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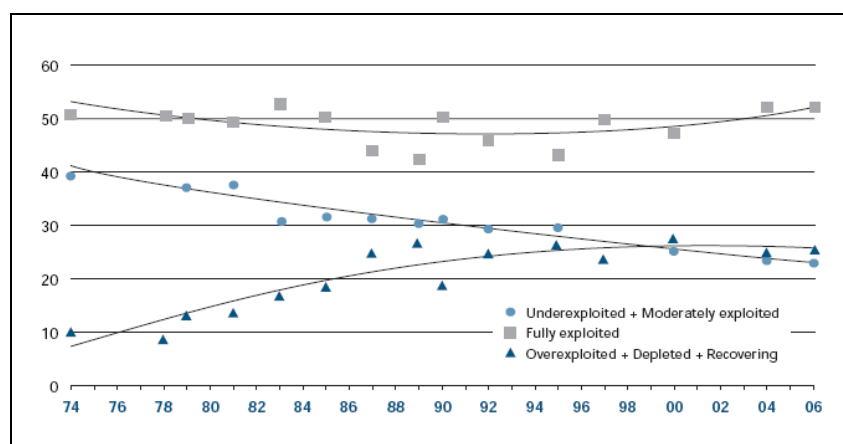
Introduction

1. The global crisis of fisheries and its socio-economic implications

Research on marine ecology has revealed that a severe exploitation of the marine environment has taken place during the last decades, under the impact of multiple causes (Christensen et al. 2007: 81). Among the many policy documents produced on the topic, the United Nations Environment Programme (UNEP) has recently reported on the current threats to the marine environment. The report (UNEP/GPA 2006) emphasizes the threat represented by the increase in 'physical alteration and destruction of habitats', which mainly consists in changes in land use (e.g. draining of wetlands for settlements, construction of ports, and installation of touristic facilities) and overuse of fisheries resources.

Although fish quantity cyclically fluctuates for natural reasons (e.g. water temperature variations), or induced factors (such as climate change), fish stocks' depletion has been caused largely by direct anthropogenic forces, like land-based pollution and, above all, over-fishing (Christensen et al. 2007; Defeo et al. 2007). Local problems of over-fishing were already recognized by the end of the nineteenth century (Peterson 1993: 250), but it is the increase in catch which took place during the 1950s and 1960s that has led to a global fisheries crisis. This crisis dates back to the 1970s (see figure 1.1.) and transcends national boundaries, thus affecting both the north and south of the planet (Chuenpadgee et al. 2005: 29).

Figure 1.1
Global trends in the state of the world marine stocks since the 1974

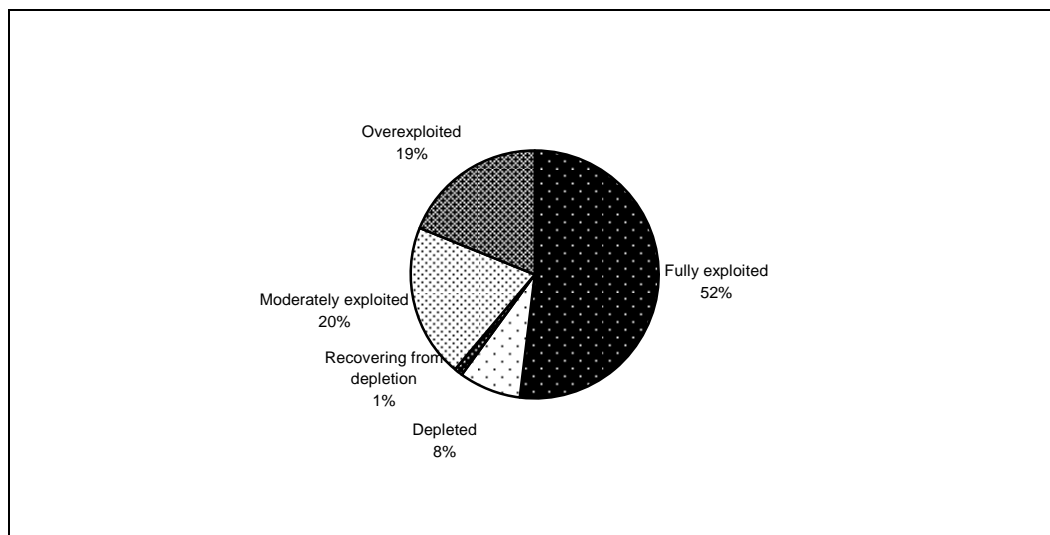


Source: FAO (2007: 32)

Indeed, at the beginning of the 1950s less than 5% of the global marine fisheries resources were maximally exploited or overexploited. By the end of the 1950s, the growth in demand stimulated a growth in production and export, which has continued during the following decades (FAO 2007: 36). Garcia and Newton (1997: 4, quoted in Yandle & Dewees 2003: 101) state that from 1952 to 1992 marine fisheries catch increased 300% (from 18.5 to 82.5 million metric tons). International reports show that global per capita fish consumption has increased from 9.0 kg in 1961 to (estimated) 16.5 kg in 2003 (FAO 2007: 36).

