the fisheries sector is of great importance to the economy in several coastal regions, and for the livelihood of many communities. This perspective permeates all proposals put forward in the White Paper.

The White Paper of the Government released, outlines a system where fishers will be invited to bid for and obtain real, long-term rights (Anon, 1997). These rights will enable them to catch so-called quota species, e.g. hake, rock lobster and abalone. These rights will be transferable and inheritable. Attempts will be made to extend such rights to species which are not managed by a quota system, e.g. squid and line fish. A Commercial Public Company will be formed to rent quotas to those previously denied access to fishing rights. The main purpose of the company will be to allow small-scale fishing operators, with some capacity, to catch fish on a commercial basis. The company will be governed by the Companies Act, and the state will be the sole shareholder. The new fisheries policy will favour small to medium-sized enterprises and, in some cases, more affordable and less sophisticated fishing methods. The new access scheme will urge major fishing corporations to restructure their ownership, to assist in the empowerment of the previously disadvantaged, so permitting them to enter the bidding process on realistic terms during the first phase of restructuring.

The White Paper suggests numerous ways in which large fishing companies can help to empower previously marginalised groups. Among them are expanding equity ownership in companies, unbundling, mergers and the formation of co-operative and other forms of formal co-operation.

Restructuring is a matter of urgency, to reduce the uncertainty in the industry and to maintain and strengthen the international competitiveness of the industry. Phase -1 of the restructuring programme, will be implemented immediately. This will entail the establishment of a Commercial Public Company and an Implementation Committee. Phase-2 will constitute the passing of a new Sea Fisheries Act, already in the draft phase.

Marine fisheries will remain under national government jurisdiction, because these are national resources belonging to the nation as a whole. Recreational fishers (estimated number: 750 000) are currently barred from selling their catches. This will not change.

The White Paper makes allowances for "subsistence users" of marine resources, who have traditionally made use of shallow water resources as a source of food. The new policy will allow these fishermen to sell a part of their catch under certain conditions. The conditions are that: the fisher must be a member of a coastal community, the surplus must be sold locally, and no more than the daily limit may be caught.

5.1.24

Tanzania

The overall goal of the National Fisheries Policy is to promote conservation, development and sustainable management of the Fisheries Resources for the benefit of present and future generations. The policy includes the following major objectives (FAO (MNRT) 1997, Anon, 2000d):

- To enhance knowledge of the fisheries resource base.
- To establish national strategic research Programmes that are responsive to the fisheries sector:
 - Improving fisheries products utilisation and their marketability.
 - Develop national training and educational Programmes based on assessed needs and the use of national and international training institutions optimised.
 - To encourage and support all initiatives leading to the protection, and sustainable use of the fish stock and aquatic resources.

- Protect productivity and biological diversity of coastal and aquatic ecosystems through prevention of habitat destruction, pollution and over exploitation.
- Promote small scale, semi-intensive aquaculture systems with simple technologies and low capital investment. .
- Promote sound utilisation of the ecological capacity of water based areas as a means of generating income and diet.
- Promote effective farm and fish health management practices favoring hygienic measure_ and vaccines.
- Improve involvement of the fisher communities in the planning development and management of fishery resources.
- Improve availability, accessibility and exchange of fisheries information. .
- Incorporate gender perspective in the development. of the Fisheries sector.
- Strengthen collaboration on cross-sectoral issues between the fisheries sector and other sectors.
- Develop and strengthen inter-sectoral co-operation in general fisheries development to minimise operational conflicts.
- Pursue a continuing fisheries integrated programme of effective management of coastal zone to meet the ecological and social economic needs of the present and future generation.
- To strengthen regional and international collaboration in the sustainable exploitation, management and conservation of resources in shared water bodies.
- Effective utilisation of the Exclusive Economic Zone promoted and achieved.

Policy and Strategy Statements:

Policy Statement (1) To put to efficient use available resources in order to increase fish production so as to improve fish availability as well as contribute to the growth of the economy.

- Improve fisheries statistical data collection and processing.
- Facilitate development and maintenance of the fisheries and related infrastructure.
- Provide investment guidelines in the fisheries sector to facilitate creation of employment to the national and promote better industrial linkage.
- Regulate investment in the fisheries sector based on the available resources and capacity utilisation.
- Provide adequate extension services.
- Encourage self-help Programmes within the fisher communities.

- Encourage the fisher community (artisanal fisherfolk, fish farmers, etc) to form Fisheries Development trust Funds credit schemes as appropriate.
- Facilitate all initiatives geared towards availability of fisheries inputs (i.e. spares, gears, equipment, etc).
- Encourage domestic fish consumption.
- Provide mitigatory measures in fisheries development activities in order to resolve conflicting objectives.
- Improve and harmonise legislation.
- Improve licensing mechanism by issuing specific guidelines in key fishery, e.g. prawn fishing, artisanal fishing, etc,
- Require all fishing companies and operators to submit timely and accurate statistical information on their operations.
- Enhance the fisheries observer Programme in commercial fishing.
- Conduct joint surveillance and enforcement in collaboration with other related agencies and communities to ensure effective implementation of the fisheries and related legislation.
- Strengthen government revenue collection system in the fisheries section to ensure harmonisation with other agencies. The various fees and royalties to be regularly reviewed.

Policy Statement (2) To enhance knowledge of the fisheries resource base.

- Improve collection and processing of information for fisheries management purposes.
- Facilitate availability of research findings on the resources base through publication and/or other measures.
- Encourage the assessment of the fisheries resources.
- Promote resource of the under-utilised fish stocks for possible exploitation.
- Facilitate and promote acquisition and documentation of traditional fisheries knowledge.

Policy statement (3) To establish national strategic/applied research Programmes that are responsive to the fisheries sector.

- Identify priority national needs for research.
- Strengthen national Fisheries Research Institutions.
- Develop short, medium, and long-term national research plans.
- Promote national and regional research co-operation.
- Develop and maintain database of the national fisheries and related scientist and research findings.

Policy Statement (4) To improve Fisheries products utilisation and there marketability.

- Encourage the use of environmentally friendly fishing technologies and gear.
- Promote national capacities in co-operations with small scale industries to produce fisheries accessories.
- Encourage private enterprise development in the fisheries sector by promoting commercial fishing. Priority will be given to nationals especially in the territorial waters.
- Establish National quality control standards for fish products.
- Promote the use of improved and appropriate technologies in the post harvest handling and processing in order to improve the shelf-life of fish and fish products for local consumption and export.
- Ensure improved quality of fishery products to meet the requirement of the international markets.
- Facilitate the promotion of fish marketing and distribution in collaboration with the private industry and trade sectors.
- Promote the availability of fish and fishery products to low income groups.
- Encourage exportation of value added fish and fishery products.
- Regulate importation and exportation of fish and products in order to safeguard the National Food Security.
- Promote Eco-tourism and recreational/sport fishing.
- Control of ornamental fish trade.

Policy Statement (5) To establish National training and educational Programmes based on assessed needs and optimise the use of national and international training institutions.

- Develop national training Programme and implement it based on assessed needs to meet the human resources requirements of the fisheries sector.
- Develop curricula in national fisheries training and educational institutions based on assessed fisheries training needs.
- Assess regularly the fisheries sector training needs based on specific requirements for human resources with specific reference to fisheries development Programmes.
- Strengthen the capacity and infrastructure in the national fisheries training and research institutions.
- Collaborate with the Human Resources Development sector and others sectors and others sectors in the development of a sustainable funding mechanism.

- Develop relevant vocational training Programmes for artisanal fisherfolk.
- In collaboration with other sectors facilitate the development of a viable and sustainable scheme in order to improve access to national training institutions.

Policy Statement (6) To integrate conservation and sustainable Utilisation of the fisheries resources into the social economic programmes of the community.

Policy Statement (7) To encourage and support all initiatives leading to the protection and sustainable uses of the fish stock and aquatic resources.

Policy Statement (8) To protect the productivity and biological diversity of coastal and aquatic ecosystems through prevention of habitat destruction, pollution and over exploitation.

- Develop environmental impact assessment (IA) guidelines and ensure that EIA is carried out and taken into consideration in all fisheries sector projects.
- Promote the development of alternative sources of income generating activities to fisheries.
- Control/ban destructive fishing and processing methods.
- Monitor and review environmental protection measures applied in the fisheries sector.
- Promote protection of the fragile eco-system, eco-system processes and conservation of biodiversity programme.
- Protect endangered and threatened aquatic species throughout their life.
- Protect vulnerable species, habitats and areas of special ecological significance through accordance of special legal status to such areas e.g. marine parks, marine reserves and closed breeding areas.
- Discourage mining of live coral to minimise destruction of coral reef ecosystem in order to protect the coastal area environment.
- Collaborate with other relevant sectors to develop water quality monitoring system.
- Promote efforts that combat the spread of noxious-water weeds e.g. water hyacinth.
- Discourage the introduction or translocation of exotic species between water systems unless sound scientific evidence guarantees safety of genetic integrity of the eco-systems.
- Maintain and update regularly an inventory of all described fish and other aquatic species.
- Adopt relevant regional and International protocols and treaties for protection and conservation of the fisheries resources and aquatic environment.

- Promote collaborative management approaches with user communities to areas designed as protected areas such as Marine Parks and Marine Reserves.

Policy statement (9) To promote small scale, semi-intensive aquaculture system with simple technologies and low capital investments.

Policy statement (10) To promote the sound utilisation of the ecological capacity of water based areas as a means to promote diversification of income source and diet.

Policy Statement (11) To promote effective farm and fish health management practices favouring hygienic measures and vaccines.

- Initiate the establishment of code of conduct for aquaculture to provide guidelines to address issues such as site selection, construction, suitable species, and introduction of exotic species, water abstraction, spread of disease and effluent control.
- Establish effective procedures specific to aquaculture to undertake appropriate environment assessment and monitoring with the aim of minimising adverse ecological changes and ecological and related economic and social consequences resulting from water extraction, land use, discharge of effluent, use of drugs and chemicals and other aquaculture activities.
- Promote research to identify better performance species for aquaculture development.
- Encourage the use of available own farm resources rather than outside inputs.
- Promote the extension of viable aquaculture technologies appropriate for small scale and/or semi-intensive level.
- Produce and regularly update aquaculture development strategies and plans as required to ensure that aquaculture development is ecologically sustainable and allow rational use of resources shared by aquaculture and other activities.
- Encourage the private sector, non-governmental organisations (e.g: religious institutions, youth groups, etc) to participate in aquaculture development.
- Promote utilisation of small water bodies, dams and reservoir for aquaculture.
- Promote the integration of aquaculture into other farming systems among the rural communities.
- Promote where appropriate the inclusion of aquaculture in water supply and/or irrigation development programmes.
- Promote and propagate aquaculture in order to increase fish production and provide income.

- Ensure that the livelihood of local communities and their access to fishing grounds are not affected by aquaculture development.
- Establish, maintain and develop an appropriate legal and administrative frame work which facilitates the development of aquaculture.
- Ensure safe, effective and minimal use of therapeutants, hormones and drugs, antibiotics and other diseases control chemicals.
- Ensure the food safety of aquaculture products and promote efforts which maintain product quality and improve their value through particular care before and during harvesting and on site processing and in storage and transport of the product.

Policy Statement (12) To improve the involvement of the fisher communities in the planning, development and management of fishery resources.

- Encourage formation of fisher associations, co-operatives and groups and support their activities.
- Sensitise decision-makers at all level on the importance of involving fisher communities in the development of the sector activities.
- Encourage the involvement of the fisher community in policy formulation and implementation through their relevant institutions, i.e. village/councils, associations, etc.
- Identify issues relevant to community participation in the sector and collaborate with other related sectors to enhance their participation.
- Encourage formulation of project which aims at promoting involvement of communities in the management of fisheries resource.
- Facilitate and promote sharing and exchange of skills and knowledge through extension services.
- Entrust the management responsibilities of landing sites or other facilities and utilities to fisher communities.
- Facilitate the formulation of village by-laws relevant to the fisheries sector to enhance sustainable exploitation and utilisation of the resources.

Policy Statement (13) To improve the availability, accessibility and exchange of fisheries information.

- Build the capacity of the Fisheries Department to manage the fisheries information.
- Establish database on fisheries and related information.

- Maintain and regularly update a database on fisheries and aquaculture as well as experts, institutions, as well as resource base.
- Facilitate information exchange through documentation services and establishment of stakeholder network.
- Encourage and promote inter and intra sectoral exchange of fisheries information.
- Promote awareness of fisheries information sources and services available within and outside the country.
- Facilitate production and dissemination of the information designed to meet the needs of the user groups (scientists, policy makers, planners, fish farmers, industrialists, and fisherfolk).

Policy statement (14) To incorporate Gender perspective in the development of the Fisheries sector.

- Encourage inclusion of gender perspective in the planning and implementation of fisheries undertakings.
- Attend issues that affect or hinder women active participation in the fisheries activities.
- Encourage gender equity at all levels of fisheries development.

Policy statement (15) To strengthen collaboration on cross-sectoral issues between the fisheries sector and other sectors.

Policy Statement (16) To develop and strengthen inter-sectoral co-operation in general fisheries development to minimise operational conflicts.

- Collaboration with other sectors in the implementation of Agenda 21 National Programmes and recommendations on the Fisheries Sector.
- Conduct joint planning meetings with related sectors of both the Union and Zanzibar Government.
- Conduct joint meeting with all sectors related to Natural Resources tourism and environment in areas of training, information, enforcement, conservation and natural resources management.
- Disseminate information on regional and international trade protocols to fisheries stakeholder in collaboration with industry, commerce and trade sector.
- Promote fish and fish products marketing and distribution in collaboration with private, industry and trade sector.

- In collaboration with water and agricultural sectors, promote where appropriate the inclusion of aquaculture in water supply and/or irrigation development Programme.

Policy Statement (17) To pursue continuing Fisheries integrated Programme of effective management of coastal zone to meet the ecological and social economic needs of the present and future generation.

- Ensure that the Fisheries sector and fishing communities are represented and /or consulted in the decision making process and involved in other activities related to coastal area management, planning and development.
- Promote the establishment of procedures and mechanism at appropriate administrative level to settle conflicts which arise within the fisheries sector and between fisheries resource users and other users of coastal areas.
- Facilitate the adoption of fisheries practices that avoid conflicts among fisheries resource users between them and other users of the coastal areas.
- Promote multidisciplinary research in support of coastal area management in particular on its environmental, biological, economic, social, legal and institutional aspects.
- Promote the creation of awareness of the need for the protection and management of coastal resources and the participation in the management process by those affected.

Policy statement (18): To strengthen regional and International collaboration in the sustainable exploitation, management and conservation of resources in shared water bodies and the Exclusive Economic Zone (EEZ)

- Develop the national capacity in exploiting our territorial water and the Exclusive Economic Zone (EEZ) by entering in joint venture with countries or companies that have advanced fisheries.
- Strengthen environmental conservation strategies by improved surveillance against prohibitive fishing practices and water pollution through co-operation with other national and International institutions.
- The thrust is to harmonise relevant legislation for purposes of easy enforcement.
- Actively participate in Regional and International forums to enhance sustainable management of resources in the EEZ as provided for under UN conventions, and also in Inland waters.

