Chapter 1: Fisheries Subsidies and Current Regulations under International Law

I. Introduction

Due to the negative impact that fisheries subsidies have on trade, the environment and sustainable development, there is an urgent need to regulate fisheries subsidies. However, current legal frameworks are ineffective at regulating fisheries subsidies. Depletion of fish stocks can lead to permanent changes in the dynamics of the marine ecosystem as well as to the extinction of some fish species and the economic devastation of the communities whose livelihoods depend on healthy fisheries. These resources are non-renewable if not properly managed. In spite of work done by intergovernmental organizations on this front, progress to date has been insufficient to control fisheries subsidies. This Chapter looks into the nature of fisheries subsidies. It then examines to what extent current regulations under international law can be applied to fisheries subsidies and demonstrates why new legislation is required.

II. Background of Fisheries Subsidies Issues

A. Magnitude of Global Fisheries Subsidies

Subsidies to the fisheries sector in both developed and developing countries have existed for hundreds of years. In the late eighteenth century, fisheries subsidies already existed for herring and whale fisheries in Scotland. In the nineteenth century, several other North Atlantic fishing nations and Japan felt compelled to subsidize fishing, due to the fear that other nations with more modern fleets would otherwise grab their share of the fish harvested from international waters. By the middle of the twentieth century, governments that could afford it were supporting commercial fishing by various means, including helping with the conversion of fishing fleets to powered ships, and replacing oar and sail vessels, as well as through direct capital grants, loans and assistance for major port improvements.[6]

[6] *Ronald P. Steenblik*, "Previous Multilateral Efforts to Discipline Subsidies to Natural Resource Based Industries" (Paris: OECD, 1998), at 19.

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There have been several significant intergovernmental efforts to quantify fisheries subsidies. A World Bank study estimated environmentally harmful global fisheries subsidies between USD 15-20 billion, depending on the low and high estimates for the various subsidy categories.[7] Similarly, the United Nations Environment Programme (*UNEP) and the* World Wildlife Fund (WWF) estimated that the actual level of global fisheries subsidies is at least USD 15 billion,[8] which amounts to 20 percent of the total value of global fish catches. More than 90 percent of global fisheries subsidies are provided by a few countries.[9] It is estimated that governments of the Organization for Economic Co-operation and Development (OECD) spend USD 6 billion on financial transfers,[10] of which one third is destined for research, management and enforcement, another third for fisheries infrastructure and another third in various other forms.[11]

The actual level of fisheries subsidies differs from what governments officially report to the international organizations. The reasons include the failure of most governments to comply with WTO legal obligations of notification requirements;[12] inadequate cooperation from governments with data collection efforts; failure to account fully for important classes of subsidies from which fishing enterprises directly benefit, including certain shipbuilding subsidies, subsidies to the fish-processing sector and payments under government-to-government fishing access agreements; underreporting of off-budget subsidies; and failure to account sufficiently for subsidies granted by sub-national governments, i.e. national, regional and local governments.[13] As most international mechanisms face these

7 *Matteo Milazzo*, *supra* note 1, at 74. This estimate is based on World Bank research in 1998. The World Bank conducted this study on subsidies in world fisheries with the intention of avoiding lending money for projects that may increase capacity or effort in marine capture fisheries.

8 *UNEP*, "A UNEP Update, United Nations Environment Programme, Division of Technology, Industry and Economics, Economics and Trade Branch" (Geneva: UNEP, 2004), at 1; *WWF*, *supra* note 1, at 24.

9 *Matteo Milazzo*, *supra* note 1, at 73-77. The countries include Japan, the EU, the United States, Canada, Russia, Korea, Indonesia, Taiwan, Norway and China.

10 *OECD*, "Policy Brief: Subsidies: a Way towards Sustainable Fisheries?" (Paris: OECD, 2005), at 1; *Ola Flaaten and Paul Wallis*, "Government Financial Transfers to Fishing Industries in OECD Countries" (Paris: OECD, 2000), at 5, stating that the figure was approximately USD 6.3 billion in 1997 and USD 6.0 billion in 1999.

11 *OECD*, "Review of Fisheries and Transition to Responsible Fisheries" (Paris: OECD, 2000). The various other forms consist of payments for access to other countries' waters, payments for vessel decommissioning and license retirement, transfers for investment and modernization, transfers for income support and unemployment insurance, and other cost-reducing transfers and direct payments.