The result is that, according to the Food and Agriculture Organization (FAO 2009: 7), in 2007, 52% of fish stocks were fully exploited, and 28% were over-exploited, depleted, or recovering from depletion; only 20% were moderately exploited¹ (see figure 1.2). What is even more alarming is that, according to new research (Pauly 05.02.2008) world fish catch (i.e. the quantity of stocks that are fished) has stopped to increase and seems to be decreasing since the 1990s². Yet, this decreasing actual catch has occurred in a period of time (since the 1990s) when the fishing effort (i.e. how much we fish) has increased. In simple words, we fish more (the activity) but we catch less (the result). According to some authors (Christensen et al. 2007: 70-71; Pauly 05.02.2008) this paradox between more fishing activity, on the one hand, and less fish caught, on the other hand, clearly represents a symptom of the current depletion of fish stock present in the seas.

Figure 1.2
The status of fisheries resources in 2007



Source: Elaboration on data from FAO (2009: 29)

¹ Every two years, the Food and Agriculture Organization (FAO) of the United Nations issues 'The state of world fisheries and aquaculture'. The documents collect updated data on the general trends of fisheries resources across the globe.

² World marine capture fisheries production is now at 70-80 million tons annually (Christensen et al. 2007: 70). More precisely, it was 85.8 million tones in 2004 (FAO 2007: 9).

The loss of fisheries resources directly translates into a damage for the all environment (both directly and indirectly, though food chains and ecosystem interactions) and socio-economic losses (e.g., loss of income and employment, decrease of food security and drawback in poverty reduction) that are particularly acute for developing countries (Hanna 2003: 66).

The overexploitation of fisheries resources reduces the opportunities of economic development of those communities and countries that heavily depend on their use (Hanna 2003: 63). Fish represents, indeed, both a commercial and subsistence resource: fisheries are not only important for GDP and trade; they often represent an important source of employment, income and food security, especially for developing countries (Failler & Pan 2007; OECD 2006).

With regard to production and trade, developing countries account for nearly 70 per cent of global marine capture fisheries production and nearly 50 per cent of the total world fishery commodity export trade. Six of the top ten marine fish producing countries belong to the developing world – China, Peru, Chile, Indonesia, India and Thailand – and four of the top ten fish exporting states are again developing countries – China, Thailand, Chile and Vietnam (FAO 2007: 41-47).

Fisheries are also an important source of employment: the number of fishers has increased in the last three decades. This has mainly happened in developing countries, particularly in Asia (FAO 2007: 23; WRI 2005). China is today the country with the highest number of fishers in the world (8.5 million in 2004) (FAO 2007: 23), which confirms the relevance of the country in world fisheries. As it has been noted in other works on environmental degradation, poverty is both the cause and the result of environmental degradation (Choucri & North 1993): poverty causes over-fishing (for lack of alternative livelihoods) but over-fishing undermines the sustainability of fisheries resources and, consequently, generates more poverty (Chuenpadgee et al. 2005).

Concerning food, in 2004, 75% of total world fish production (from marine capture, inland waters and aquaculture) was destined to direct human consumption; only the remaining 25% of non-food production was used for non-food products (e.g., fishmeal and oil) (FAO 2007: 34). Particularly in developing countries fish products constitute an important source of protein (Chuenpadgee et al. 2005). Fish provides almost 20% of world average capital intake of animal protein; this value increases to 50% in many developing countries (FAO 2007: 36).

Furthermore, the mismanagement of fisheries resources located in the area under national jurisdiction, the Exclusive Economic Zone (EEZ) has consequences for biodiversity that do not stop at the EEZ of each single state. This makes such national areas the object of a global responsibility (Treves³

³ Tullio Treves is judge at the International Tribunal for the Law of the Sea.

13.10.2008). A global intervention transcending the state is, then, needed to manage fisheries resources (Flitner 1998: 144; Goldman 1998: 36-39).