The Vision for Uganda Fisheries is “*an ensured sustainable exploitation of the fishery resources at the highest possible levels, thereby maintaining fish availability for both present and future generations without degrading the environment*”.

The overall fisheries sector goal is to ensure increased and sustainable fish production and utilisation by properly managing capture fisheries, promoting aquaculture and reducing post harvest losses (Keizire Boaz Blackie, 2004).

The key elements of the fishery policy of Uganda are:

- Sustainable management and development.
- Decentralisation and community involvement in fisheries management.
- Investment mechanisms.
- Information.
- Investment.
- The Environment and fisheries.
- Aquaculture.
- Post-harvest fish quality and added value.
- Fish marketing and trade.
- Human resource development.
- Research.
- Planning and policy making.

5.1.26 *Federal United States*

For decades, U.S. federal fisheries policy (NOAA, 2004, Anon, 2005k) has relied on direct regulations to prevent Over-fishing. Such an approach has not eliminated Over-fishing, nor has it prevented the enormous waste and hazards of fishing under a destructive race for fish. Individual fishing quotas (IFQs), also called individual transferable quotas (ITQs), have proven effective in restoring health and sanity in a host of fisheries around the globe. In spite of these successes, there are a number of obstacles to IFQ implementation.

The American Fisheries Society (Anon, 2005k) promotes the:

- Well-being of North American fishes throughout their geographic ranges;
- Natural genetic variability of North American fishes within and among populations;
- Maintenance, restoration, and enhancement of North American ecosystems, biological communities, habitats, and their genetic and ecological diversity where possible;

- Increased scientific understanding of all aquatic-dependent species, biological communities, and ecosystems; and
- Actions necessary for the long-term conservation of North American aquatic-dependent species, biological communities, and ecosystems.

The Society also seeks to assist government agencies in fulfilling international treaty obligations of the United States, Canada, and Mexico with respect to aquatic species and their habitats and threatened and endangered aquatic species; to the extent consistent with the forgoing purposes, the Society seeks to promote the public's appreciation and understanding of the aquatic world, its biological diversity, its fishery communities, and its ecological processes.

The policy initiatives are spelt out in 8 Articles, which are as under:

[Article I. Jurisdiction of Fisheries](#)

[Article II. Administration](#)

[Article III. Research](#)

[Article IV. Management of Fisheries](#)

[Article V. Aquaculture](#)

[Article VI. Transplantation of Species](#)

Article [VII. Professional Education and Training](#)

[Article VIII. Public Information and Education](#)

5.2 Review of the policy initiatives of other countries with respect to the gaps in these policies

For many developing countries fisheries plays a significant economic role (>1% of GDP), while for a few, they have become major sources of wealth and economic growth e.g. Mauritania (where 16% of government revenue was generated by fishing) and Namibia (currently 10.1% of GDP)(SADC, 2005). Aside from these direct economic benefits, some 30-50 million small-scale fishers worldwide and a further 250-400 million dependents and/or fish workers rely on fisheries for livelihoods and nutrition. For centuries fish has traditionally been traded locally as a relatively high value commodity providing income supporting vulnerable livelihoods in marginal rural areas. Fish is also an essential staple food: not only is it the principal source of animal protein for over one billion people (supplying 25% total animal protein in developing countries, or 50% of protein for 400 million in African and South Asia), but it also provides micro-nutritional and health benefits, particularly during pregnancy and early child development. Increasing demand for fishery products has translated into strong real growth in price and phenomenal expansion of international trade during the last two decades.

The last 10 years have seen an increasing number of stark warnings related to the global state of fisheries. The most recent of these (World Bank, 2004c) considers that without a concerted effort to improve management, “the world is under imminent threat of collapse of some of its main fisheries, endangering the livelihoods of millions, reducing foreign exchange earnings of several developing countries and ravaging the health of the oceans”. Such statements are founded on accumulating evidence and represent the culmination of a period of uncontrolled, unsustainable growth beginning around the 1950s. This was fuelled by a combination of free and open access to resources and ever-increasing demand from global markets. Simultaneously, massive investment in new technology and increasing industrialisation of the industry ensured that fishing vessel aggregate power rating increased by 9% p.a. between 1965 and 1995 (FAO, 2002) and capture fisheries production by 6% p.a. between 1950 and 1970. The 400% increase in direct employment in fishing activities since 1950 vastly exceeds a figure of 35% for agriculture during the same period.

Although landings increased substantially during the earlier stages of this period of rapid increase in fishing effort, these are now peaking at around 120-130 million tons/yr. More recently, sustaining increases have entailed ‘fishing down the food chain’ (targeting progressively smaller, less valuable and previously discarded species) and increasing effort (simply fishing harder). Such trends inevitably stretch the resilience of water bodies beyond their abilities to respond, so that declining stocks and ecological change are now widely reported. The nature of the decline is conjectural due to lack of precise information on landings - although FAO has estimated that 30% of the world’s major fisheries are ‘over-fished’ and 50% ‘fully fished’, these figures doubtlessly hide a far worse picture of over-exploitation.

As a contribution towards addressing the emerging crisis in global fisheries, DFID intends to develop a work programme whose objective is proactive engagement with key international donors and like-minded partners within the two strategic areas outlined above – IUU Fishing and third country access agreements. The programme aims to strengthen international capacity to deliver effective fisheries management support to developing countries and enable fisheries to better contribute to growth and poverty reduction. More specifically, it will achieve this by

- tackling fundamental policy coherence issues which impede effective development ,
- improving the scope and quality of international development assistance,
- fostering increased alignment of international effort.

The programme will also draw on internal DFID resources and support UK government networks relevant to international fisheries.

5.2.1 *Review of Australian Fisheries Policy*

The development of marine policy in Australia has had a protracted and chequered history. Developments for the most part have concentrated upon jurisdictional issues and resource regimes. Jurisdictional issues were ‘settled’, if not completely resolved, in the late 1970s, leading to a consolidation of intergovernmental management arrangements on a sectoral basis. Despite the success of these arrangements, greater interest—both governmental and academic—has focused on integration between different resource management sectors. Fisheries policy and management reflect these broad trends and, like other marine resources face further challenges with the implementation of Australia’s Oceans Policy. As such, the policy framework established by the oceans policy is one of the most important developments affecting fisheries management into the future.

The Oceans Policy has developed from concerns over the limitations of sectoral management arrangements. It establishes a number of key arrangements that will affect fisheries management into the future (Marcus Haward et. al., 2001, Anon, 2004b). The introduction of Regional Management Plans (RMPs), for example, represents a new paradigm for ocean use by shifting decision-making to ecosystem-based approaches. Whilst considerable conceptual work has been devoted to articulating ecosystem management, few practical examples of such approaches exist upon which to model RMPs.

Fisheries and other marine industries are managed under sophisticated arrangements that deal with jurisdictional issues between governments, but little attention has been given to emergent imperatives such as cross-sectoral decision making. Existing sectoral regimes for managing ocean resources are retained under Australia’s Oceans Policy, but the basis of management shifts to a situation where fisheries activities are integrated within a ‘multiple use model’ of ocean governance. While it is too early to make judgments on the influence of the Oceans Policy on fisheries policy and management, an analysis of *Australia’s Oceans Policy* and its companion volume *Australia’s Oceans Policy - Specific Sectoral Measures*, provides some indication of future developments. The sectoral measures are those that ‘are being or will be pursued by the Commonwealth’. The Oceans Policy sets the ‘challenge’ for fisheries ‘to ensure ecologically sustainable fisheries that contribute to the social, cultural, environmental and economic well-being of Australians’ (Marcus Haward et. al., 2001).

In recognising that 'Australia's commercial fisheries management is well regarded internationally' the Oceans Policy reiterates that the 'many well-established fisheries ... must continue to be managed on an ecologically sustainable basis'. 48 specific policy initiatives or actions are identified in relation to fisheries management, ecologically sustainable fishing practices, stewardship, economic/regulatory instruments, structural adjustment, recreational and charter fishing, industry action, research and development and illegal fishing and compliance with conventions. In relation to aquaculture the challenge is 'to ensure that aquaculture industries are managed in an ecologically sustainable and internationally competitive manner which generates economic benefits for Australia. The policy notes that aquaculture is one of the fastest growing rural industries, projected to reach \$1.4 billion in value of production by 2005. The Commonwealth commits itself to 28 initiatives and actions in terms of ecologically sustainable aquaculture practices, industry development, research and development and health of aquatic animals. These initiatives and actions, as in other sectors, have been designed to advance the goals set for Australia's Oceans Policy.

Much of what is contained within the Oceans Policy builds upon existing practice within responsible fisheries agencies. As indicated above fisheries management at both Commonwealth and state levels is based on ecologically sustainable development. Currently the strategic plan of the Fisheries and Aquaculture Branch (within the Department of Agriculture, Fisheries and Forestry, Australia (AFFA) supports the development of 'holistic management frameworks' building a 'confident, competitive and export-oriented Australian fisheries'. This is not to understate the difficulties in developing such frameworks, nor the likely difficulties in implementing RMPs.

Increased focus on ecosystem approaches to management has emerged as a driver in fisheries policy. Developments in broader government policies, primarily through the implementation of Australia's Oceans Policy, reinforce the requirement that fisheries policy and management need to reorient towards an ecosystem-based approach. One of the most significant challenges affecting Australian fisheries policy and management has been the increasing external scrutiny of management.

The first policy statement covering Commonwealth fisheries — *New Directions for Commonwealth Fisheries Management* — was released in 1990. Australian fisheries management by the Federal Government was subject to a major policy review to help ensure that fisheries can meet new challenges and changing environmental expectations. While the current model of fisheries management has proved effective, it is opined that the Federal Government, the fishing industry and the community needs to be assured that it continues to deliver long

term sustainability of fish stocks and the economic and social well-being of communities right across regional Australia (Walker T. I., 2004).

"Over the past decade, Australia's fishing industry has had to cope with a range of new challenges and expectations". "These include the discovery of new fish stocks on the high seas, pirate fishing operations, the boom in aquaculture, impact of coastal developments, the threats posed by pests and diseases and demands for high standards of seafood quality." In addition, there is a growing pressure on the fishing industry to improve its environmental performance. Much has already been achieved in this area, particularly by the industry itself. Examples include the release of the Commonwealth By-catch Policy and the codes of responsible fishing practice for the South-East Trawl Fishery.

State governments have the responsibility for administering Australia's fisheries within three nautical miles from the coastline. Most fisheries are managed using a variety of input controls, although quota management systems are in place in a small number of fisheries. Management within the states is generally centralised within the relevant departments with responsibility for fisheries. The exception is Queensland, where the Queensland Fisheries Management Authority manages state fisheries.

5.2.2 *Review of Canada's Fisheries Policy*

Canada's fisheries are managed under a number of Acts, Orders in Council and other instruments but, while those give authority and sometimes include specific rules, they only state objectives in the most general of terms. Yet Canadian fisheries policy remains obscure and often contradictory. Calls for it to be clarified are increasing; the latest and, perhaps, most significant coming from the Auditor General of Canada who, in his 1997 report to the House of Commons, noted that the current status of the earlier policy documents is "unclear".

Fixed targets are, after all, easier to hit. The requirement for a clear statement of policy is, however, much more profound. For one thing, it is not enough that a policy states explicit objectives -- they must be achievable objectives. This is a particular problem with fisheries because, unlike almost any other economic sector, total turnover in the industry is limited by the ecological productivity of the ocean; while human activity can sometimes lower that productivity, through over-fishing for example, there is essentially nothing that we can do (in most marine fisheries) to raise it. Thus, it is not helpful to suggest that employment and profitability should be maximised while the resources are conserved. Those objectives are mutually exclusive and the best that can be done is to optimise some combination of employment and profitability within a constraint set by the

resources. Any worthwhile fisheries policy must explain how scarce and limited fish resources are to be distributed among competing human interests, which no explicit Canadian policy has yet done. Fisheries are also unusual in that the naturally-limited resource is held in common by all licensed fishermen and companies, with the Government of Canada acting as arbiter of their competing desires for increased access to the fish.

The Atlantic Canadian groundfish fishery has a severe over-capacity problem. Whether that means that too many people are dependent on the fish or that too much capital has been invested in the industry, the combination of people and money in the fisheries needs to be cut back. The corporate sector aims for a lean and profitable fishery, yielding the greatest net return to Canada, in which capital-intensive technology would play a key role. At the opposite pole, small-boat fishermen look to a labour-intensive fishery, in which employment would be optimised and the greatest share of the gross income of the industry would remain in coastal communities.

While a clear and explicit fisheries policy is thus essential, it would be a waste without an irrevocable commitment to follow it. The Atlantic Fisheries Restructuring Act embodied policy objectives of a sort by requiring both economic viability and maximisation of employment subject to those working in the fisheries receiving reasonable incomes. Yet, until the budget restraint of the 1990s, a series of subsidies undermined the economic viability, while unrestrained technological development (and the accompanying capital investment) reduced the proportion of the gross income from the fish that supported employment. For their part, reasonable incomes have been hard to discern, as licensees in some fisheries have enjoyed very good earnings while others have fallen far short. Most certainly, there is no sign that the policy objectives set out in the Act have been implemented in any decisive way.

The collective desire of some of the Canadian organisations is that some balance among these conflicting objectives should be sorted out immediately through a public debate that alone could generate a degree of consensus behind one or another vision of the future of the fisheries and then to express that consensus in the form of a clear statement of fisheries policy that would serve as a guide and a vision of the future for everyone involved in this sector -- fishermen, company shareholders, public servants and all.

The last comprehensive review of management policies for the Atlantic fisheries was completed 20 years ago and there was a growing awareness that fisheries policies were not keeping pace with an evolving industry. Having a clear direction and a strong set of principles was crucial for making sound changes to the fisheries management system. This prompted a fresh review of the Atlantic

Fisheries Policy in May 1999 to develop a vision and direction to guide fisheries management on Canada's Atlantic coast.

A Policy Framework for the Management of Fisheries on Canada's Atlantic Coast (Anon, 2005c) is the first comprehensive one created to guide fisheries management on Canada's Atlantic coast. It provided the foundation needed to make the necessary changes to address the long-term needs of the Atlantic fisheries. It provides a clear vision, direction and guiding principles to guide decision-making in the Atlantic fisheries. The goal is to build an ecologically and economically sustainable Atlantic fishery. The policy framework promotes conservation and sustainable use of resources and habitat as the overarching, fundamental objective for fisheries management on Canada's Atlantic coast.