12 Article 25 of the SCM Agreement.

13 *WWF*, *supra* note 1, at 15-23; *Anonymous*, "Scope for Market Liberalization in the OECD Fisheries Sector" (Paris: OECD, 2003), para. 24; *Carl-Christian Schmidt*, "Globalisation, Industry Structure, Market Power and Impact on Fish Trade, Opportunities and Challenges for Developed (OECD) Countries" (Paris: OECD, 2004), at 14.

difficulties in estimating the nature and size of fisheries subsidies, it is likely that the actual amount has been underestimated.

From an economic perspective, there are three potential justifications for subsidies. First of all, the infant-industry concept, whereby a government provides seed capital to develop a domestic industry if this is to take hold in the face of existing foreign competition. Second, a large and important firm may encounter temporary financial difficulties which may spill over and damage other sectors of the economy. By temporarily offering subsidy protection, the government might protect the entire economy. Third, subsidies can be used to provide incentives for firms to behave in environmentally friendly ways. Fishing vessel and license buyback programmes may fall into this category.[14] Other reasons for the implementation of subsidies, rarely justified by economists unless tied to one of the arguments stated above, are to provide an industry with a long-term advantage in the international marketplace and to permanently assure a reasonable level of employment in a geographical area. For instance, Norway has a policy of subsidizing the northern part of the country to sustain the physical presence of a population there and to maintain the fishing culture.[15]

B. Definition of Fisheries Subsidies

1. Definition by International Organizations

Fisheries subsidies are subsidies to the fisheries sector. Financial support, economic assistance, government financial transfers, government grants and state aid[16] are the most commonly used names for government payments to certain enterprises or sectors.[17] The range of possible definitions is extensive, from the narrow "government financial transfers to an industry, through payments to work-

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14 *FAO* Doc. FAO Fisheries Technical Paper No. 437, "Introducing Fisheries Subsidies" (Rome: FAO, 2003), at 6-9.

15 *Ibid.*, at 9.

16 The use of different names and definitions can partially be explained by the purposes for which the various analyses of subsidies have been undertaken. These names do not cover the same definitions and have been used in rather different contexts over the years. *Anthony Cox and Carl-Christian Schmidt*, "Subsidies in the OECD Fisheries Sector: a Review of Recent Analysis and Future Directions" (Paris: OECD, 2002), paras. 6-7; *Anne Tallontire*, "Trade Issues Background Paper: The Impact of Subsidies on Trade in Fisheries Products" (Rome: FAO, 2004), at 4. These names are used interchangeably in this study.

17 *Anthony Cox*, "Overview of Approaches for Assessing Subsidies", in *OECD*, "Subsidy Reform and Sustainable Development, Economic, Environmental and Social Aspects", pp. 25-40 (Paris: OECD, 2006), at 25; *OECD*, "Environmentally Harmful Subsidies: Challenges for Reform" (Paris: OECD, 2005), at 16.

ers or to firms at the most conventional level"[18] to the broad "government action or inaction that modifies (by increasing or decreasing) the potential profits earned by a firm in the short, medium and long term."[19] Discussions of subsidies in international trade began by drawing the distinction between "export subsidies" and "domestic," "production" or "general" subsidies.[20] Subsidies granted to products for export purposes have been viewed as particularly harmful.[21]

Many studies by international organizations have been involved in defining fisheries subsidies, including the FAO and OECD. FAO developed the "Guide for Identifying, Assessing and Reporting on Subsidies in the Fisheries Sector" (the Guide)[22] to deal with all types of subsidies, from those that are easy to quantify to those that are difficult to assess with respect to their costs to the provider, as well

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18 *FAO* Doc. FAO Fisheries Technical Paper No. 437, at 2-3, illustrating that funds do not need to be passed directly from government to the industry for the government policy to constitute a subsidy.

19 *Ibid.*, at 3; *W.E. Schrank and W.R. Keithly, Jr.*, "The Concept of Subsidies", Marine Resource Economics, Vol. XIV, pp. 151 *et seq* (1999), at 163.

20 *S. Alessandrini*, "Subsidies, Strategic Trade Policies and the GATT", in *Jacques H. J. Bourgeois* (ed), "Subsidies and International Trade, a European Lawyer's Perspective", pp. 5-19 (Bruges: College of Europe, Kluwer Law and Taxation Publishers, 1991), at 5; *John H. Jackson*, "The World Trade System: Law and Policy of International Economic Relations" (2ed., Cambridge: The MIT Press, 1997), at 280-281, also emphasizing that economically, a distinction should be drawn between domestic and export subsidies, on the assumption that the latter distort international trade. Another distinction is drawn between specific and general subsidies, on the assumption that only the former distort competition and affect trade, while the latter apply uniformly across the economy and do not favour certain enterprises or industries.