2. The international legal framework for marine fisheries in the EEZ

Intended as 'institutions' (Young 1997: 279) or 'systems of governance' (Young 1994: 26; Kooiman 2003: 108; Vogler 2000: 20) that regulate and manage specific issues of international relations (Breitmeier et al. 2006: 253; Chayes et al. 2000: 49; Hanf 2000: 5; Kooiman 2003: 106; Victor et al. 1998: 8), international regimes have grown since the end of World War II as a response to the demand for governance in areas of international relevance (Breitmeier et al. 2006). More precisely, international regimes are "sets of implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations" (Krasner 1982: 186, quoted in Stokke 1997: 31).

This report will adopt from Porter and Brown (1991: 20) a legalistic definition of regimes based on formal rules (i.e. specified in agreements). In addition, similarly to Breitmeier et al. (2006) and Young (1997), this report will assume that international regime rests on a set of international accords, i.e. both binding instruments, such as treaties (international hard-law), and non-binding documents (international soft-law).

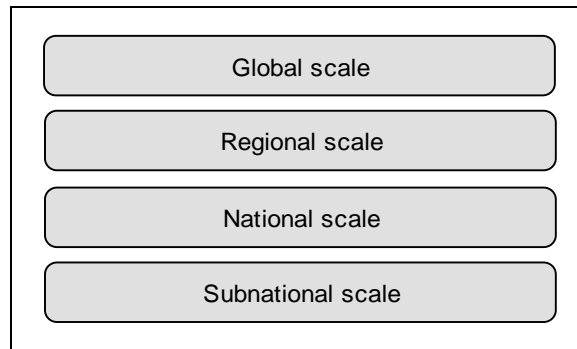
Numerous international accords have targeted various aspects of fisheries and have focused on specific geographical areas or all oceans, addressed single species of fish stock or all fisheries resources, and ruled fishing activities in the high seas or the sea area under national jurisdiction. The consequence is that multiple international regimes for fisheries can be counted depending on the scale (global vs. regional), the scope (all vs. some fish species) and the focus (high vs. national seas)⁴.

With regard to the scale, Symes (2007: 782) distinguishes four scales of governance in fisheries management: global, regional, national and local. A global layer of governance is structured by the UN⁵ and its agencies through binding and non-binding instruments, and provides guidance for further regional arrangements and national actions. National fisheries policies should then be adapted to local contexts by sub-national institutions.

⁴ For example, Peterson (1993) counts 23 international fisheries regimes.

⁵ International marine cooperation and policy-making existed before the 1945, but according to Turrell (2004: 5) "it was the UN process which has steered the development of international ocean governance and policy since its inception in 1945".