The vision for the Canadian Atlantic fisheries is that it will become a biologically sustainable resource supporting fisheries that are robust, diverse and self-reliant; effectively involve all interests in appropriate fisheries management processes; are sustainable and economically viable, contributing to the economic base of coastal communities; and provide for the constitutional protection afforded Aboriginal and treaty rights, where Aboriginal and non-Aboriginal resource users work collaboratively. The long term vision for fisheries management centres around the need to share responsibility for maintaining a biologically sustainable resource base.

The Department of Fisheries and Oceans uses a variety of management techniques to address instability and mitigate the common property problem in commercial fisheries (DeSantels D, 1999, Anon, 2002b). The choice of management methods depends on species characteristics, specific fleets and locations fished. Such methods include regulating the type and size of gear used, vessel length, fishing times and areas. Other tools for regulating access and effort include catch limits, limiting the number of licenses available to fish, and quasi-property rights (individual quotas) in some fisheries.

5.2.3 *Review of the fishery policy of China*

In February 1992 the Standing Committee of the National People's Congress (NPC) of China adopted the Law of the People's Republic of China on its Territorial Seas and Adjacent Zones. As China's important law in this particular field, it provides a legal basis for the country to exercise sovereignty over its territorial seas and jurisdiction over the adjacent zones and safeguard the state's safety and marine rights and interests (Anon, 1998).

China adopts the policy of placing equal stress on development and protection, to guarantee the sustainable utilisation of marine resources. It will

comprehensively develop and utilise its marine resources, continue to explore the oceans for new resources, make use of new technologies, and form and develop new marine industries to promote the sustained, rapid and healthy development of the marine economy.

China has worked out a Programme for the coordinated development of marine resources and the protection of the marine eco-environment and in line with the principles of "putting prevention first, combining prevention with control" and "making the causer of pollution responsible for treating it," improve the monitoring, surveillance, law enforcement and management of the marine environment. Stress will be laid on strengthening the control of land-sourced pollutants and implementing the system for controlling the total quantity of pollutants, in order to prevent the marine environment degenerating (Anon, 1998).

China is paying attention to basic research and marshal all necessary forces to tackle key oceanographic problems, develop marine high-techs, and constantly improve the technological levels of marine development and services. This will speed up the promotion and utilisation of advanced and applicable technologies, and consistently narrow the differences between the regions in terms of the technological level of marine development.

In recent years China has made constant efforts to upgrade the maritime fishing, transportation, salt-making and other traditional industries. At the same time, it has spared no effort to develop the industry of marine reproduction and mariculture, offshore oil and gas, tourism, marine pharmaceuticals and other burgeoning industries. It has actively explored new marine resources as far as possible, and promoted the formation and development of some potential marine industries, such as deep-water mining, comprehensive utilisation of seawater, and power generation with marine energy. In 1997 the total output value of the major marine industries, including ocean fishing, salt-making, the salt chemicals industry, marine transportation, shipbuilding, offshore oil and gas, and tourism, topped 300 billion yuan. As a result, these industries have become forces actively promoting the development of China's economy as a whole (Anon, 1998).

There are several critical general policies, which have led to the noticeable development of aquaculture at different periods of time in the country that are useful as lessons for further study and possible adoption. The Government's policy till the 1970s was to push for full participation of its people in the economic life of the country including in the aquaculture sector. Full participation was mandatory from pre-harvest (production) activities to post-

harvest - primary handling and secondary processing activities (distribution and consumption). The primary goal was food self-reliance.

In 1997 the total output of China's ocean fishing industry came to 13.854 million tons. Organs and laws aimed at marine environmental protection have been gradually established, and the people's consciousness of the importance of protecting the marine environment and abiding by the laws has been further strengthened. While expanding deep-sea fishing and international fishing cooperation, China adheres strictly to relevant international maritime laws, pays full attention to protection of the eco-environment and, in the light of the principle of "equality, mutual benefit, rational development of the exploitable resources, and abstention from infringement on the interests of other countries," actively develops fishing cooperation with relevant countries and regions, in order to jointly expand the fishing economy. Since the 1980s, China has established cooperative fishing relations with more than 30 countries and regions.

In 1979 China began to adopt a fishing permit system to curb reckless fishing and in 1987 the country began to control fishing boats' horsepower. Since 1995 China has practiced a new midsummer moratorium system--every year during July and August fishing is banned in the sea areas north of 27 degrees north latitude. The new system has achieved encouraging economic, ecological and social results and the midsummer moratorium area will be expanded to 26 degrees north latitude and its duration will be lengthened to three months. China attaches great importance to the marine reproduction and the reproduction of fisheries resources, and has always insisted on the marine reproduction and releasing of prawns and other species, a measure which has achieved positive results.

A sequence of measures have been taken to further strengthen the eco-environmental protection of spawning grounds of saltwater fish and shrimps, feeding grounds, wintering grounds, migration channels and aquatic farms. A multilevel setup for the protection of the fisheries environment has been established by the state and coastal region authorities, including 15 monitoring stations at and above the provincial level around the country and a number of marine life protected areas in major fishing grounds.

In recent years China has made further efforts to promote the investigation and exploration of marine resources and the marine environment, search actively for new exploitable resources, study new techniques and methods of marine resources exploitation and protection, train technical personnel in marine development and protection and spread oceanographic knowledge among the

general public in order to rouse the whole nation to protect the marine environment.

In 1996 government departments concerned jointly formulated the National Plan for Implementing the "Programme for Marine Development by Reliance on Science and Technology" in the Ninth Five-Year Period (1996-2000) and to the Year 2010, which focuses on research, development and dissemination of the technologies of marine reproduction and mariculture, fine processing of marine biological resources, exploration and extraction of marine pharmaceuticals and exploitation of chemical resources in seawater. Through implementation of this plan, China hopes to foster marine technology enterprises, improve the productivity of the marine industries, and make the technological progress factor rise from 30 percent to 50 percent in the output increase of the marine industries.

China has worked out a policy of utilising its deep-sea waters and coastal resources in a rational way. According to the policy, priority shall be given to the construction of harbours in deepwater coastal areas, and vigorous efforts will be made to develop marine transportation.

China carries out the policy of putting prevention first and combining prevention with control in managing existing marine pollution. While endeavoring to make a success in the protection of marine biological resources and the prevention and control of marine pollution, China makes the prevention and control of land-sourced pollution the focal point of its marine environmental protection work. A series of regulations have been drawn up to check land-sourced pollutant emission and enhance the monitoring, surveillance and control of the main pollutant-emission outlets.

To protect the ecological environment of fishing grounds, the Water Quality Standards of Fishing Grounds have been drawn up by the Chinese government and the Regulations on the Supervision and Control of the Environmental Sanitation of Shellfish-Raising.

China has put the issue of rational utilisation and protection of marine resources and the marine environment into the overall, cross-century plans for national economic and social development, and has adopted the sustainable development of marine Programmes as a basic strategy.

China is the largest producer of farm grown fish in the world today. Apart from the sheer size and population of the country, this achievement stems mainly from the pro-active government policies on fisheries, in general, and aquaculture, in particular. They appear to be both efficient and equitable.

Aquaculture in China developed through two policy regimes: the egalitarian model under centralised State planning from 1949 to 1978 and the open-market economy regime which extended from 1978 onwards.

The early egalitarian model under centralised State planning was primarily responsible for much of the progress achieved in securing food self-sufficiency in fish in China. Under such a model, the Government's first priority was to mobilise and organise all available national resources at its disposal to produce more food and raw materials to feed and clothe its people. With the benefit of hindsight and drawing on the experiences learned outside of China, China's aquaculture policy thrust and orientation is seen as having been both politically astute and correct. These policies, involving the full participation of China's rural communities, which in the early days constituted almost 80 percent of the total population, have been highly effective in making Chinese aquaculture what it is today: the world's top producer. In addition, they led to the creation and accumulation of real assets and wealth at the national, local and individual levels. Rural incomes and rural livelihoods were also significantly improved. The full participation policy of rural communities in aquaculture also developed the skilled aquaculture workers required to support the efficient development and expansion of the industry in the country.

Economic and policy reforms resulted in the country's development model of open market policies. They were the first contributory factors in the rapid development of aquaculture in China. Recognition of aquaculture as a developmental priority within the fishery sector; full utilisation of suitable water surfaces, mudflats and water-logged lands; establishment of a nationwide aquaculture extension network down to the grassroots level; promotion of aquaculture for poverty alleviation, food security and employment among the poorer provinces of the country by providing more funds and assistance through enacting preferential policies; and constant improvement of the legal framework and regulatory system, which provides meaningful safeguards for the sustainable development of the sector; were especially correct and timely policies and principles for the fishery sector (Ulf Wijkstrom and Jiansan Jia, 2002). They were the engines of this growth. Most of all, the food self-sufficiency policy continued to be the rallying building block and pillar of aquaculture development in China.

Along with its national policy to produce more food for its population, in the market-economy of aquaculture development model, the Chinese Government also embarked on an active export policy to earn the much-needed foreign exchange to purchase capital goods to re-build the economy. This export-led policy was in the national interest. The Government had definite beneficial backward linkages with multiplier effects on the country's economy all the way

to the local communities. Many productive entrepreneurial activities accrued from the derived demand for the exports. Chinese aquaculture, among other sectors, benefited from such a core policy.

Looking to the future in fisheries, aquaculture provides the single greatest potential and hope to not only fill the gap between the projected demand and supply of fish, but also to produce more food to feed the increasing population. With continued pro-active government policies, adequate advanced planning, scientifically designed production technologies and sound management, aquaculture in China is likely to be productively stable, sustainable, equitable and profitable. Contrary to recent negative experiences and growing doubts, responsible aquaculture intensification remains physically feasible, sustainable and profitable, at least in the short run. This is especially so given that less suitable water and land resources remain available for further expansion of the aquaculture sector, and the growing need to protect and preserve the natural environment. Such production intensification must be carried out responsibly and closely monitored based on the principles of the precautionary approach to aquaculture management.

The Chinese aquaculture development model and experiences provide valuable lessons to other developing countries in their efforts to promote and develop aquaculture (Ulf Wijkstrom and Jiansan Jia, 2002):

- Aquaculture can be developed in a sustainable manner to generate food and jobs, and improve income and livelihoods of rural and urban populations, thus alleviating hunger and poverty.
- The engine for an economically resilient and sustainable aquaculture is the Government's will and determination to establish sound policies in support of the sector development from investment in research, technology and extension services to the protection, conservation, and management of the natural environment and resources as well as the creation of market opportunities.
- Full employment of productive factors, including human resources, continuous improvements in legal and regulatory framework for the development of the sector, and scientific breakthroughs in production technologies will strengthen aquaculture and ensure its sustainability, thereby making aquaculture a good contributor to the country's overall economic growth through the supply of food, employment, foreign exchange and creation of infrastructures, especially in rural areas.

5.2.4 *Review of Fishery Management policies in the European Union*

The European Community in order to achieve a sustainable management of fisheries products has introduced and encourages the establishment of Producer

Organisations (P.O.). These organisations that are formed on a voluntary basis by regional groups of producers of one or more fisheries products are strategically positioned between primary production and marketing and are able to contribute in a substantial way to the management of the resources by organizing collectively the fishing activities and also by regulating the stability of the market. In this context, POs have the obligation to submit annually an Operational Programme to the Responsible Authority of the country where the planning of the fishing activities for this year is presented, including the marketing regime as well as the penalties imposed to its members in case of non-conformity with the provisions of the operational Programme (Anon, 2004g, Anon,2005b).

Belgium

Belgium is a member of the European Union, and its fishery policy is regulated by the European Union which imposes technical measures and quotas, and entails a number of administrative obligations. Technical measures include minimum size regulations, trip limits on sole, and gear restrictions. Belgium is allocated TACs of European Union stocks. Licensing of fishing vessels is required, and has been used to limit expansion of the fleet. The Belgian government has, since 1986, restricted the number of days at sea for vessels in order to curtail effort and seasonal catch limits are imposed to spread fishing throughout the year. Individual quotas have also been used since 1992.

Denmark

Denmark follows the EC Common Fisheries Policy that allocates quota to each member state. The Danish authorities then implement different management systems according to the stock characteristics. The main aim of national management measures is to ensure that the allocated quotas are utilised to as great an extent as possible. At the same time direct limiting systems have been introduced in certain areas, e.g. permissions (licenses), attached to species and/or areas. A variety of measures including seasonal catch limits, periodic bans, vessel rations according to vessel size, tie-up schemes, bonus quotas in the pelagic fisheries for vessels harvesting a high percentage of catch for human consumption. In addition vessel licenses are also required in either specialised or fisheries under special fishing pressure. These include the pelagics, cod, salmon, mussel and horse shrimp fisheries.

France

French maritime fisheries are managed under the EU Common Fishery Policy framework. The Ministry of Agriculture and Fisheries is responsible for

administering the sea fisheries and marine aquaculture sectors. Within this Ministry, the Directorate for sea fisheries and marine aquaculture is responsible for determining policy guidance with regard to sea fisheries and marine aquaculture, and implements the regulations relating to activities and public intervention in the sector. The Directorate divides out the fishing quotas awarded each year to France under the CFP between local and regional Producer Organisations. The participation and involvement of the sector in resource management is ensured in particular by the National Committee of Sea Fisheries, an inter-trade organisation representing all stakeholders in the sector. The National Committee must be consulted concerning any national or community measure regarding fisheries conservation and management, the conditions applicable to professional fishing and the working of inter-trade relations *per se*. The regional and local sea fishery committees, for their part, provide industry with technical assistance and information and play an active part in drawing up measures taken at the national level with regard to regional committees and social action. After consultation with these institutions, particular measures limiting the access to fisheries are taken, in order to achieve a rational and sustainable management of the resource: introduction of catch quotas, issuing of licences by the administration or by the sea fisheries trade association, etc. Concerning the Overseas French Territories, excluded from the Treaty of Rome establishing the European Community, the resource management within the EEZ is in general attributed to the Territories Administrations.

Germany

The rules of the CFP are implemented in national law by the sea fisheries act and several other national regulations. The Federal Office for Agriculture and Food allocates the national fishing quotas. Professional organisations will be consulted on the allocation of quota and takes into account the structure of the fleet. Quotas are allocated by fish species and area to the deep sea and cutter fleet. In addition, technical conservation measures are applied and enforced by the Federal Office and fisheries inspectorates of the Laender.

Ireland

Ireland follows the EC Common Fisheries Policy that allocates quota to each member state. The Irish authorities then implement different management regulations to maximise the catching, sale and processing of fish. The majority of quota fisheries are managed by the implementation of open and closed seasons. Pressure stocks are subject to additional measures such as licenses, spatial and seasonal controls, and early notification of intention to fish. The pressure stocks include mackerel and herring (weekly boat quotas), hake, and monkfish

(monthly quotas) and sole and plaice that generally operate as a by-catch fishery the entire year.

Italy

A generalised licensing scheme was introduced in 1982. This means that all vessels are required to possess a license, which is centrally managed by the Direction of Fisheries of the Ministry of Agriculture Resource, Food and Forestry. In addition to the licensing scheme, single management measures are applied including minimum mesh size, minimum fish size, selective gears, limits on mesh size and on fish size.