21 *John Barcelo*, "Subsidies, Countervailing Duties, and Antidumping after the Tokyo Round", Cornell International Law Journal, Vol. 13, pp. 257 *et seq* (1980), at 282-285. For example, it has been argued that because export subsidies are such an obvious attempt to impose burdens which are more political or producer-oriented than they are economic in a broader sense on other countries, perhaps an injury test should not even be a criterion for responding with countervailing duties in such cases. If this logic is followed, it might even be argued that an importing country should have the obligation to counter export subsidies by imposing countervailing duties on the products concerned. On the other hand, domestic or production subsidies are subsidies that are granted for the benefit of products, regardless of whether those products are exported or not. These are clearly the most perplexing, because they involve a vast range and number of government policies, many of which are perfectly justifiable as exercises of sovereign activity within a country.

22 The Guide was a technical tool developed in 2002 as the first step of the FAO towards an improved understanding of the qualitative and quantitative effects of subsidies. The Guide provides guidance for assessing the costs to the provider and the benefits to the recipients, but it does not offer any methodology for evaluating whether subsidies have impacts on social, economic, trade or other characteristics of the economies in which they are used. *FAO* Doc. FAO Fisheries Technical Paper No. 438, "Guide for Identifying, Assessing and Reporting on Subsidies in the Fisheries Sector" (Rome: FAO, 2004).

as in determining the value to the recipient.[23] The Guide defines fisheries subsidies as government actions or inactions beyond normal practices that, by increasing or decreasing them, modify the potential profits of the fisheries industry in the short, medium or long term.[24] It considers that subsidies include regulatory interventions, interventions by third-country governments and profit-decreasing subsidies. The Guide constitutes an excellent support document for subsidy studies.

In 1993, the members of the Expert Group of the OECD Committee for Fisheries were of the opinion that the concept of assistance to the fishing industry should be defined as government interventions or the lack thereof which distort the allocation of resources in that country relative to an efficient allocation.[25] In recent OECD studies, government financial transfers (GFTs) are defined as the monetary value of interventions associated with fishery policies, whether they are from central, regional or local governments.[26] In general, a subsidy is a result of a government action that confers an advantage to consumers or producers, in order to supplement their income or lower their costs.[27] OECD analysts working on subsidies to marine capture fisheries seem for the moment to have adopted the GFT as the default measure, even if difficulties remain in assessing their size, due to the fact that some transfers are not posted as expenditure or because the amounts involved are relatively small.[28] These intergovernmental agencies have a diverse membership, with each member country having its own perspectives and interests, and tend to take a liberal view of subsidies: subsidies are what each member nation considers them to be.[29]

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23 *FAO* Doc. No. COFI/2003/8, "Conclusions and Recommendations of the FAO Expert Consultation on Identifying, Assessing and Reporting on Subsidies in the Fishing Industry" (Rome: FAO, 2003), para. 4.

24 *FAO* Doc. FAO Fisheries Technical Paper No. 438, at 7-8, adding that "government" here means government and public bodies other than the ones in the country where the subsidy as such exists, including contributions from public and international development aid and cooperation institutions, and actions or inactions by non-fishery government agencies and organizations. "Fisheries industry" refers to all productive sub-sectors of the fisheries and aquaculture sector, i.e. all types of input industry, including transport and other support services: capture fisheries, aquaculture, processing and marketing. The term "potential profits" means the overall profitability of the industry. Although subsidies affect profits in the short, medium and long term, the Guide focuses on the more direct short-term financial effects.

25 *OECD* Doc. No. AGR/FI(93)11/REV1, "Economic Assistance to the Fishing Industry Observations and Finding" (Paris: OECD, 1993), para. 76, implying that the lack of efficient management of fish resources, restrictions on free trade in fish, fish products and fishing services, as well as on migration of fishermen and on foreign investment in the fishing industry, constitute assistance.

26 *Anthony Cox*, "OECD Work on Defining and Measuring Subsidies in Fisheries" (Paris: OECD, 2003), para. 4.

27 *Anthony Cox*, *supra* note 17, at 25; *Ronald P. Steenblik*, *supra* note 6, at 1.

28 *OECD*, *supra* note 17, at 16.