Figure 1.3
Scales of governance in fisheries management



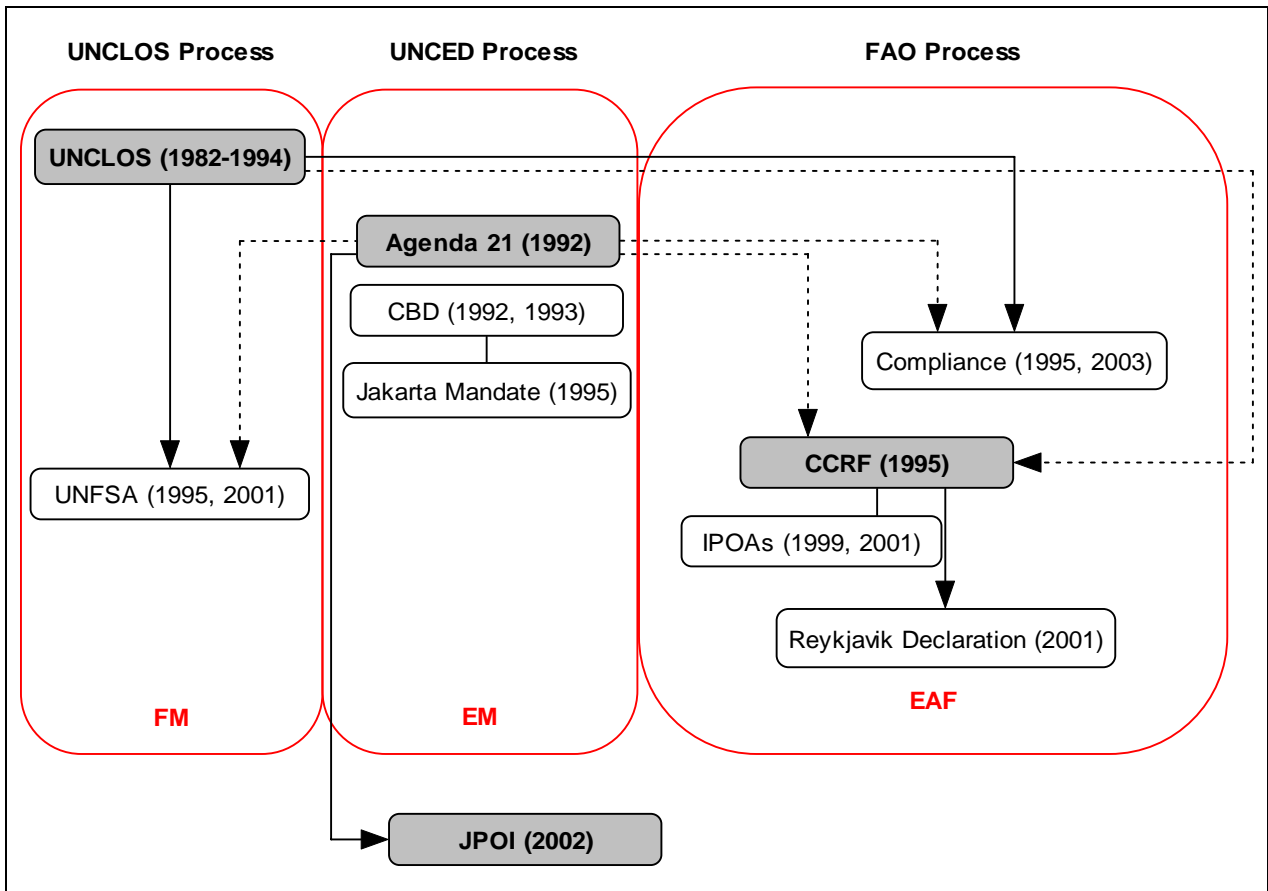
Personal elaboration

For the purpose of this study, I have selected (binding and non-binding) agreements at the global level (scale) that rule all types of stocks (scope) located in the Exclusive Economic Zone (EEZ) (focus). The focus (EEZ fisheries) is justified by two considerations. Firstly, about 90% of the world's marine fish stocks depend on the sea area included in the EEZ at some time during their life cycle (FAO 2003a: 1; Gubbay 1995: 9; Peterson 1993). Secondly, notwithstanding the relevance of this area for fisheries resources living dynamics, EEZs fisheries and their management are usually neglected in the international debate. Among various commentators on the international legal framework for fisheries, Treves (13.10.2008) has recently criticized the emphasis on high seas which populates the international debate, mainly because of the delicate political nature of the EEZs. A lot still has to be understood and done in fisheries management within national EEZs, where states are depleting their resources (Treves 13.10.2008).

Within the global governance for fisheries, Turrell (2004) distinguishes three policy strands (see Boxes 1.1., 1.2. and 1.3):

- one leading to the United Nations Convention on the Law of the Sea (UNCLOS 1982, 1994);
- one related to the UN Conference on Environment and Development (UNCED 1992);
- and a third one steered by FAO (see figure 1.4).

Figure 1.4
The International Fisheries Regime



Source: Adaptation from Garcia et al. (2003: 4) and Turrell (2004: 4). The figure shows the whole regime and highlights relationships (solid arrows) and influence (dashed arrows) between core accords (in grey) and ancillary components (in white). The figure shows also the main paradigms or sets of ideas behind each strand: fisheries management (FM), ecosystem management (EM) and ecosystem approach to fisheries (EAF).

On the basis of Turrell (2004) – triangulated with a wide body of literature on the law of the sea and interviews with international organizations (FAO and IOC/UNESCO) carried out in October 2007, four agreements governing all types of fisheries in all EEZs across the world have been selected for this study. In chronological order, they are:

- the United Nations Convention on the Law of the Sea;
- Agenda 21;
- the Code of Conduct for Responsible Fisheries;
- and the Johannesburg Plan of Implementation.

Box 1.1
The UNCLOS process

Oceans have traditionally been considered as global commons with the exception of a narrow territorial sea under national jurisdiction. The principle of the 'freedom of the seas' (*mare liberum*) started to be questioned in the first half of the twentieth century by national claims on a broader area of the sea. Such claims for an enclosure of high seas led to the revision of the international law (Vogler 2000: 44-47). After three UN Conferences on the Law of the Sea (UNCLOS I in 1958, UNCLOS II in 1960, and UNCLOS III from 1973 until 1982), the United Nations Convention on the Law of the Sea (UNCLOS) – usually referred to as the 'Constitution for the Oceans' – was adopted in 1982 and entered into force in 1994 (after the 60th ratification) (Boyle 2006: 43; Buck 1998: 83; Kirchner 2003: 2; McConnell 2003: 76).