Netherlands

The sea fishery operates within the framework of the Common Fisheries Policy of the European Union. The inshore fishery is a national concern and must take into account national policies on physical planning, water and nature management. The Ministry of Agriculture, Nature Management and Fisheries is responsible for the national policy on fisheries, which is embedded in the Policy Document on Sea and Coastal Fisheries. The general objective of the Dutch fishery policy is to promote responsible fishing efforts and a balanced exploitation of fish stocks. A variety of management measures are used to achieve this objective including licensing, decommissioning for reducing the fleet, effort limitations, and limitation of access. The Dutch government divides its national quota into individual fishing rights. There is an individual transferable quota system for sole and plaice that gives individuals the right to land a certain quantity of sole and plaice. These individual quota can be traded or leased or be set aside for a maximum of two years.

Portugal

With membership of the European Union, Portugal's fishery management system underwent significant changes. This allowed for a change from varied, prescribed fishing regulations of various types (the gear characteristics, the minimum sizes for certain species and the number of authorised shipments allowed to operate), to an integrated system. A main objective is the management of resources and conservation, and as a basic condition to ensure the perennial fishing activity.

United Kingdom

In common with other member states of the European Union, the UK participates in the establishment of rules and regulations under the Common

Fisheries Policy. The policy regulates UK fisheries and the UK is responsible for enforcement within its waters. Thirteen Spanish fishing vessels (above 100 GRT) that were allowed to fish in EU waters when Spain adhered to the EU in 1985. Within six miles of baselines, and in England and Wales only, Local Sea Fisheries Committees, drawn from those with local knowledge of the fisheries concerned, make and administer with the agreement of the Fisheries Departments concerned, bylaws to regulate and conserve stocks, mainly shellfish. Elsewhere in the UK, these inshore responsibilities fall on the Fisheries Departments. UK quotas for fishing various stocks are administered directly by Fisheries Departments. Technical conservation measures are established under European Union legislation and include minimum size, minimum mesh sizes, area restrictions, and restrictions on certain types of fishing gear. Certain specific provisions are also applied to UK fishermen under national law. Fisheries Departments must license all UK vessels. These licenses are used to regulate fishing activities. Within these arrangements, fish producer organisations are responsible for managing quotas allocated to them by the Fisheries Departments and together these organisations account for more than 70% of the quota species landed by the UK fleet.

5.2.5 *Review of Fishery Policy of Finland*

Today the Finnish water areas can be divided into three groups on the basis of ownership: those areas owned by single individuals, those jointly owned by groups of private real estate holders, and the public water areas owned by the state. For the management of the stocks, various management regulatory measures are put in place. These are gear regulations, minimum landing size regulations, closed seasons and closed areas, and total allowable catches (TAC). Since the very beginning, TACs have been used as the main tool for managing Baltic Sea fish stocks (FAO, 2005c).

5.2.6 *Review of Fishery Policy of Greece*

The General Directorate of Fisheries is responsible for the management, development and maintenance of fisheries resources. Regional and local services are under the supervision of the General Directorate and their duty is to apply fisheries policy. The objectives of fisheries management are to control fishing effort in conjunction with appropriate technical measures which include minimum size and mesh size regulations, closed areas and seasons, and minimum depths and distances from shore (Anon, 2003c).

In Greece, two Producer Organisations have been formed and are currently in operation; they operate in specific regions of the country and concern both aquaculture products (the latest, established in 2002 concerns mussels) and fisheries products. According to their operational Programme and in case of withdrawals, a system of financial compensation is in operation in order to ensure the stability of price and markets. The processing industry is currently in part utilising raw material covered by autonomous community tariff quotas. Overall, the market of fisheries products in Greece is regulated by the adoption of community legislation that regulates the Common Organisation of the market in community level.

5.2.7 Review of Fishery Policy of Guyana

Early policies for the fisheries sub-sector were first outlined in the Fisheries Act of 1957 that set out to organise the industry. Administrative and other arrangements provided modifications and additions to that policy, e.g., duty free fuel for the industry to promote growth in the early sixties, obligatory landing of by-catch to prevent waste of resource and to provide more protein for the country in the seventies, the ban on importation of fish and fish products to promote growth of the industry and develop self-sufficiency in the late seventies, and fisheries cooperative development in the seventies (Anon, 1996b).

Given the lack of updated legislation and a comprehensive fisheries policy document, the fisheries policy of Guyana has been set and updated in development plans that include: the National Development Plan (1972-1976), the Fisheries Development Plan (1979-1983), and the Draft Fisheries Development Plan (1989-1993) which followed the Agriculture Development Plan (1987-1990). Recently the Draft Plan has been updated in a Fisheries Sub-sector Policy and Planning Document and submitted to the Government for consideration in May 1994, and a revised policy draft in March 1995 (Anon, 1996b).

Clear enunciation and implementation of policy in the past was inhibited by severe institutional weaknesses. At the end of the 1970s and beginning of the 1980s policy attempted to forge a greater role for the State in the fisheries sector, creating two State enterprises for that purpose, Guyana Fisheries Limited (GFL) and the Guyana Libya Fishing Company.

The private fishing sector suffered from lack of capital, in vessels, processing facilities, and storage and marketing facilities, and lack of appropriate technology in many cases. For inshore fisheries, little attention was paid to questions of sustainable yield and how to regulate the industry so that its harvests were consistent with the rate of reproduction of the species, perhaps in the belief that the point of exhaustion of stocks would never be reached.

In effect, albeit not in design, a lenient approach characterised past policies toward the private fisheries. The sector was viewed as a source of tax revenues, and little public expenditures were made for it, outside those mandated by the attempts to establish State fishing industries. Economic concerns and declining fisheries resources for some species are now forcing a fundamental re-evaluation of policies toward the sector.

In Guyana's fishery policy emphasis has been given to the centrality of public policy in achieving the type of proactive approach to fisheries management needed in order for it to be effective. In this context the reference essentially is to public policy (Anon, 1996b).

5.2.8 *Review of fishery policy of Iceland*

With the *de facto* recognition of the exclusive 200-mile fishing zone in 1976, practically all Icelandic fisheries have come under extensive management restrictions. The most commonly used fisheries management measures since 1965 have been overall catch quotas, fishery access licenses, individual vessel effort restrictions, individual vessel catch quotas and individual processing plant quotas. Since the mid-seventies there has been a clear trend towards vessel catch quotas in the management of most fisheries, culminating in a uniform ITQ system in practically all fisheries since 1990.

5.2.9 *Indian Ocean Southern African Development Community (SADC) member states*

The extent to which fishery management plans have been developed is quite variable from one country to another. In both South Africa and Namibia, fishery management plans have been introduced for all important commercial fisheries, and plans are currently being developed for the remaining fisheries. Tanzania also has fishery management plans in place for the 4 main fisheries but the definition of these fisheries appears very broad, which may hinder effective management. In other countries, the planning process has been less comprehensive to date and generally plans exist only for one or two major fisheries (SADC, 2005).

In South Africa, the aim of fishery management plans is to ensure sustainable use. Where necessary, a precautionary approach is adopted, including rebuilding strategies so as to optimise the sustainable yield. The foundation stone of plans is either the TAC or the Total Allowable Effort (TAE), which are set for all fisheries on the basis of annually-updated analyses of CPUE and biological data.

In Namibia, the fishery management planning process is very advanced. In order to exploit a fishery, a fisher requires an exploitation right, a fishing licence and in the case of the seven species comprising over 90% of Namibian catch, a quota from the TAC. Fishing is also subject to technical restrictions such as mesh-sizes, depth, areas, seasons, and so on.

In Tanzania, in the case of shrimp trawling, management is effort-based. Trawlers must not exceed 25 metres and 150 GRT, with engine power restricted to 500 HP. Daily fishing time is also restricted and there is a 3-month closed season. Finally, 3 zones have been defined with vessels assigned to zones to avoid clustering and congestion in particular areas. In the case of reef fisheries, a co-management approach has been adopted.

In Mozambique, the only management plan is in the case of the shallow-water shrimp fishery. Management is based on the control of total effort (a TAC is established as a reference point only). Technical conservation measures are also used, such as minimum mesh size, closed season, zoning and so on.

In Seychelles, the only specific management plan relates to the mother-ship line fishery. The plan aims to ensure the sustainable exploitation of the resource and to optimise the economic benefit to the nation, but it is not clear from the national report precisely how this is to be achieved. An inshore fishery management strategy is being developed within which other plans might be put into place. The strategy is comprehensive but appears to require significant work in order for it to be implemented.

In Mauritius, the banks fishery is managed within a *de facto* management plan. The aim is to ensure the long term viability of the fishery. The basic approach has been to limit entry, with only 6 companies permitted to exploit the fishery. With so few participants, it is to be expected that a sustainable, economically-rational exploitation level should emerge. The development of a management plan for the St. Brandon group of islets is ongoing.

In summary, the planning process is underway but there is scope for development, particularly in the case of the Indian Ocean SADC member states.

Use of the precautionary approach in plan formulation

SADC countries are well aware of the precautionary approach and it has been widely used in developing fishery management systems, both in the case of formal plans and more generally. However, notwithstanding its widespread influence, it appears that application of the precautionary approach might be strengthened further.

Promotion of responsible fishing by fishery management plans

Insufficient attention appears to have been paid to the alternative approach for traditional management approach where the fishery management system is designed in such a way that fishers are provided with incentives to fish responsibly. Overall, a wide range of potential benefits and beneficiaries have been identified in terms of:

- resource and habitat conservation;
- increased fish size;
- improved knowledge of the fishery (data and research);
- economic benefits through value-addition, licensing in order to capture some of the resource rents, job creation both at sea and onshore;
- reduced illegal fishing;
- increased catches leading to increased incomes (but it is not clear to what extent this is a sustainable situation either biologically or economically).

Beneficiaries are:

- the fishery management agency (availability of data enabling improved management in the future);
- fishers (reduced conflicts, higher incomes, more jobs);
- coastal communities;
- tourism.
- government (revenue generation),
- country (foreign exchange),
- fish consumers (improved and more stable fish supply).

In some cases, benefits were seen rather more narrowly as simply preventing the fishery from becoming over-capitalised with the main beneficiaries seen as the fishers themselves through the maintenance of their activities. This reflects the state of advancement of fisheries management in different countries.

The kinds of structure to involve stakeholders in the planning process which exist in each country reflect the role of domestic parties in the planning process. In some countries (Seychelles, Mozambique and South Africa), the only formal body is a Ministerial advisory forum. In Mozambique, this is apparently the only consultative mechanism because informal channels are not common in Mozambique and do not exist in the case of fisheries. In Seychelles, informal

meetings are held when the need arises. South Africa has stakeholder participation in resource working group proceedings which make recommendations on TACs and TAEs. In Namibia, a statutory body, the Sea Fisheries Advisory Council provides advice to the Minister. It comprises representatives of government, fishing industry, labour unions, and NGOs. In major fisheries, joint Ministry/Industry working groups design and conduct research and evaluate the results, as a way of enhancing common understanding of the fisheries resources and plans, and hence to develop and achieve shared goals. In Mauritius two consultative committees (offshore and coastal) have been formally established to discuss fishery matters and advise the Minister. Fishers are represented on these committees. Informal meetings are also held. In Tanzania, the bottom-up approach used in planning means that problems are first identified at fisher community level. There are frequent consultative meetings and seminars from village up to district level.

A number of improvements have been identified, as a result of the use of the fishery management plans, which include the following:

For the fishing sector:

- Plans provide some transparency, certainty and stability which helps industry to plan its activities.
- Where planning has contributed to resource recovery, more jobs are available.

For administrators:

- Plans help to promote responsible fishing.
- Increase the awareness of resource users of their role in the management process.

For society in general:

- Knowledge that fishery resources being sustainably used.
- Revenue raised from licence fees used to manage the resource.

In general planning is seen as useful because it establishes a basis for dialogue between different stakeholders.

A significant constraint in lack of plans in some fisheries is insufficient human and financial resources (Tanzania, Zanzibar, Mozambique). In Seychelles, it is felt that human resources are adequate but not financial, and the decision-making process itself could be improved with greater consultation with senior staff. In Mauritius, the coastal (lagoon) fisheries even though has long been managed it has not yet been formalised. In South Africa, management planning is relatively advanced. It is in the artisanal and subsistence fisheries that plans remain to be developed, the focus to date having been on high volume and high value commercial fisheries. In Namibia on the other hand all commercial fisheries are now subject to management plans.

This suggests that it would be useful to have a workshop on the nature of fishery management plans, including their design and implementation, at least for the Indian Ocean countries and particularly in the artisanal fishery context.

In South Africa the intention is to improve existing plans and to introduce, where appropriate, plans where none currently exist. A Subsistence Fishery Task Force was established in 1999 to develop a management model for the sector. Namibia is developing a shark management plan. Seychelles expects to have a sea cucumber plan soon. Some countries (Tanzania, Zanzibar, Mozambique) intend to introduce further plans in the future but it is not always clear how this is to be achieved. In Tanzania, a number of training activities are underway, including improved MCS, and an FAO project with the specific aim of producing fishery management plans.

In many cases, the informal management system constitutes *de facto* a plan, or at least contains the groundwork for such a plan. For instance, in the case of Seychelles, the national report states that where there is no formal management plan, the broad approach is to use effort limitation, closed seasons or gear restrictions. The situation under a formal plan is unlikely to be very different to this. The case of Mauritius is similar, with most fisheries managed either using licensing or through standard conservation measures (gear, area and/or time restrictions etc). Tanzania also relies on licensing, whereas Zanzibar uses a co-management approach. In South Africa a precautionary approach is adopted, with precautionary catch limits being established.

In most countries, benefits and consequences are assessed through the compilation of catch, effort and other statistics which are analysed and the results published in an annual report, which is made available to all stakeholders. In South Africa, a number of economic impact criteria are used to assess benefits, including the following:

- Contribution of the fishery sector to GDP

- Generation of foreign exchange
- Number of people directly and indirectly employed
- Number of permits that can be issued with jeopardising sustainability

whilst the consequences of management are evaluated annually through:

- Stock assessments
- Revised TACs and TAEs

There would seem to be general scope for the development of socio-economic indicators of the consequences of fishery management. At the moment, most attention seems to be focused on the biological state of the resource. Whilst clearly an important indicator, it tends to be a consequence of economic activities being undertaken. It seems important therefore to begin to develop economic indicators. Even in South Africa, which appears to have gone the farthest in this direction, economic indicators are restricted to impact.

5.2.10 *Review of fishery policy in Japan*

Japanese fisheries target a wide variety of species inshore, offshore and in distant waters. In Japan, the number of participants in certain sectors of fisheries is largely controlled through grants of licenses and permissions on the basis of biological, economic and social factors. The type of rights include: common fishery rights, set-net fishery rights, demarcated fishery rights in coastal fisheries, Minister-licensed fisheries in offshore and distant-water fisheries, and governor-licensed fisheries in other fisheries located between the above two (FAO, 2000c).