29 *FAO* Doc. FAO Fisheries Technical Paper No. 437, at 3.

2. Definition by the WTO

The term "subsidy" appeared for the first time in the Havana Charter[30] and was provisionally adopted in the General Agreement on Tariffs and Trade (GATT). The definition of subsidies was not agreed until the adoption of the Agreement on Subsidies and Countervailing Measures (SCM Agreement). The WTO offers a precise definition of subsidies under Article 1 of the SCM Agreement. Even though subsidies have been used as strategic trade policies in industrial countries since the eighteenth century, the term "subsidies" was one of the most frequently used and infrequently defined in the whole vocabulary of international trade regulations until the SCM Agreement.

The definition of subsidies under the SCM Agreement is given as the legal standing to justify countervailing duties and other disciplines against Members that violate the SCM Agreement. Serving as the only internationally agreed legal definition of subsidies, it is the starting point for many of the sectoral definitions used in practice.[31] This study focuses on the definition under the SCM Agreement for fisheries subsidies.

Article 1 of the SCM Agreement provides that a subsidy exists when there is a "financial contribution" by a "government or any public body within the territory of a Member"[32] that confers a "benefit."[33] Accordingly, a subsidy is deemed to exist when a benefit is conferred on an industry as a result of (1) a direct transfer by the government of funds (e.g. grants, loans and equity infusion) or potential direct transfers of funds or liabilities (e.g. loan guarantees); (2) foregone or uncollected government revenues (e.g. fiscal incentives such as tax credits); (3) when the government provides goods or services other than general infrastructure or purchases goods; (4) when the government makes payments to a funding mechanism or to a private body to carry out any of the functions described above; or (5) when there is any form of income or price support in the context of Article XVI of GATT 1994.

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30 *Gustavo E. Luengo Hernandez de Madrid*, "Regulation of Subsidies and State Aids in WTO and EC Law" (The Hague: Kluwer Law International, 2007), at 36. The purpose of the Havana Charter is to establish an International Trade Organization (ITO) which together with other multilateral institutions such as the World Bank and the International Monetary Fund, would contribute to stabilizing the economic, political and social situation following World War II. However, the establishment of ITO failed and GATT 1947 was founded.

31 *Anthony Cox*, *supra* note 17, at 25-26, explaining that the OECD also occasionally follows the definition under the SCM Agreement.

32 The subsidy may be provided by state-owned companies within the territory of a Member.

33 *WTO* Doc. No. WT/DS70/AB/RW, "Report of the Appellate Body, Canada-Measures Affecting the Export of Civilian Aircraft" (21 July 2000), para. 9.96.

C. Categorization of Fisheries Subsidies

A basic understanding of the fisheries subsidies programmes is helpful for examining the nature and impact of these and developing effective policies and regulations. Several instruments have classified the various types of fisheries subsidies based on their research. The main studies by the FAO and OECD can serve to illustrate the various categories of fisheries subsidies.

The FAO divides fisheries subsidies into six basic categories: (1) direct government payments to the fishing industry; (2) service and indirect financial transfers; (3) implicit payments to or charges against the industry; (4) general programmes that affect fisheries; (5) regulations; (6) lack of government intervention.[34] Further details of these six categories can be found in Table I of Attachment I. The OECD, on the other hand, divides fisheries subsidies into five basic categories: (1) direct payments; (2) cost-reducing transfers; (3) general services; (4) market-price support; (5) cost recovery.[35] Further details of these five categories can be found in Table II of Attachment I. The categorization of fisheries subsidies of the FAO is broader than that of the OECD.[36]

D. Impact of Fisheries Subsidies

The following section analyzes the various impacts of the different types of fisheries subsidies on trade, the environment and sustainable development.

1. Impact on Trade

In general, there are at least three impacts of subsidies on trade, including (1) enhancing the exportability of products to an importing country, (2) enhancing the exports of the subsidizing country to a third country, thereby adversely affecting the exports of another country, and (3) restricting imports into the subsidizing country.[37] All of these impacts violate the liberalization of international trade. The

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[34] *FAO* Doc. FAO Fisheries Technical Paper No. 437, at 11-13; *FAO* Doc. FAO Fisheries Technical Paper No. 438, at 15-17; *FAO* Doc. FAO Fisheries Report No. 638, "Report of the Expert Consultation on Economic Incentives and Responsible Fisheries - Rome, 28 November-1 December 2000" (Rome: FAO, 2000), paras. 33-36; *FAO*, "The State of World Fisheries and Aquaculture 2002" (Rome: FAO, 2002), at 93-95.