The Convention represents the first codification of customs on the use of the sea, and constitutes the pivotal binding framework on the rights and responsibilities of states with regard to the sea and its resources (Boyle 2006: 40, 52; Breide & Saunders 2005: 5; Gibson & Warren 1995: 33; Kimball 2001: 2-7; de La Fayette 2006: 66; Stokke & Coffey 2006: 129). The UNCLOS confirms the freedom of the high seas (Part VII), where sea resources (out of any national sovereignty) belong to mankind (Gibson & Warren 1995: 33; Hall 1998: 96; Molenaar 2006: 200; Vogler 2000: 6-7). Nevertheless, the UNCLOS also changes the status of the oceans as global commons, by giving property rights to coastal states (Peterson 1993).

In response to national claims for enclosure (Vogler 2000) and with the aim of enabling the conservation of existing commercial fish stocks, the Convention has, indeed, limited access to fisheries resources through the introduction of the Exclusive Economic Zone (Part V of the UNCLOS) (Alder et al. 2001: 65; Breide & Saunders 2005: 5-7; Hall 1998: 96). While for centuries the national jurisdiction of coastal states had been limited to the three-mile limit of territorial sea (Vogler 2000: 6), the UNCLOS recognized coastal states full rights and responsibilities for managing fisheries resources in a wider area under their jurisdiction – till 200 miles from the shoreline (Art. 57 UNCLOS) – which corresponds to an additional 35% of the ocean area (FAO 2003a: 1; Gubbay 1995: 9; Peterson 1993). More precisely, article 57 of the UNCLOS on the breadth of the exclusive economic zone states that "The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured".

Box 1.2
The UNCED process

Despite its intentions, the UNCLOS left coastal states with a high discretion in the management and exploitation of natural resources within their EEZ, without providing any international mechanism to prevent national irresponsible management (Barnes 2006; Gjerde 2006; Hall 1998). Moreover, coastal states – in order to increase the effort of domestic fishing – have excluded foreign vessels from their marine zones and pushed distant-water states to augment their activity on high seas fish stocks (Barnes 2006; Gjerde 2006).

In the light of the weaknesses of the legal framework established by the UNCLOS, the international normative framework for fisheries management has evolved to include concerns for sustainable use of resources (Franckx 2006: 212; Freestone 2006: 312; Vallega 2002: 724). Adopted by the United Nations Conference on Environment and Development (Rio de Janeiro, 1992), Agenda 21 has developed a more sophisticated approach to the protection of the marine environment than the one contained in Part XII of the UNCLOS (Boyle 2006: 53-54; FAO 2003a: 76; Gjerde 2006: 292). Chapter 17, 'the Oceans Chapter' (Xue 2005: 5), represents an important reference point for fishery management and the sustainable use of marine living resources (Charles 2001: 76; Zou 2005: 108), which has influenced the elaboration of the Code of Conduct for Responsible Fisheries (CCRF) (Gjerde 2006: 293).

With the purpose of putting sustainable development in practice, the full implementation of Agenda 21 was reaffirmed by the Johannesburg Plan of Implementation adopted at the 2002 World Summit on Sustainable

Development, which establishes a set of targets and timetables (La Viña et al. 2003: 53-56; OECD 2006: 100). A whole section is dedicated to the protection of the marine environment (Breide & Saunders 2005: 40) and has supplemented the framework of Agenda 21 (Chapter 17), by establishing 'time-bound targets' (de La Fayette 2006: 66). Having as its overall goal the restoration of fish stocks by 2015 (Par. 31 JPOI), the Plan calls for the ratification and implementation of all instruments composing the international fisheries regime. Nevertheless, similarly to the CCRF (see below), both documents are non-binding instruments of soft law attempting to guide decisions and actions of national governments (La Viña et al. 2003: 55).

Box 1.3 The FAO process

Agenda 21 – together with the 1992 Cancun Declaration – promoted the elaboration by the Food and Agriculture Organization (FAO) of a Code of Conduct for Responsible Fisheries, adopted in 1995 (Caddy 1999: 21; Turrell 2004: 19). It reiterates, amplifies and strengthens the existing international framework for fisheries (Barnes 2006: 251-252; Boyle 2006: 50), by including aspects of the UNCLOS and emphasizing the concepts of sustainable use originated from the UNCED process, and establishing a set of principles for the formulation and implementation of national responsible fisheries policies (Turrell 2004: 19).

Although some parts of the Code are based on rules of international law and other legally binding international agreements (Doulman 2007: 193-194), the CCRF (as well as its IPOAs⁶) remains a soft-law instrument with a non-binding and voluntary nature (Song 2000: 450; Stokke & Coffey 2006: 129). The CCRF is a political document aimed at orienting states in designing their domestic fisheries policies in a sustainable way (Barnes 2006: 253; Doulman 2007: 189-195; Xue 2005: 59, 60); binding effect could be given to the Code's articles by governments' voluntary transposition into national legislation and domestic implementation (Boyle 2006: 49-50; Caddy 1999: 22; Doulman 2007: 193-194).