Rights-based fisheries are based on the traditional use of fishing grounds which have been practiced in coastal areas from olden times. This does not provide an exclusive right *per se* over sea areas, but a right to engage in fisheries based on limited conditions with regard to fishing season, species and fishing methods. To obtain the fishing right, an applicant develops plans for utilising the fishing grounds (fishing right use regulatory rules) and the Fisheries Adjustment Committee decides the eligibility of applicants through public hearings. The Prefecture Governor then authorises the right to successful applicants. Fisheries licensed by prefecture governors are conducted mainly on the offshore side of the area for fishing-right-based fishery. This system is aimed at protecting and propagating fishery resources, regulating and coordinating fisheries, and establishing a fishery order.

5.2.11 *Review of fishery policy in Korea*

The principal fisheries management policy instruments employed in Korea are licenses and TACs. While the license system has been the main management tool for the past 50 years, a TAC system was introduced in 1999 for the first time. The license system limits entry into the fisheries. License systems are classified into inland, coastal, offshore, and distant water licenses (Young-Gyu Kim, 2004). The Ministry of Maritime Affairs and Fisheries is responsible for fishing licenses in offshore and distant waters and foreign-flagged vessels fishing within the Korean EEZ.

Local governments at the provincial, city and district levels are mainly responsible for fishing licenses in the coastal waters. To ensure effective management and sustainable production of fishery resources, the maximum number of licenses is decided by the respective authority. A TAC system was adopted in 1999 on a trial basis for four species (mackerel, sardine, and jack mackerel) in the large seine fisheries, and for red large crab in the offshore fish pot fisheries. The background to this was the decline of commercially important fish stocks in Korean coastal waters despite continued efforts to manage fishery resources using a license system. The TAC system aims to ensure an optimal management system for sustainable fisheries and to control fishing capacity. TACs are determined based on biological, economic and social considerations.

5.2.13 Review of fishery policy in Maldives

Within the context of the foregoing national development objectives, a mission, objectives and mandate were established during 1999.

The mission and objectives are as follows.

Mission

To ensure development and sustainable management of marine and agricultural resources of the country.

Objectives

Undertake policies and Programmes

- that enable the sustainable development of the fisheries and agriculture sector.
- to encourage farming on all available land area and develop animal husbandry.
- to develop the human resources needed to further develop the fisheries and agriculture sectors.

- to maximise the fisheries and agriculture sectors' contribution to the economy of the country.
- to maintain and enhance the natural marine and land resources.

Mandate

This comprises a comprehensive listing of responsibilities and associated activities that would be undertaken by the Ministry in pursuit of its assigned objectives.

The fisheries management plan comprises the following four elements:

- A clear and specific set of objectives for which indicators can be established and monitored.
- Mechanisms for the assembly and analysis of knowledge surrounding the resource and resource users.
- A capacity to analyse the knowledge, and formulate and implement regulatory instruments designed to achieve improved bio-economic equilibrium.
- Mechanisms to engage in monitoring, control and surveillance activities at an acceptable level of cost and efficiency.

5.2.14 *Review of fishery policy in Mexico*

The exploitation, use and conservation of the living marine resources has been based on the criteria of maximum sustainable yields, the application of seasonal and geographical closures, the definition of catch areas, regulations on the use of fishing gear and minimum size limits.

5.2.15 *Review of fishery policy in New Zealand*

There are three tiers of Government in New Zealand; central, regional and local. Fisheries management is handled by the central government, and the Ministry of Fisheries administers the Fisheries Act. The Quota Management System (QMS) uses Individual Total Quotas (ITQs) as the primary mechanism for managing commercial fisheries. It applies to 32 species groups in 10 quota management areas. ITQs are fully transferable apart from a range of quota aggregation restrictions, minimum holding provisions and a restriction that holders must be New Zealand residents or companies less than 25% foreign owned. The quotas are proportions of the Total Allowable Commercial Catch (TACC) for each fish stock. There are 179 TACCs. A variety of other management methods are used in specific fisheries, often in conjunction with

ITQs. These include gear restrictions, size limits and closed areas (Pearse H Peter, 1991).

In the search for new approaches to fisheries management, New Zealand has been the world's leading innovator. Other fishing nations have watched with keen interest as New Zealand abandoned centuries-old traditions of free-for-all competitive fishing by issuing to each fisher a right to take a defined quota or share of the available catch. This quota management system, introduced in the 1980s, has become the dominant feature of New Zealand's fisheries policy. A number of other nations have recently initiated regulatory experiments following New Zealand's experience.

Except for certain elements of fisheries policy, notably recreational and Maori fishing and management planning, the objectives of fisheries policy in New Zealand have not been articulated in any official way. However, the available documentation suggests that it is reasonable to assume that they include the following:

- To conserve the natural resources, to ensure that their use and development is sustainable, and to maintain the diversity and integrity of ecosystems.
- To allocate access to fish resources, fairly and equitably among competing users and groups of users.
- To ensure a high level of economic efficiency in commercial uses of fish.

To these primary goals, additional objectives became relevant to ensure the long-term effectiveness of the policy framework, especially to,

- accommodate changing economic conditions and public preferences, and to encourage response to opportunities in resource enhancement and new technology, and
- ensure efficiency and effectiveness in public administration.

5.2.16

Review of fishery policy in Norway

The important stocks exploited by Norwegian fishermen are cod and herring, salmon and capelin. Furthermore, aquaculture (mainly of salmon) has grown to become an important industry. The number of fishermen is around 20 000, of which 6 000 are part-time fishers and only 3 000 of 20 000 vessels are used the whole year. It is also seen that vessels are generally small, with the exception of the high sea fleet. Since most stocks are shared with other countries, the determination of total TACs is based on international co-operation (Ludvigsen Svein, 2004). The national quotas are distributed between different gears and in

some cases between individual vessels. The administration of Norwegian fisheries is divided between the Ministry of Fisheries in Oslo, and the Directorate of Fisheries in Bergen. The Salt Water Fisheries Act provides the legal basis for inspection and control of fisheries, including the control of mesh size, of the composition of catches by species, size, etc.

Over the past 30 years the Norwegian fishing industry has developed from unregulated fishing to a thoroughly regulated industry subject to quotas and licensing systems. As most of their stocks are shared with other nations, there is both an international and domestic component to their decision-making process.

The Norwegian resource management rests on the principles of long-term sustainable harvesting, based on the best scientific advice available, taking into account the principle of precautionary approach. The International Council for Exploration of the Sea (ICES) is the key institution for providing the scientific advice and quota recommendations.

5.2.17 *Review of fishery policy in Spain*

Under the terms of the Spanish constitution and the statutes of the coastal autonomous communities, the regulation and management of the fishing industry are shared between the central and regional governments. The central government is responsible for planning, direction and co-ordination of marine fisheries, the structural organisation, and environmental protection. The basic management instruments include TACs, licenses and technical measures. Technical restrictions include minimum size and gear restrictions, closed areas, and limits on fishing times and days. The Spanish administration does not normally distribute quota; however, in the case of the “300s” fleet¹³, the access to the catch is distributed through effort allocations. Licenses are used to apply the regulations to fishing taking into account gear, fishing area and species (Anon, 2005h).

5.2.18 *Review of fishery policy in Sweden*

The TACs allocated to Sweden are, in general, not distributed among fishermen in terms of vessel or fishing trip quotas. However, in the case of some stocks, the Federation of Swedish Fishermen applies such regulations on a voluntary basis. The National Board of Fisheries issues bans on fishing when quotas or the TACs are exhausted (National Board of Fisheries, Sweden. 2004).

5.2.19. *Review of the Fisheries Policy of the United States of America*

The Secretary of commerce through the National Oceanographic and Atmospheric Administration (NOAA) and the National Marine Fisheries (NMFS) service is the ultimate manager of marine resources. However, Federal Fishery Management Plans (FMPs) are developed by eight regional Fishery Management Councils representing diverse interests with members nominated by state governors in each region. For some protected resources, National Marine Fisheries Service (NMFS) develops management plans directly.

Responsibility for managing some inshore fisheries is devolved to the states. An important halibut fishery shared by the US and Canada has been managed by the International Halibut Commission for many years, though each country regulates their own fleet within the bounds of the commission's regulations. Fishery management methods used are diverse and include various combinations of gear, size and sex limitations, effort and catch limitations, closed areas and seasons, TACs, ITQs and limited entry.

The following is a review of U.S. international fisheries policy and negotiations of commercial interest to the U.S. fishing industry in Alaska and the Northwest Pacific. Access to U.S. Fisheries Resources one of the main goals of the Magnuson Fishery Conservation and Development Act of 1976 was to promote the development of U.S. fisheries in the U.S. 200 mile zone. Prior to the Act's passage, the vast majority of the groundfish fisheries in what was to become the U.S. EEZ off Alaska was conducted by fishermen from Japan, the Soviet Union, and Korea, as well as other countries. After 1976, the primary objective of U.S. international fisheries policy in the North Pacific was to use the immense surplus fisheries off Alaska, an approximately 2 million metric ton resource with a product value of over \$2 billion, to the benefit of the developing U.S. fishing industry.

In the first few years following the enactment of the Magnuson Fishery Conservation and Development Act, US concluded governing international fisheries agreements with nearly 20 foreign countries conducting fisheries in the U.S. EEZ. These agreements outlined the terms and conditions under which foreign countries could gain access to the considerable surplus resources in the U.S. EEZ which could not be utilised by the U.S. industry. Under these agreements, allocations of surplus stocks were granted to those countries which made the greatest contributions to the development of the U.S. industry through purchases of U.S. harvested and processed fish products, reductions in tariff and non-tariff barriers to U.S. fisheries exports, transfers of fisheries technology, and other factors (Leal, Donald R *et.al.*, 2005).

This policy for the allocation of surplus fish stocks was highly successful in providing for the expansion of the U.S. fishing industry. One of the most

important developments which occurred was that foreign countries were encouraged to establish the so-called over-the-side joint ventures with the U.S. industry in exchange for consideration of allocations of surplus resources. In these joint ventures, U.S. fishermen harvest fish in the U.S. EEZ and sell it at sea to a foreign processing vessel. All fisheries joint ventures are subject to the terms and conditions of a governing international fisheries agreement, and each country conducting such ventures in the U.S. EEZ must have a governing international fisheries agreement in force with the United States. From 1980 to 1987, these joint ventures increased in size from about 20,000 tons to over 1.4 million tons, which provided an estimated \$150 million to U.S. fishermen last year.

Another major aspect of the allocations policy of USA has been the promotion of U.S fisheries exports through agreements for the removal of tariff and non-tariff barriers in foreign countries. Because a large proportion of the resources taken in the U.S. EEZ is exported, this policy is of particular importance for the development of the U.S. fish processing sector. Since the early 1980s, US has been successful in opening markets for U.S. fisheries products in several major fish-consuming nations.

Another major area of interest for the U.S. industry in their international fisheries relations is access to fisheries resources in other countries' waters. Although the U.S. fishing industry has historically concentrated on utilising fish stocks within the U.S. EEZ, certain sectors of the industry have had an interest in access to stocks beyond U.S. waters. U.S. tuna fishermen in particular have sought new fishing grounds throughout the world and have concluded a number of bilateral and multilateral agreements to provide for U.S. access to tuna in the EEZs of foreign countries. A treaty with 15 South Pacific island nations has been concluded which provides for U.S. access to tuna stocks in some 10 million square miles of the South Pacific Ocean. Similar arrangements for exploiting the resources of other country's EEZ, particularly with North Pacific Ocean countries and Russian waters, are envisaged.

6. Fishery policy of India

At present there is no unified fishery policy in India. However, during 2004, the Government notified a Comprehensive Marine Fishery Policy, which seeks a focused endeavour from the coastal states and the Central Departments with full appreciation of the international conventions in force for conservation, management and sustainable utilisation of our invaluable marine wealth, without losing its relevance to the food and livelihood security of the coastal communities which totally depend on this.

6.1

Comprehensive Marine Fishing Policy

Marine fisheries within the territorial waters are the subject of maritime states whereas fisheries beyond this limit within the EEZ fall in the jurisdiction of Central Government. The global scenario with respect to marine fisheries is rapidly changing with major developments in harvesting and processing technology and consequent expansion of global markets for fish and fishery products.

In these circumstances, in the present policy the Government seeks to bring the traditional and coastal fishermen also into the focus together with stakeholders in the deep-sea sector so as to achieve harmonised development of marine fishery both in the territorial and extra territorial waters of our country. The theme of comprehensive marine fishing policy is enshrined in the National Agriculture Policy promulgated by the Government (Nair, MKR, 2005).

The policy objectives are: (1) to augment marine fish production of the country up to the sustainable level in a responsible manner so as to boost export of sea food from the country and also to increase per capita fish protein intake of the masses, (2) to ensure socio-economic security of the artisanal fishermen whose livelihood solely depends on this vocation. (3) to ensure sustainable development of marine fisheries with due concern for ecological integrity and biodiversity.

The policy underscores the need for a departure from the open access concept in the territorial waters besides putting in place stringent management regimes (MOA,2004). Promoting exploitation in the deep sea and oceanic waters would be another approach for reducing fishing pressure in the traditional fishing areas.

The policy advocates protection, consideration and encouragement of subsistence level fishermen and technology transfer to small scale sector and infrastructure support to industrial sector. The Policy envisages motorisation of about 50% of traditional craft allowing the remaining to carry on subsistence fishing in the near shore waters.

Total utilisation of harvested fish for food and non-food uses would be the central theme. Efforts would be made to fully comply with international requirements in post harvest care of catch so as to achieve highest standards in food safety. It would be also the concern of the Government to ensure that the post-harvest losses are minimised. Implementation of international quality regimes for ensuring food safety in fish and fishery products would be carried out through the nodal agency. Existing domestic standards for fishery products and by-products would be harmonised with the International Standards so as to ensure

quality of fish and fishery products for domestic consumption at par with global standards.

Exploitation of living resources within 50 metres depth zone is showing symptoms of depletion and in certain belts in the inshore waters it tends to cross optimum sustainable levels. The policy therefore, advocates a stringent fishery management system to be in place.

Fishing is the sole livelihood for about 10 lakh fishermen households along the coastline and this policy attaches top priority to ensuring their social security and economic well being.

The effect of environmental factors on the health of living resources needs increased attention in tune with the international awareness on the issue. Health hazards due to consumption of fish harvested from contaminated water is also becoming a matter of great concern in many parts of the world. The agencies responsible for legislation relating to environmental pollution will be urged to implement them more stringently so that the impact of pollution on fisheries can be minimised.