[35] *Anthony Cox and Carl-Christian Schmidt*, *supra* note 16, paras. 12-21; *Anthony Cox*, *supra* note 26, paras. 6-11.

[36] *OECD*, "Financial Support to Fisheries, Implications for Sustainable Development" (Paris: OECD, 2006), at 20-21.

[37] To be more illustrative, the three effects of subsidies are (1) Subsidies of Country A can enhance the exportability of products to an importing Country B. Country B may wish to respond with countervailing duties. (2) Subsidies from Country A can enhance the export of its products to a third Country C, where they compete with

exact consequences of fisheries subsidies depend on how they are implemented and how they interact with other government policies. Subsidies may distort the efficient allocation of resources and the pattern of international trade.[38] Normally, without effectively restricting catches, fisheries subsidies enable fishermen to increase fish supplies to domestic and world markets, thus influencing trade flows and prices.

2. Impact on the Environment

Even though some international organizations, such as the FAO,[39] have found it difficult to prove the relationship that subsidies cause overcapacity and that overcapacity causes overfishing, it should be clear that overfishing could not take

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similar products that are exported from Country B. In such a case, Country B does not have easy recourse to a response. Its own countervailing duties are not effective. It may not wish to competitively subsidize its exports. Thus, it must somehow induce the importing country, in this case Country C to respond to the subsidized imports. Country C, however, may be quite happy to receive such subsidized goods. Consequently, Country B's grievance against Country A may have to be aided by some other techniques, such as recourse to an international forum, such as the GATT. (3) A third effect of subsidies can be to restrain imports into the subsidizing country. Thus, if Country A subsidizes its bicycles even when all of those bicycles are sold in its home market, one effect is to make it harder for other countries such as B or C to export bicycles to Country A. The subsidy in this situation has become an import barrier, and economists can demonstrate that the effect is in some ways similar to a tariff. Once again, countervailing duties will not provide a remedy, because the country that is "harmed" is not receiving subsidized imports. *John H. Jackson*, *supra* note 20, at 280-281.

38 *Anonymous*, "Measuring Assistance to the Fishing Industry: Some Conceptual Issues, Submitted by the Australian Authorities" (Paris: OECD, 2001), at 1.

39 For example, the Guide explains that it is difficult to identify and assign reasonable values to subsidies from regulations and lack of government intervention, especially with regard to the industry value, since they affect the conditions under which the firm operates and are not directed to one distinguishable recipient or group of recipients. *FAO* Doc. FAO Fisheries Technical Paper No. 438, at 43-44. However, the Guide has been considered too theoretical. *FAO* Doc. FAO Fisheries Report No. 702, "Report of the Twenty-fifth Session of the Committee on Fisheries, Rome, 24-28 February 2003" (Rome: FAO, 2003), para. 72; *FAO* Doc. FAO Fisheries Report No. 752, "Report of the Technical Consultation on the Use of Subsidies in the Fisheries Sector" (Rome: FAO, 2004), paras. 10-15; *UNEP*, "UNEP Workshop on Fisheries Subsidies and Sustainable Fisheries Management, Geneva, 26-27 April 2004, Summary of the Chairs" (Geneva: UNEP, 2004), at 3-5; *WTO* Doc. No. TN/RL/W/161, "Communication from New Zealand, Fisheries Subsidies: UNEP Workshop on Fisheries Subsidies and Sustainable Fisheries Management" (8 June 2004), at 4-6; *WTO* Doc. No. WT/CTE/W/236, "Contribution by UNEP, UNEP Workshop on Fisheries Subsidies and Sustainable Fisheries Management, Geneva, 26-27 April 2004, Summary of the Chair" (17 June 2004), paras. 19 and 28.

place without overcapacity, and it is highly likely that overcapacity has been assisted by fisheries subsidies, in particular those subsidies for the construction and modernization of fishing fleets. Other studies, however, based on qualitative analysis, have concluded that fisheries subsidies have negative impact on the environment as detailed below.

a. Impact on Fisheries Resources

At a UNEP technical workshop in 2001, the consensus was that improperly designed fisheries subsidies programmes are among the direct causes of fisheries over-exploitation, particularly in the absence of effective management regimes. UNEP developed a matrix approach for assessing the impact of fisheries subsidies on fisheries resources under various management and bio-economic conditions.[40] It can serve as an analytical basis for designing new or improved fisheries subsidies regulations that will help protect fisheries resources, although there are difficulties in translating a matrix approach into clear and enforceable rules and obligations due to the complexity of the issues.[41]

The matrix approach is based on a framework of idealized fisheries management regimes including open access, catch control (with no property rights) and an effective management system (with catch control and property rights); and on the status of fisheries resources, including overcapacity, full capacity and less-than-full capacity.