3. Assessing fisheries policies vs. the WSSD Plan of Implementation

Public policies are statements by governments about what they intend to do or not to do, contained in laws, regulations, and many other types of decisions (Birkland 2001: 132-133). National policies face "increased scrutiny, participation, or influence from transnational actors and international institutions, and the rules and norms they embody" (Bernstein & Cashore 2000: 72). When new rules are in place at the international level they create a 'pull toward compliance' through changes to national regulatory frameworks (Bernstein & Cashore 2000: 78). Compliance with international agreements indicates that "an actor's behaviour conforms to an explicit rule of a treaty" (Chayes et al. 2000: 39).

In order to assess the level of compliance of national policies with the Plan of Implementation adopted at the World Summit on Sustainable Development (WSSD), explicit rules of that document needed to

⁶ The CCRF has been completed by four International Plans of Action (IPOAs): three IPOAs (Management of Fishing Capacity, Conservation and Management of Sharks, Reducing Incidental Catch of Seabirds in Longline) have been adopted in 1999; the IPOA to Combat Illegal, Unreported and Unregulated Fishing has been adopted in 2001 (Doulman 2007: 192-201).

be selected as assessment standards. The focus of this study is on actions and policy initiatives by national governments in the field of marine capture fisheries and the related field of marine environmental protection. In this framework the following articles of the WWSD Plan of Implementation have been selected as reference point for this study:

Article 30

Oceans, seas, islands and coastal areas form an integrated and essential component of the Earth's ecosystem and are critical for global food security and for sustaining economic prosperity and the well-being of many national economies, particularly in developing countries. Ensuring the sustainable development of the oceans requires effective coordination and cooperation, including at the global and regional levels, between relevant bodies, and actions at all levels to:

(a) Invite States to ratify or accede to and implement the United Nations Convention on the Law of the Sea of 1982 which provides the overall legal framework for ocean activities;

(b) Promote the implementation of chapter 17 of Agenda 21, which provides the programme of action for achieving the sustainable development of oceans, coastal areas and seas through its programme areas of integrated management and sustainable development of coastal areas, including exclusive economic zones; marine environmental protection; sustainable use and conservation of marine living resources; addressing critical uncertainties for the management of the marine environment and climate change; strengthening international, including regional, cooperation and coordination; and sustainable development of small islands;

[...]

(d) Encourage the application by 2010 of the ecosystem approach, noting the Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem and decision V/6 of the Conference of Parties to the Convention on Biological Diversity;

(e) Promote integrated, multidisciplinary and multisectoral coastal and ocean management at the national level and encourage and assist coastal States in developing ocean policies and mechanisms on integrated coastal management;

(f) Strengthen regional cooperation and coordination between the relevant regional organizations and programmes, the regional seas programmes of the United Nations Environment Programme, regional fisheries management organizations and other regional science, health and development organizations;

(g) Assist developing countries in coordinating policies and programmes at the regional and subregional levels aimed at the conservation and sustainable management of fishery resources and implement integrated coastal area management plans, including through the promotion of sustainable coastal and small-scale fishing activities and, where appropriate, the development of related infrastructure;

[...]

Article 31

To achieve sustainable fisheries, the following actions are required at all levels:

(a) Maintain or restore stocks to levels that can produce the maximum sustainable yield with the aim of achieving these goals for depleted stocks on an urgent basis and where possible not later than 2015;

[...]

(c) Implement the 1995 Code of Conduct for Responsible Fisheries, taking note of the special requirements of developing countries as noted in its article 5, and the relevant international plans of action and technical guidelines of the Food and Agriculture Organization of the United Nations;

(d) Urgently develop and implement national and, where appropriate, regional plans of action, to put into effect the international plans of action of the Food and Agriculture Organization of the United Nations, in particular the International Plan of Action for the Management of Fishing Capacity by 2005 and the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing by 2004. Establish effective monitoring, reporting and enforcement, and control of fishing vessels, including by flag States, to further the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing;

[...]

Article 32

In accordance with chapter 17 of Agenda 21, promote the conservation and management of the oceans through actions at all levels, giving due regard to the relevant international instruments to:

(a) Maintain the productivity and biodiversity of important and vulnerable marine and coastal areas, including in areas within and beyond national jurisdiction;

[...]

(c) Develop and facilitate the use of diverse approaches and tools, including the ecosystem approach, the elimination of destructive fishing practices, the establishment of marine protected areas consistent with international law and based on scientific information, including representative networks by 2012 and time/area closures for the protection of nursery grounds and periods, proper coastal land use and watershed planning and the integration of marine and coastal areas management into key sectors;

(d) Develop national, regional and international programmes for halting the loss of marine biodiversity, including in coral reefs and wetlands;

[...]