Development of infrastructure for marine fisheries is of vital importance and should have an integrated approach. The facilities would *inter-alia* include jetties, landing centres, provision for fuel, water, ice, repairs to vessels and gear. The concept of hygienic post harvest handling of fish would also be woven into the project. The policies in this direction would be as follows:

- A master plan for the development of infrastructure for the next ten years would be drawn up.
- Alternatives to the present system of financing of the infrastructure projects by the centre and the state with cost sharing would be tried out. Build-Operate-Own and Build-Operate-Transfer systems through private sector initiative also would be explored.
- Management of most of the facilities already created calls for improvements in terms of internal resource generation, maintenance and upkeep. These issues would be subjected to a detailed study and suitable central legislation would be introduced if found necessary.

An enabling legal framework is an essential pre-requisite for proper management and control of fisheries sector. As at present the subject of fisheries is in the state list under article 21 of the Indian Constitution, management and control of coastal fisheries is vested with the maritime states and union territories. Besides reviewing the existing legal frame work for regulating the fishing operations, introduction of additional legal instruments in areas such as

operation of Indian flag vessels in the EEZ, introduction of new fishing units, ensuring conservation of resources, limited access fishery, fishery harbour management etc., would be resorted to.

Areas such as use of information technology, strengthening of database in marine fisheries, Human Resource Development, eco-labeling of marine products, would also be paid needed attention.

6.2 State Governments' Fisheries Policies

As per information available from various sources, there is no unified or comprehensive fisheries policy in any of the States, except in the State of Kerala, which has recently finalised a Fisheries Policy, in line with the present day requirements.

In most of the States leasing policy for fishing and fisheries in inland water bodies such as tanks and ponds, lakes, reservoirs and rivers and canals, brackishwater aquaculture, etc. Apart from this, there exists a fishery policy either on a year to year basis or for each and every five year Plan period, for the overall development of fisheries.

In the absence of a comprehensive fisheries policy at the National level, taking the Kerala initiative as an example, the State Governments one after another have been taking steps for evolving a vision, policy and strategic action plan for the future development and management of the entire gamut of fisheries as a measure of enhancing fish productivity and production, improving the livelihood and nutritional security

The following is a summary of such of these policies.

6.2.1 Andaman & Nicobar Islands

Vision:

“Promote use of the marine fishery resources in a sustainable manner and aquaculture with a view to provide gainful employment for the people of the islands.”

Policy:

The islands have coastline of 1912 km and continental shelf area of 35000 sq.km. The EEZ around the islands measuring about 6.00 lakh sq. km. accounts for 28%

of the total EEZ of the country (Anon, 2004a). The present fish landing of 28000 tons forms only about 11% of the exploitable fishery potential of 2.435 lakh tones per annum. Therefore, policy of the Administration with regard to development of coastal fisheries, deep sea fisheries, infrastructure, manpower development will be: -

- ❖ Introduction of improved type of fiber crafts and improved gears, intermediate class of fishing vessels for the development of existing traditional fisheries to coastal fisheries.
- ❖ License deep sea fishing vessels for the use of offshore resources.
- ❖ Creation of pre and post harvest infrastructure in identified islands for berthing of crafts and preservation and processing of catch.
- ❖ To encourage joint venture projects for harvest and post harvest operations with base of operation in the islands in order to improve the employment potential.
- ❖ Development of fishing harbours and processing units.
- ❖ Develop Campbell Bay as fishing centre (being the area near to the tuna range channel).
- ❖ Develop aquaculture for optimum use of the genetic resources.
- ❖ To promote preservation of marine food products.
- ❖ Facilitate direct export to South East Asian and Western countries.
- ❖ To develop skilled manpower required for meeting the specialized requirements for development of fisheries in the islands.
- ❖ Dissemination of potential Fishery Zone data to fishermen and fishing agencies.
- ❖ Systematic resource survey of fishery resources and its continuous monitoring to avoid depletion/over exploitation.

6.2.2

Andhra Pradesh

The policy of the government is to accelerate the exploitation of existing resources by improving the available facilities, creating new facilities and taking proper care of all classes of people earning their livelihood from the fishery sector (FAO, 2004a).

Besides aiming at higher production, it is also the government's policy to ensure producers good prices for their fish. Accordingly, much attention is being paid to improve the internal marketing system and fish landing and other infrastructure facilities.

The government's strategy in the marine sector to achieve higher production targets is to establish new fishing harbours; expand the mechanised fishing fleet for coastal fishing; introduce more deep-sea trawlers; diversify fishing

techniques; and assist traditional fishermen by providing subsidies for fishing craft, nylon twine and other fishing implements.

In the inland freshwaters, the strategy is to accelerate carp seed production; establish new fish seed farms; and augment fish production in reservoirs and tanks.

In coastal aquaculture, the strategy is the phased conversion of suitable brackishwater areas into shrimp and fish farms, particularly through the poorer sections of the coastal population.

6.2.3

Gujarat

The State Government (Gujarat Government Website, 2005) has formulated a policy to lease out village ponds / small reservoirs for a period of 10 years. The revised policy will help the fish farmers of the State to plan for scientific fish farming on a long term basis. As per the new policy village ponds of concerned Taluka/ District are to be auctioned by inviting tender by giving wide publicity , other assistance as per the FFDA pattern will be extended to the fish farmers.

The State Government has declared a new leasing policy for freshwater reservoirs of the State in February 2004. Under the new policy, the reservoirs are to be leased out for a period of 5 years which will be reviewed and be further extended for another 5 years, thus along term policy has been evolved to facilitate the lease to undertake culture cum capture fisheries in a systematic & scientific manner. Some of the salient features of new policy are as follows:

- ❖ Water sheets situated in tribal area have been reserved for the tribal co-ops /group formulated under SHG and to be given on upset price.
- ❖ Reservoirs up to 20 ha area have been earmarked for FFDA beneficiaries and to be given on up set price.
- ❖ Average water spread area of six years is taken to asses the effective water spread area and upset price is calculated against this effective water spread area.
- ❖ Local co-op societies are given 20% price preference of the highest tender.
- ❖ Compensation on lease amount price is permissible during draught years.
- ❖ Price preference is given to the SGSY groups and SHG of BPL families.
- ❖ Apex Co-operative society of the State is to be given one reservoir each in all Districts with a view to strengthen the Co-op marketing infrastructure in all the Districts.

6.2.4

Kerala

The Government of Kerala have undertaken projects and Programmes for increasing production, for conserving and ensuring sustainable exploitation of fisheries wealth, for promoting cultivation of fish and prawns, for development of fishing harbours and facilities for landing of fish, for strengthening facilities for marketing of fish, and for the upliftment and welfare of the fisher-folk. The draft fisheries policy of the Government of Kerala provides the blue print of the action plans for the developments in the sector and the welfare activities envisaged for the next twenty five years (Anon, 2005d).

To ensure international standards in cultivation of fish, and the quality of fisheries products in the background of the liberalised market system that came into being as per the World Trade Treaty, the fish landing centres and fishing harbours shall be maintained according to international standards. Government will give priority to export of fisheries products, to let the products from Kerala to compete in the International markets, and production of Value Added Products. Further Government will facilitate private investment in the field of installation of ice plants, cold storages, etc.

The ban on trawling during the monsoons in Kerala to ensure protection of the fisheries wealth will be implemented with the co-operation and backing of all sectors in this field. Registration with the Kerala State Fisheries Department will be made compulsory for all boats fishing in the seas near the coast of Kerala State.

Controls will be enforced on boats utilising the ring-seine regulating the size of the boats, and weight and size of the nets. Government will ban mini-trawling in utilising country boats in areas where traditional country boats operate. This ban will be made applicable to pair trawling also.

Marine fish wealth of the Kerala seas will periodically be assessed. Steps will be initiated to strengthen the Enforcement of the Kerala Marine Fisheries Regulation Act. For ensuring the security and safety of the fishermen at sea Programmes for supply of walkie-talkies/communication devices will be introduced.

A time-bound-Programme to provide houses to actual fishermen will be launched. Efforts will be made to provide sanitation facilities in all fishing villages. Steps will be taken to install solar lamps in fishing villages where electricity is yet to reach.

Since basic data is of vital importance for planned development of the sector, a website on the Fisheries sector will be launched.

Further a map of the water bodies suitable for aquaculture will be prepared with the help of the Local Self Governments and Research institutions. Farmers' Clubs will be set up locally and unemployed will be persuaded to take up activities like fish-feed production. Fish and Prawn farmers will be persuaded to go for group farming and technical assistance and effective supervision provided to them.

The Government will go for legislation to protect common water sources from the threat of pollution.

Projects will be formulated for developing fisheries wealth in the hither-to unexploited fields like integrated fish farming in inland waters, game fisheries etc. Private investment will be permitted in areas like Farm House Tourism, Aquariums, Oceanarium, etc.

For preventing the fish wealth from extinction and for ensuring the growth on a large scale, steps like by constructing artificial reefs in the sea and lakes, sowing fish seed in public water bodies etc., will be taken. The existing acts and rules relating to land use will be amended to promote integrated farming of paddy with fish, paddy and prawn combinations.

Government will take steps to check disease to prawns and fish which causes heavy loss to fish farmers. Restrictions and controls will be imposed on importing fish/prawn seed from hatcheries outside the state.

Government will go for a unified Inland Fisheries Act, modifying the Travancore-Cochin Fishing Act and Indian Fishing Act suitably, since there is no unified law incorporating provisions for the development of inland fisheries.

Steps will be initiated to bring in efficiencies to the fish seed production. Government will promote establishment of new hatcheries that observe all the norms, in the private sector also.

The majority of the reservoirs in the state are under the administrative control of Kerala State Electricity Board or the Forest Department. Steps will be taken to see that the fishing rights in these reservoirs are given to the Fisheries Department.

Steps will be taken to attract foreign tourists to such areas with the help of angling associations.

Seminars and exhibitions will be conducted to make people aware of the potential of development of ornamental fisheries.

To conserve the genetic diversity of fish which is facing the threat of extinction, mangroves will be developed on the beaches of lakes in the State. Steps will be taken to promote aquaculture that includes cultivation of prawns, crabs, etc., in these lakes.

The activities of MATSYAFED which is a producer co-operative will be strengthened in the field of marketing.

Taking into account the incidence of unemployment among the women of the fishing communities, small self help groups of such women will be organised and job-oriented training imparted to them.

The fruits of the research and studies conducted by the Research Centres of national importance at Kochi will be made available to the fisheries sector in the State.

A special literacy programme concentrating on fishing villages will be launched. The women's associations of the community will be provided with assistance for organising activities for empowerment of women.

Special projects will be launched for providing safe drinking water in fishing villages. Projects to harvest rain water will be implemented. The schemes to provide incentives for the education of the children of the fisherfolk will be extended to cover the occasional courses and other services in self-financing institutions also. Steps will be taken to bring down the rate of drop-outs belonging to this community from schools.

Voluntary organisations working for this will be promoted. Many of the girls are compelled to stop education and act as baby sitters where both the parents have to go to work. To solve this problem, child care centres will be opened in the fishermen's villages.

6.2.5

Maharashtra

The main objectives of the policy of the State Government are to optimise the fish production from available and new water resources by extending the area of operation and by increasing productivity, to impart educational and occupational training to the fishermen and to ameliorate the socio-economic conditions of the fishermen who form the weaker section of the society (Maharashtra Fisheries Development Corporation Limited, 2002).

6.2.6

Orissa

Presently there is no unified/comprehensive fishery policy in Orissa. The Orissa Agriculture Policy-1996 under Chapter-III spells out the State Fisheries Development Policy, for the five year period ending 2001. Salient features of this short-term policy are as under:

The aims of the policy were to:

- Increase fish production by following scientific method of culture;
 - Assist fishermen for more effective fishing;
 - Speed up fishing operations in the deep sea;
 - Impact technology both for culture and capture fishermen and fish farmers;
 - Establish fish feed mills required for culture of fish and prawn.
- ❖ The following steps were envisaged for increasing the inland fish production from about 1,19,000 tons to 2,07,000 tons:
- With the assistance from World Bank production of fish would be organised scientifically in 79 small and medium reservoirs which would benefit 3000 fishermen families, leading to an additional production of 32,000 tons.
 - Renovation of 25,000 ha of small water bodies through FFDA's. At 2 tons/ha an additional fish production of 50,000 tons benefiting 20,000 to 25,000 farmers expected by 2000 AD.
 - Steps would be initiated to release advanced fingerlings @ 5000/ha in the major reservoirs and 79 reservoirs covered under the World Bank project which will substantially increase the fish production.
 - Developing 2000 ha/year the water-logged areas through FFDA's, that will produce about 10,000 tons.
 - Steps would be taken to declare fish breeding grounds in rivers, lakes and reservoirs which would increase fish production in these water bodies.
 - Freshwater prawn hatcheries will be established for producing 20 crore prawn juveniles/year. Coverage of area would be through individual entrepreneurs to an extent of 25% and IRDP beneficiaries to an extent of 75%.
- ❖ In the area of brackishwater aquaculture,
- the number of shrimp hatcheries would be increased from 8 to 28 by 2001 for producing 80 crore shrimp seed.
 - on completion of the ongoing three shrimp culture projects under World Bank project, an additional shrimp production of 1600 tons of shrimp valued at Rs. 60 - 70 crore was expected.

- ice plants, shrimp processing plants, feed plants etc., would be set up under this project in the private sector. While extending these programmes, special attention would be given to environmental protection.
 - all out development of Chilika Lake with foreign aid and Finance Commission, would help in increasing fish production from Chilika.
- ❖ In the marine sector,
- the planned activities by 2001 such as establishing additional 11 fish landing centres, conversion of traditional boats to mechanised boats would increase the marine fish production to a level of 2,60,000 tons.
 - schemes for the benefit of fishermen such as subsidy for fishing vessels, low cost house, accident insurance and saving-cum-relief would be continued with GOI's assistance.
 - with the help of the Orissa Marine Fishermen Cooperative Federation, subsidy would be extended to fishermen members for purchasing fishing nets, traditional crafts and mechanised boats. Steps would be taken to revive 225 PFCS.
 - oyster culture would be taken up with foreign assistance.
 - steps would be taken to promote pearl culture through entrepreneurial participation.

Orissa State Reservoir Fisheries Policy, 2004.

The State Government has notified the Reservoir Fisheries Policy during 2004. The major objectives of "State Reservoir Fishery Policy" for scientific management of vast and valuable reservoir resources are as follows:

- ❖ To augment fish production from the vast untapped / under-tapped reservoir resources through scientific management.
- ❖ To generate gainful rural employment with special reference to fishing communities and economic rehabilitation of displaced persons.
- ❖ To introduce systematic management strategies both for conservation and sustained fish production.
- ❖ To attract increasing investments from private sector.
- ❖ To stimulate entrepreneurship for fishery sector with special reference to reservoir fishery.
- ❖ To substitute traditional methods by introduction of advanced technology in operation of reservoir fishery.
- ❖ To develop skill among fishermen / fisherwomen in reservoir operation and organizational strengthening.