In order to help further understanding of the conclusion of the matrix approach, relevant definitions should be made as follows:

(1) Fisheries management is the integrated process of information gathering, analysis, planning, decision making, allocation of resources and formulation and enforcement of fishery regulations by which the authority controls the present and future behaviours of the interested parties in the fishery, in order to ensure the continued productivity of the living resources.[42]

(2) Open access fisheries or common access fisheries can be defined as lacking any legal or regulatory framework. It is a condition of a fishery in which anyone who wishes to fish may do so. It means access to the fisheries resource is free to anyone who wants to use or harvest it because there is no ownership of the resource.[43]

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40 *UNEP*, "Analyzing the Resource Impact of Fisheries Subsidies: A Matrix Approach" (Geneva: UNEP, 2004), at 4-18.

41 *UNEP*, "Chairman's Summary, UNEP Fisheries Subsidies Workshop Geneva, 12 February 2001" (Geneva: UNEP, 2001), at 4.

42 *FAO* Doc. FAO Fisheries Report No. 519 "Guidelines for responsible management of fisheries. Report of the Expert Consultation on Guidelines for Responsible Fisheries Management, Wellington, New Zealand, 23-27 January 1995" (Rome: FAO, 1995), at 54.

43 *Jon G. Sutinen,* NOAA Technical Memorandum NMFS-NE-158 "A framework for monitoring and assessing socioeconomics and governance of large marine ecosystems" (Massachusetts: National Marine Fisheries Service, 2000), at 28.

(3) In terms of fisheries, property right management is a claim to the benefit stream that some higher body, usually a government, will agree to protect through the assignment of duty to others who may covet, or somehow interfere with, the benefit stream.[44] Individual transferable quotas (ITQs) are usually applied to the property right management system. An ITQ is a right to harvest a particular amount of resources, that can be transferred, e.g. by sale, lease or will.[45]
(4) Before defining "capacity" or "overcapacity", the meaning of total allowable catch (TAC) should be clarified. TAC means the total catch allowed to be taken from a resource in a specified period as defined in the management plan.[46]
(5) On the basis of the FAO definition of fishing capacity,[47] the economic term "overcapacity" can be described in two ways. First, in input terms, "overcapacity" means there is more than the minimum fleet and effort required to produce a given TAC or given output (harvested catch) level. Thus, overcapacity can be measured to provide fishery managers with information on the ability of a fishing firm or industrial fleet to harvest the target level of capacity at its lowest cost for a given desired stock abundance level. It can be measured at the target levels as well as at economically efficient levels of production. Second, in output terms, overcapacity means the maximum harvest level that a fisherman or a fleet can produce with given levels of inputs which would exceed the desired level of harvesting or TAC.
(6) Based on the exploitation rate, which is the proportion of a fish population at the beginning of a given time period that is caught during that time period, the state of fish stocks can identified as under-exploited, intensively exploited, fully exploited, and over-exploited.[48]
(7) Overfishing means, in terms of biology, catching such a high proportion of one or all age classes in a fishery as to reduce yields and drive stock biomass,

44 *Ibid.*

45 *FAO* Fisheries Glossary, available at <www.fao.org/fi/glossary/default.asp> (last visited on 31 October 2009).

46 *Ibid*. The TAC may be allocated to the stakeholders (operating units such as countries, vessels, companies or individual fishermen) in the form of quotas as specific quantities or proportions. Quotas may or may not be transferable, inheritable and tradable.

47 Fishing capacity as defined by FAO is the amount of fish or fishing effort that can be produced in a period of time, e.g. a year or a fishing season, by a vessel or a fleet if fully utilized and for a given resource condition. It is the ability of a stock of input (capital) to produce output (measured as either effort or catch). It can be measured either in terms of input or in terms of output. In input terms, the economic definition of capacity can be considered as the minimum fleet and effort required to produce a given TAC or given output level. In output terms, capacity can be considered as the maximum harvest level that a fisherman or a fleet can produce with given levels of input, e.g. fuel, amount of fishing gear, ice, bait, engine horsepower and vessel size.

48 *FAO* Fisheries Glossary, *supra* note 45.

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