The selected articles can be grouped under three different aspects: policy framework, policy approaches and policy tools.

3.1. The policy framework

This first category of articles refers to the general policy framework elaborated at the international level through several international agreements. The policy framework of the country will be analyzed vis-à-vis the request of the WSSD Plan of Implementation to comply with:

- the UNCLOS,
- A21,
- and the CCRF.

In this framework, the eventual change in national policy objectives and the shift towards a commitment to the protection of the marine biodiversity and stock restoration will be also analyzed.

3.2. The policy approaches

The main policy approaches promoted by the WSSD as improvements to the policy-making are:

- the ecosystem approach (see Box 1.4),
- integrated management,
- and regional cooperation.

Box 1.4 Ecosystem approach

The concept emerge out of the UNCED process (Turrell 2004: 10), and it has mainly been developed in the framework of the Convention on Biological Diversity (CBD) (Turrell 2004: 13). The concept has indeed been introduced by the Conference of the Parties of the CBD, though “in a confused series of statements” (e.g. Decision II/8, II/10) (Turrell 2004: 22). Most of all the scientific community has enveloped the concept ‘with too many layers of complexity’ and mystified the core meaning of the ecosystem approach (EA). The EA is a ‘framework for thinking and acting ecologically’ by bridging biological, social and economic considerations in decision-making and planning. This is done in order to ensure the achievement of CBD’s main objectives: conservation (biological concern), sustainable use (economic concern), and equitable sharing of benefits (social concern) (Charles 2001: 231; Smith & Maltby 2003: 17; Turrell 2004: 22; Wit 2004: 7). This is how this study looks at the concept.

With its focus on the conservation of marine ecosystems, the CCRF confirms the ecosystem approach, although the Code never uses the term (Turrell 2004: 20). A FAO conference was held in Reykjavik in 2001 to discuss the incorporation of ‘ecosystem considerations’ in fisheries management (Turrell 2004: 20), which “entails taking into account the impacts of fisheries on the marine ecosystem and the impact of the marine ecosystem on fisheries” with the aim of assuring the conservation of the ecosystem and its resources and contribute to human

development, national economies and food security (FAO 2001). In response to the request of the Reykjavik Conference, the FAO organized an ‘Expert Consultation on Ecosystem-Based Fisheries Management’ (held in Reykjavik in 2002) to assist in the preparation of technical guidelines about the incorporation of ecosystem considerations into fisheries management (FAO 2003b: 1). It is in this framework that the term ‘ecosystem approach to fisheries’ (EAF) is introduced instead of Ecosystem-Based Fisheries Management (EBFM).

The JPOI calls for states to apply the ecosystem approach by 2010, as defined in the Decision V/6 and the Reykjavik Declaration (Art. 30d JPOI), but it does not add new messages in relation to the concept (Turrell 2004: 18). The ‘confuse birth’ of the concept of EA might be partly responsible for the vast range of definitions, meanings and implications attached to the term (Turrell 2004: 22; Wit 2004: 19). Furthermore, the concept as specified by Decision V/6 is still too complex, general and unclear to be easily understood and applied (Smith & Maltby 2003: 18). At the moment there is still no general agreement on what the ecosystem approach means in details and how it should be operationalized, so that a ‘working version’ of the concept is still lacking (Smith & Maltby 2003: 17; Turrell 2004: 3). It is ‘an evolving concept’, which has been defined, analyzed, operationalized and applied by many disciplines, sectors, institutions, etc. in the last years (Currie 2007: 3; Wit 2004: 6).

Because, in the end, the EA is a ‘framework (for acting and thinking)’ or, in other words, a strategy rather than a detailed action plan, it can be implemented in many ways. Therefore – inspired by the 2001 Reykjavik Declaration – this report uses a broad conceptual perspective and looks for the ‘presence of (marine) ecosystem considerations’ (i.e. biological, social and economic in the meantime) in the national legal frameworks analyzed.

3.3. The policy tools

With regard to the policy tools to put in place for fisheries management and marine biodiversity protection, the study will focus on:

- the establishment of marine protected areas (and their networks) as the major policy tool for biodiversity conservation and the protection of ecosystem functions (see Box 1.5.),
- the ban on destructive fishing practices,
- and capacity reduction initiatives.