- ❖ To generate substantial revenue for the state.

The salient features of the Policy include the following:

Fishing rights of all reservoirs above 40 hectares (100 acres), shall be vested with Fisheries & ARD Department. The fishing rights of all reservoirs up to 100 acres will be transferred to respective Gram Panchayats for leasing them out to Primary Fishermen Cooperative Societies registered under Orissa Co-operative Societies Act, 1962 or Societies registered under Orissa Self-help Co-operative Societies Act, 2001 etc. Transfer of Fishing rights to the Fisheries & ARD Department and the Gram Panchayats of the reservoirs, to be created, shall be an automatic process after impoundment.

The transfer of fishing rights will be subject to the following conditions.

- ❖ The safety of Irrigation Project reservoir should in no way be jeopardised as a result of fishing activity.
- ❖ Stumps are cleared to facilitate the netting operation in the reservoir by the fishermen except the area specified in the Policy.
- ❖ Steps are taken to provide basic infrastructure in the existing irrigation projects to facilitate fishing activities in the Reservoir such as approach road to the Reservoir, Fish Landing Centre, Captive Nursery 12 nos. of tanks of half a hectare each water area and 1.5 metre depth or more as per fingerling requirement, a multipurpose building of 2000 sq.ft. plinth area and a patrol boat in case of reservoirs having a mean water spread area of over 200 hectares.
- ❖ The Fisheries Department will take steps for rearing of fish seed of over 100mm size in the Captive Nursery for stocking in the reservoir every year.
- ❖ A Co-ordination Committee at the District level may be set up

Based on the mean water spread area of reservoirs, the following classification is made:

- | | |
|------|--|
| i. | 10 hectares to < 1000 hectares - Minor Reservoir |
| ii. | 1000 hectares to < 5,000 hectares - Medium Reservoir |
| iii. | Over 5,000 > hectares - Large Reservoir |

Taking into consideration the productivity pattern and management aspects of reservoirs in relation to water spread area, different operational strategies shall be adopted.

- ❖ Operation of any mechanised / motorised fishing boat in the reservoirs shall require prior permission of the Fisheries & ARD Department.

- ❖ No fishing shall be allowed within five hundred meters from the dam, from the upstream as well as downstream in case of Large reservoirs, 200 meters up stream / down stream in case of Medium and 100 meters upstream/ downstream in case of Minor reservoirs.
- ❖ There shall be no restriction on the activities of the Water Resources Department for operating reservoirs for irrigation purposes and no prior permission from the fisheries & ARD Department shall be needed for the same.
- ❖ No permanent or temporary structure of any type shall be erected in the reservoir or in its periphery by the Fisheries & ARD Department for taking up pisciculture without the prior approval of the Water Resources Department.
- ❖ The fishing operation in the reservoirs shall be done in such a manner as not to endanger the structure of the reservoir in any way.
- ❖ Regular monthly returns on quantity of fish caught in each of the reservoirs transferred/to be transferred to Fisheries& ARD Department shall be submitted to the Water Resources Department.
- ❖ Royalty shall be collected along with the lease value by Fisheries & Animal Resources Development Department @Rs.10, Rs.20 and Rs.40/- per hectare of Mean Water Spread Area, per annum for Major, Medium and Minor reservoirs, respectively. This rate may be revised from time to time through joint discussion between the authorities of Water Resources Department and Fisheries and Animal Resources Development Department. Royalty so fixed shall be credited in favour of Department of Water Resources Development before closure of each financial year.
- ❖ The initial lease/ auction period shall be for five years. The lease period may be extended up to another five years, subject to satisfactory performance of the lessee/ auction holder. In case of unsatisfactory performance and violation of stipulated terms and conditions the lease/auction shall be cancelled at any time with due notice.
- ❖ In case of existing reservoirs, where there is no such captive fish seed rearing centre, the Water Resources Department may hand over required piece of land, if available, to the Fisheries & ARD Department for the same purpose
- ❖ Under no circumstances, drainage of water below the dead storage level (DSL), of a reservoir shall be allowed except under emergency situation.
- ❖ Priority would be given to the supply of irrigation water for agriculture over fishery.
- ❖ The Fisheries & ARD Department can avail tax-free water from any reservoir at the time of need, for pisciculture practices after obtaining approval of Water Resources Department.

- ❖ Although setting of gillnets in the reservoir shall be allowed during night hours, harvesting of fish and thoroughfare within the reservoir area shall be disallowed due to security reasons from 06.00 pm to 06.00 am.
- ❖ The Water Resources Department and Fisheries & ARD Department shall jointly prepare "Reservoir Development Plan" in respect of each reservoir for fisheries development. In this matter the services of National Research Institute and other allied Institutions may be taken.

Conservation Measures

- ❖ There shall be ban on catching of brood stock of Indian Major carps and any other economic species to be specified by the Fisheries & ARD Department from time to time during monsoon i.e. from 15th June to 31st August to allow every fish to breed at least once during its lifetime.
- ❖ Capture and sale of Indian Major Carps below 250mm total length shall be banned in order to prevent indiscriminate killing of young fish population.
- ❖ Gill net below 100mm stretched mesh size shall be banned for operation throughout the year.
- ❖ Dynamiting and use of other explosives shall be prohibited for catching/killing of fish.
- ❖ Use of poisons and toxins in the water body shall be banned.
- ❖ Erection of fixed gears i.e. set nets, gill nets, traps, bamboo screens etc., across the stream watercourse draining into the reservoir shall be banned.
- ❖ Fisheries & ARD Department shall have the right to declare any part of the reservoir as protected area for a particular period.
- ❖ Unauthorised fishing in the reservoir is illegal.
- ❖ Industrial effluents / sewerage discharge into the reservoir without proper treatment shall not be permitted.
- ❖ No exotic fish shall be introduced in the reservoir without prior permission of the Fisheries & ARD Department with a view to preserving genetic purity and germ plasma of the indigenous strain.

Enforcement Measures

Fisheries & ARD Department shall declare officers in the rank of Fishery Extension Officer/Inspector of Fisheries and above as "Authorised Officer"; for enforcement of the above conservation measures and they shall be delegated with the following powers:

- ❖ Powers to inspect any fish, fishery product, fishing crafts, gears, plants, machinery, hatcheries, fish landing platforms / sheds, jetties etc.

- ❖ During the course of inspection, if any Authorised officer detects unauthorised fishing from a Reservoir, the Authorised Officer may take charge of the stock so caught and dispose of the stock in the open market at the prevailing price. The Authorised Officer shall thereafter lodge a F.I.R. in the nearest Police Station.

Evaluation

Need based evaluation may be conducted at an interval of five years by an independent Agency of National repute on the effect of the Policy in Reservoir Development.

6.2.7

Tamil Nadu

The State policy (Tamil Nadu Government Web site, 2005) aims at overall development of fisheries and welfare of fishermen community with the following objectives:

- To maximise fish production through eco-friendly, sustainable technologies by reducing fishing pressure in the inshore areas and by encouraging fishermen to exploit unutilised areas.
- To augment aquatic resource production in the inshore areas by conservation measures, stock enhancement and establishing of artificial reefs etc., along the coast
- To generate direct and indirect employment opportunities for fisher folk and rural masses
- To uplift the socio-economic condition of the fishing community with special emphasis on women development.
- To increase foreign exchange earning by increasing the quality standards with hygienic marketing facilities to International Standards.
- To promote sustainable eco-friendly coastal aquaculture.
- To strengthen the infrastructure facility for fish landing and marketing.
- To uplift the socio-economic condition of the fisher folk through welfare measures and by generating employment opportunities for fisher folk.
- To modify the present fisheries legislation to suit to the present condition.

During 2002, the Government of Tamil Nadu announced the Fisheries Development Mission, which is *“To manage, protect, enhance and develop fisheries and aquaculture in the interest of economy and general wellbeing of the State, consistent with the sustainability principles, and to provide economic, environmental, livelihood, nutritional and social benefits to our society”*. The 15 point Programme announced during 2002, includes the objectives of improving

fish production and biodiversity in the inland and marine waters and thereby improving the social and economic status of the poor fishermen and fish farmers.

The major objectives of the Mission (Tamil Nadu Fisheries Mission document, 2002) are:

- To optimise fish yield from small, medium and large reservoirs in the State through an integrated approach.
- To popularise integrated fish farming in tanks and ponds.
- To optimally utilise the coastal areas for productive utilisation and livelihood support for rural poor.
- To enhance marine fish stocks through sea ranching and setting up of artificial reefs along the coast.
- To reduce post-harvest losses and improve the landing and berthing infrastructure for marine fishermen.
- To ensure the safety of artisanal and small-scale fishermen at sea.
- To generate employment opportunities for fisherfolk and rural unemployed youth through aquaculture and culture-based capture fisheries.
- To enable fishermen and fish farmers to get remunerative prices for their harvest through improved marketing infrastructure.
- To provide nutritional and food security to the population through increased availability of fin and shellfishes.
- To ensure the quality of fish and fish products and create awareness among consumers.

The Vision for Fisheries Development in Tamil Nadu by the year 2015 is “Continuously improving our knowledge and understanding of the fisheries resources, their conservation, management and development. Developing socially and economically viable fisheries. Integrating emerging technologies and products, for developing environmentally sound capture and culture fisheries. Providing hygienic and safe fish and fish products to consumers. Ensuring the safety and wellbeing of the fisherfolk.”

6.2.8

West Bengal

There does not appear to be any laid-down policy, but objectives are set out for each five-year plan. The strategy for fisheries development is not engineered solely to increase fish production, but to serve the primary sector of the rural economy by generating employment for rural people and ensuring the socioeconomic upliftment of the fisherfolk (West Bengal Government Web site, 2005). The basic objectives are;

- ❖ augmentation of table-fish production;
- ❖ improvement of socio-economic conditions of the fisherfolk;
- ❖ generation of rural employment and income; and
- ❖ protecting and improving the environment.

6.3 Review of the Central/State level Fisheries Policies with respect to the Gaps in these policies.

The Ministry of Agriculture has been paying due attention to the development of deep-sea fishery in the country. The declaration of Exclusive Economic Zone (EEZ) in 1976 facilitated exploration, exploitation and utilisation of marine living resources in the 200 nautical miles Indian EEZ, thereby giving the nation immense opportunities and challenges to harvest the resources and to manage them on a sound scientific basis. The past three decades have witnessed rapid strides in the marine fisheries sector of the country. On realisation that most of the deep sea fishery resources beyond the conventional fishing limit and fishing capability of the indigenous craft can be gainfully exploited only if the upgraded and sophisticated vessels of adequate size and capabilities are inducted into the fishery and mobilisation of capital and expertise indigenously to achieve this was found difficult in short span of time, the Government addressed this issue in 1981 Charter Policy.

The Government revised the policy in 1986 to rectify the deficiencies noticed during its operation and to make it more beneficial to the country and a revised 1986 Charter Policy was pronounced.

Having laid the foundation for the Indian deep sea fishing industry, the government went ahead to broad base the initiatives through 1991 policy which envisaged joint venture, test fishing and leasing besides allowing continuing the vessels chartered under 1986 policy till the validity of their permits lasted. From the beginning of 1994, the Deep Sea Fishing Policy was criticised by various fishermen groups, mechanised fishing vessel owners, fish processors and others.

In these circumstances, the government appointed a committee to review the deep sea fishing policy, which submitted its report in 1996. The government with minor modifications accepted all the 21 recommendations of this Committee. On the basis of these recommendations, the Government rescinded all the earlier policies on deep-sea fishing. It was also decided that the fishing policies of the government should be revised from time to time.

The marine fishing policy announced by the Govt. of India in the past focused only on the developmental needs of the deep-sea sector, leaving aside similar issues pertaining to the coastal sector to the respective marine states/ UTs. Even though substantial assistance was channelised through Central and Centrally

Sponsored Schemes into the States/ UTs for the development of coastal fisheries, non-existence of an integrated policy for this sector was found to hamper fulfillment of the national objectives.

The present Comprehensive Marine Fishery Policy envisages promoting exploitation of deep sea and oceanic waters through industrial fishing for reducing fishing pressure in the traditional fishing areas, motorisation of about 50% of traditional craft allowing the remaining to carry on subsistence fishing in the near shore waters, encouraging small-mechanised sector by providing incentives for acquisition of multi-day fishing units, encouraging introduction of more resource specific deep sea fishing vessels (imported) of above 20 m length, mainly for tuna fishing and squid jigging, promoting joint venture for fishing in the EEZ by fully Indian owned companies, etc, in as far as fishing operations in the Indian seas are concerned. It is not clear from the new comprehensive marine fishing policy document on who were the stakeholders consulted before finalising the policy, what were their views and whether some of the fisheries unions/associations who were protesting against deep sea fishing in general are convinced with the 2004 policy, etc.

In the absence of a unified/comprehensive Fishery Policy covering the entire gamut of fisheries at the National level, the State Governments are evolving a policy of their own for fisheries development and management and if these policies do not take into consideration the issues and concerns of the neighbouring coastal States and the needs of the various stakeholders including those at the grass root level, these policies are likely to lead to more conflicts and Inter-State rivalries and would only be detrimental to the overall fisheries development and management .

The present policy initiatives of the States are too generalistic and are spelt out on year to year basis, as already mentioned elsewhere in this report and have not been helpful either in increasing the fish productivity and production and in tackling the growing discontentment among the fishers across the country. In spite of the fact that the marine fish production has increased from around 17 lakh tons in 1987-88 to over 29 lakh by 2003-04, if we analyse the information available it would be evident that it has been fluctuating year after year and is tending to stabilise at this level and has also brought with it a number of ecological and economic issues. In the case of aquaculture also even though the production has increase from a meagre 2 lakh tons in the late 1980s to over 20 lakh tons now, mainly from inland composite fish farming. The rapid expansion of coastal aquaculture in the early 1990s brought in a number of economic and ecological adverse impacts which lead to introduction of regulatory measures. The virtual lack of basic infrastructure facilities for production, harvest and post-harvest support; technical, financial and extension support; lack of the

adequate human resource base in fisheries, the poor socio-economic status of the fishers, lack of awareness among the fishers on sustainable development and management of fisheries and the absence of a well thought out, need based, unified policy for fisheries development and management in most of the States have all hampered the faster growth of the fisheries sector in the country.

7. Discussion

Fisheries, like other sectors, are often located within complex societal systems with particular social, economic and institutional arrangements. Increasingly these systems are also subject to the impact of change, which can have major effects on people's livelihoods. Fisheries management planning must take account of this wider context and design appropriate management systems which can cope with change. However, in many parts of the world, there is still a need to gain a better understanding of the underlying relationships involved at all levels and in all policy domains (e.g. community, sectoral and society).

A review of the fishery policy of most of the countries of the globe, particularly that of the developed countries indicate that they concentrate or deal with issues relating to curbing over-fishing, unsustainable fishing practices, and capitalisation in marine fisheries through fixing a quota system for fishing, rights based management of marine fisheries, and as a measure of conservation of fisheries resources for the benefit of the future generations. In the case of most of the other countries including China and the developing countries the fishery policies appear to be more balanced covering the entire gamut of fisheries, as compared to the developed countries, addressing all the issues related to fisheries – capture and culture fisheries in inland and marine regimes, the harvest and post-harvest support, the socio-economic aspects, etc.

Carsten Lyng Jensen (1999) while carrying out a critical review of the Common Fisheries Policy of European Union had observed that the Common Fishery Policy was based on inconsistent objectives, which arise as a consequence of the attempt to formulate a policy that deals with mutually conflicting objectives at the same time. The implemented policies do not state solution that entirely prevents the distortions of over-fishery and over-capitalisation present in the classical open access fishery. This is e.g. seen in the structural policy, where the Member States are not prevented from acting strategically in order to pursue their own interests. Moreover, the control policy shows that the EU has had difficulties in implementing a reliable policy, which would prevent the Member States from using the control policy in their own favour by implementing a *laissez faire* policy, and thereby indirectly benefit from their national fishing industries.

There is inconsistency between the implemented conservation policy and the general intention to prohibit discrimination on ground of nationality in the legislation of the EU. This controversy has to be settled once and for all, because there is the risk that the principle of equal access will eventually undermine the consensus of the relative stability in the conservation policy. And a loosening of the conservation policy will inevitable increase the distortion of over-fishing in the EU. In addition, the quota hopping indicates that there is an ongoing rivalry over the access to the resources between the Member States.

The structural policy is another example that indicates that the mis-management

in the fishery has not been completely eliminated. That is, the structural policy maintains the subsidies for construction of fishing vessels, although the Commission has suggested canceling these subsidies. Moreover, it is difficult for the authorities to restrict the effective fishing effort, because only vague restrictions on the fishing effort have been imposed, and the regulations do not take account of the substitution possibility between the different elements of the fishing effort. The structural policy does not implement effective barriers to restrict the Member States from supplying subsidies to their fishing fleets. The latter could be used strategically by the Member States to maintain a high level of national fishing effort, and thereby politically undermine the consensus of the relative stability.

The Member States are not prevented from applying a *laissez faire* control policy that practices a vague control of national vessels and thereby is used as a means that gain the fishing vessel of the Member State in an internal rivalry over the resources in the EU. Therefore, the competence to control should be transferred from the Member State to the EU authorities. This would suggest that significant financial support should be given to the authorities. This would achieve the result that the risk of detection and the applied penalty are reliable in the sense that deter the fishermen from potential offence.

The existing fisheries policies and programmes in most of the States and Union Territories revolve around populist welfare measures and a large part of the annual Plan budget goes towards the welfare programmes. Though welfare measures are obligatory to sustain the artisanal sector, parallel development and regulatory measures also need to be implemented. Welfare programmes have to be reoriented in a manner which provides long-term gains to the fishers (GOI -Planning Commission, 2001).

Since 1978 onwards the National Fish workers Forum (NFF) has been in the forefront of organising the fisher people and protecting the resources and the fishing community in India. Though the Majumadar Committee recommended

that the Parliament should enact the MFRA in 1978, because of some constitutional reasons, it could not be done. Instead, a Marine Fishing Regulation model bill was sent to the states to enact the same. Most of the coastal states responded positively but it is yet to serve the purpose fully.

The Murari Committee recommended that the Marine Fishing Regulation in EEZ should be enacted by the Parliament. On the basis of this Committee's recommendation, the Government of India rescinded the Deep Sea Fishing Policy in 1996. On 27 September 1997 the Cabinet decided to accept twenty one recommendations of Murari Committee, which were recently accepted. The NFF considered the whole marine fisheries development policy was faulty. In the light of this, the recent 2004 Comprehensive Marine Fishing Policy has been announced.

As stated in para 6.4 above, the present Comprehensive Marine Fishery Policy envisages promoting exploitation of deep sea and oceanic waters through industrial fishing for reducing fishing pressure in the traditional fishing areas, promoting joint venture for fishing in the EEZ by fully Indian owned companies, etc. It is not clear from the new comprehensive marine fishing policy document on who were the stakeholders consulted before finalising the policy, what were their views and whether some of the fisheries unions/associations who were protesting against deep sea fishing in general are convinced with the 2004 policy, etc.

The policy also states that though the MFRA of coastal States and UTs have adequate provisions for management of resources and fishing operations, it is often found falling short of effective implementation due to various reasons and this calls for a review of the situation and prescribing a fresh model bill on coastal fisheries development and management with a re-orientation on limited access in coastal marine sector through policy initiative, sound legislation and awareness creation.

During the 8th Five Year Plan period, the Central Government provided substantial funding support to the coastal states for introduction of Patrol Crafts for enabling them to enforce the provisions of the MFRA. However, none of the State Governments has taken steps to procure such patrol crafts and deploy them for enforcement of Marine Fishing Regulation Rules. Instead of creating a conducive atmosphere for the harmonised marine fishing by different categories of fishing crafts within our territorial waters, in most cases it has failed to solve the conflicts between the traditional, motorized and mechanised sectors and the destructive types of fishing continued to flourish, without any restriction, as it did not empower the fisheries personnel to take stringent measures against the violators.

The present Marine Fishery Policy as stated above envisages motorisation of 50% of the existing traditional fishing craft. As per 2000 Fisheries Statistics of the Government of India there were 1,81,284 traditional craft, besides 44,578 motorised fishing craft, 53,684 mechanised fishing craft and about 170 deep sea fishing vessels above 20 m length totaling 280,661 fishing vessels operating in the Indian EEZ for marine fishing. The coastal marine fisheries in India, is an open access fishery with out any limits on either the effort or the catch.

Over the past decade there had been a substantial increase in the number of mechanised fishing craft operating in the area within 50 - 100 m depth, from around 34,000 to 53, 680, an increase by almost 55% over the 1991-92 figures. To optimise the fishing fleet size, a “National-Level Review Committee to assess the area-wise requirements of different categories of fishing vessels below 20 m OAL” was constituted by the Ministry of Agriculture

- To review the present deployment of different categories of fishing fleet (below 20 m OAL) and their area of operation.
- To make an assessment of the optimum size of the present marine fishing fleet (below 20 m OAL) category-wise and zone-wise for deployment *vis-à-vis* the potential of the fishery resources in the EEZ.
- To identify the steps to equip the traditional/motorised and mechanised fishing fleet with navigation/communication equipment and to upgrade the technical skills of the fishermen, and
- To suggest measures for effective conservation of fishery resources in territorial waters.

This Review Committee has concluded that new generation resource-specific vessels of about 18m OAL, including trawlers and gill netters-cum-long liners, could be added to the fleet to tap resources beyond the 50 m depth zone in the Indian EEZ. It has further suggested that **the fleet size of the motorised craft should not exceed 50,000 to ease out the fishing pressure on the near-shore resources by extending the area of operation of traditional fishermen beyond 50 m depth.**

When this is the case, the present Comprehensive Marine Fisheries Policy advocates conversion of 50% of the existing non-motorised traditional craft into motorised craft, which means that about 90,600 traditional craft to be motorised. Similarly when the Committee has recommended introduction of resource specific fishing vessels of 18 m length for extending the fishing operation to offshore/deep sea, the present policy advocates fishing vessels of above 20 m length for deep sea fishing. This again is a deviation from the recommendations

of the National-Level Review Committee to assess the area-wise requirements of different categories of fishing vessels below 20 m OAL.

Recognising that the potential for further growth and development in marine capture fisheries is limited, the focus should switch to maximising returns from the existing fisheries, through reduction of harvest and post-harvest losses by providing the adequate basic and need based shore based infrastructure facilities, which should be appropriately addressed in the policy for marine fisheries and related infrastructure support facilities.

In the regions where the incidence of poverty is high or where poverty is endemic and which are endowed with vast aquaculture resources, aquaculture should be adopted not only as the source and means of livelihood and food security, but also as the main engine to drive the economy of the region in the fight against mal-nutrition and poverty. Ecologically sound or eco-system based culture systems like integrated farming of fish with paddy, poultry, livestock, horticulture, etc should be actively promoted. The policy initiatives of the States should also address these issues effectively.

8. Conclusion

The policy issues are those that provide the framework or process underpinning governance or, put differently, the context of fisheries management. Following are the major issues that should be addressed in any policy statements for development and management of fisheries (SIFAR/FAO, 2004).

Issue 1: Recognition of the potential value of fisheries

The extent to which government policy-makers recognise the value of fisheries is an important factor which will affect fisheries management performance. Failure by government to recognise the role and value of fisheries leads to little or no attention being given to policy design and implementation. This may result in the potential contribution of benefits, which fisheries might make to a country's development, being lost or used in a sub-optimal way. Governments need to assess the value of their country's fisheries and realistically consider this in the development and implementation of fisheries policy.

Issue 2: Use of appropriate policy narratives

The type of fisheries policy and management approach used by government will be underpinned by a particular understanding of events to explain developments in the fisheries sector, and forms the prevailing accepted account of what makes

a fishery function in the way that it does. Such understandings gain the status of conventional wisdom and are referred to as policy narratives. These narratives will be based upon a particular conceptualisation of the fishery system, and will be used to describe and characterise management issues and how to deal with them. Clearly, policy narratives represent a critical step in the policy process, as they are used as a basis upon which to develop an overall fisheries policy approach and to make management decisions. It is important that policy narratives reflect reality. They should include a wide range of multi-disciplinary perspectives in order to open-up opportunities for policy development and innovation.

Issue 3: Context and nature of the policy process

The nature of the policy process itself is an important issue affecting fisheries management performance. The policy process includes both the design and implementation of policy, and it can be influenced and shaped by a wide range of factors. These factors can include the national policy context (is it supportive and enabling?), the ability and willingness of stakeholders to compromise and cooperate (is power distributed symmetrically?) and the effectiveness and credibility of the decision-making processes (objective, transparent and accountable decision-making? Responsive and adaptable?). The effectiveness of the fisheries policy-making and implementation relates to the extent to which government can provide an 'enabling' environment for the policy process, which may involve targeting more general constraints that are not specific to the fisheries sector.

Issue 4: Participation in policy-making

The participation of fishery stakeholders (particularly primary stakeholders - the fishers themselves) in policy-making on fisheries management is an issue likely to affect the performance of the management systems, eventually, when they are implemented. Globally, there is increasing recognition that the underlying fisheries policy process, to be effective, requires the participation of a full range of relevant stakeholders in both policy design and policy implementation. However, it is also recognised that in many countries, policy is made and then 'handed-down' by central government with only limited involvement by other stakeholders.

The participation of stakeholders in national policy-making will take place through various processes of consultation and flows of information between government and the representatives of key constituencies such as fishing organisations or communities. In many situations, therefore, the challenge is

two-fold: first, to encourage wider participation in the policy-making process, but, second, to ensure that the participation is appropriate and effective. Without this participation, the buy-in by stakeholders is poor and the possibilities for improved fisheries management performance is reduced.

Issue 5: Nature of the legal framework

The laws of a country define the rights of fisher stakeholders and give expression to the specific rules that regulate the operation of a fisheries management system. The successful implementation of fisheries policy will depend, to some degree, upon an appropriate and workable (for all stakeholders) combination of regulatory tools defined in laws and regulations, and must be implemented and enforced. This has proved to be a challenging task in many countries. It requires the development of innovative approaches, probably linked to government decentralisation and the creation of partnerships between local government and communities, referred to as co-management arrangements.

Issue 6: An appropriate institutional framework

The performance of a fisheries management system is affected by the nature of the institutional framework within which it must operate. By 'institution' it means the framework of rules (both formal and informal) which define and govern the relationships between different stakeholders within the system (e.g. fishers-fish traders-government officials) and between the stakeholders in relation to particular fisheries resources (e.g. property rights over particular fish stocks or access to benefits).

There is a wide array of different institutional arrangements in fisheries, depending on the type of fishery, and the socio-economic, cultural and political characteristics of the associated stakeholders. The development of an appropriate institutional framework (or set of rules) for fisheries management will require the participation of all stakeholders. It must take into account existing institutional frameworks, both modern and traditional, and be prepared to deal with the difficulty of trying to modify or replace institutions in the face of this type of complexity. This in turn may require a gradual process of persuasion and consensus-building guided by effective leaders.

Issue 7: Adequate management capacity

The performance of fisheries management systems is related to the capacity of the fisheries management authority to make available the necessary management and technical skills, and provide other assets. The management bodies (or administrative entities) have to operate within the context of agreed

institutions or rules. They set objectives for management, and apply the necessary technical, human and financial capital (or assets) to achieve these objectives. Clearly, if a management organisation lacks this type of capacity, then the performance of the management system overall is likely to be impeded. An assessment of management capacity is an essential part of introducing co-management initiatives or transfers of responsibilities within fisheries. Capacity-building also requires careful design and implementation, but can have immediate and positive effects on target organisations other entities such as community groups.

Issue 8: Participation in fisheries management

The role of stakeholder participation in policy-making was discussed in Issue 4 above. Distinct from this is the importance of stakeholder participation and, therefore, influence on the performance of fisheries management. It is generally acknowledged worldwide that the participation of stakeholders in fisheries management has a positive effect on fisheries management performance and is desirable. However, effective participation is also problematic to achieve. It cannot be simply 'handed-government decree that it should happen; stakeholders need to internalise the need for participation.

Its successful introduction depends on a careful assessment of opportunities and constraints, and the development of appropriate capacity-building, preferably using a process approach.

Issue 9: Fisheries information and assessment

The flow of relevant and timely information is a fundamental feature of an effectively functioning fisheries management system. The type and quality of the information is dependent upon the assessment methods used and applied within different areas of the system. The international literature reveals an increasing trend towards multi-disciplinary perspectives on fisheries management issues and problems. In turn, this requires a sound base of multi-disciplinary information using an appropriate portfolio of assessment and study techniques from both natural social sciences.

An effective management system should be able to use this information to adapt to changing conditions. Information for decision-making should be used in a responsible and transparent manner.

Issue 10: Political will and leadership

The final issue which can influence the performance of a fisheries management system is that of political will and leadership. In many ways, this is an issue which cuts across all of the other nine issues above. In fundamental terms, the term 'political will' tries to express the extent and nature of support which a government and its policy-makers provide for fisheries in real terms. Clearly, without the support of government and policy-makers to create an enabling environment for policy design and implementation, the performance of fisheries management systems will almost certainly be constrained. Creating an enabling environment is not sufficient, however. Effective fisheries management also requires a champion to take forward the changes that are inevitably involved. Political will or support from government for fisheries management is an essential prerequisite for the effective implementation of policy. It most readily appears once the value of fisheries is recognised.

In line with the above observations and the precautionary principles outlined in the concept of Sustainable Development, any policy to be devised for implementation in the fisheries sector should consider the aforesaid aspects and acceptable to all those involved in fisheries and fisheries related activities.

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