Box 1.5 Marine protected areas

Marine Protected Areas (MPAs) are “areas of the marine environment designated for some form of protection” (Charles 2001: 233). The definition covers areas which have been called in different ways – marine nature reserves, marine parks, sanctuaries, etc. (Gubbay, 1995a: 3) – and established for different purposes: e.g. protection of marine living resources and habitats (ecological benefit), protection of traditional marine-based communities (social benefit), provision of revenue and employment from fisheries production (economic benefit), protection of historic resources (cultural benefit) (Charles 2001: 233; Gubbay 2004: 2-11; Pomeroy et al. 2005: 486).

Although some MPAs were already created at the beginning of the 20th century (e.g., the Fort Jefferson National Monument in Florida, 1935), they have developed mainly since the second half of the 1980s and are today conceptualized as a pivotal management tool for marine conservation and habitats/species protection (Gubbay

1995: 1-2). Indeed, according to some authors (Charles 2001: 233; Douman 2007: 218; McClanahan & Castilla 2007: 306), MPAs are the 'best concrete manifestation' of the ecosystem approach, reflecting its integrated and holistic nature.

The articles selected above have been elaborated in table 1.1. The table summarizes the point of reference for the assessment conducted in this study, the corresponding articles in the WSSD, and the nature of such commitments.

Table 1.1
Assessment standards

Main obligations under the WSSD	Article	Typology
Implementation of UNCLOS	Art. 30	Policy framework <i>(Major shift in the policy objectives)</i>
Implementation of Agenda 21 / Chapter 17	Art. 30	
Implementation of the CCRF and its Plans of Action	Art. 31	
<i>Protection of the marine biodiversity and stock restoration</i>	Art. 31-32	
Application of the ecosystem approach	Art. 30, 32	Policy approaches
Develop an integrated management	Art. 30	
Strengthen regional cooperation	Art. 30, 32	
Establishment of marine protected areas	Art. 32	Policy tools
Ban on destructive fishing practices	Art. 32	
Capacity reduction	Art. 31	

Part A – China

4. China's fisheries policies vs. the WSSD Plan of Implementation

In the last thirty years, China has gone through a process of reforms which has embraced both the economy and the polity of the country (Wu & Wang 2007: 397). Economic reforms in the direction of a market economy have spread from several special zones designated in the coastal provinces to the whole national territory and made China one of the world's fastest growing economies (Gamer 2008: 1-3). Economic development has been promoted since the end of the 1970s as the prime and cross-sectoral policy objective of the country (Xue 2005: 73-75). In this framework, particularly since the 1990s, China has invested a high amount of energy and resources in the creation of a 'Blue Economy'. This marine-related economy (hence, 'blue') has fisheries as its pivotal industry (Xue 2005: 75-76; Zou 2005: 90) and benefits from the country's favourable natural conditions.

With a land territory of about 9.6 million km², China is one of the largest countries in the world (after Russia and Canada). Its long coastline (more than 18,000 km) along four main seas (Bohai Sea, Yellow Sea, East China Sea, and the South China Sea) defines a large fishing ground (818,000 square nm) which corresponds to one quarter of the world's total fishing ground (Xue 2005: 73).

Thanks to these favourable natural conditions, under a policy of full exploitation aimed at the national economic growth, China has become the largest fish producer in the world since the 1990s (Xue 2005: 70). In 2004, the country produced 47.5 million tonnes (16.9 million tonnes from capture fisheries and 30.6 million tonnes from aquaculture), which corresponds to one fifth of the world production (FAO 2007: 4; Zou 2005: 130).

At the beginning of the new century, agriculture accounted for 35% of the national GDP; fisheries represented the 10% of the total contribution of agriculture to the GDP (Xue 2005: 76). In this framework, fisheries contribute importantly to employment. Particularly following the industrialization of the 1990s, which caused a considerable loss of farmlands, agricultural workers engaged in fishing, usually more rentable than agriculture. At the beginning of this century China counted almost five million of households depending on fisheries, which has made China the country with the largest fishing population in the world (Xue 2005: 71-77).

Furthermore, fisheries play an important role in food supply in a country with 1.3 billion inhabitants, which represents about one fifth of the world's population (Gamer 2008: 1-3). Fish products constitute

an important source of protein and fish consumption has increased enormously in the last twenty years, from 4,6 Kg per capita in the early 1980s to 36,1 Kg in 2003 (Xue 2005: 71-77).

The development of a blue economy has led to over-fishing which, in turn, has caused a depletion of fish stocks and a deterioration of the marine environment (Xue 2005: 70; Zou 2005: 119, 266). With fisheries contributing significantly to national wealth, foreign exchange, employment and nutritional needs (see above), the problem of fish stock depletion has important consequences for the Chinese economy and society.

The socio-economic consequences of the overexploitation of fisheries resources have been acknowledged in the context of a general climate of growing awareness on the depleted state of the environment in China. This increasing concern about China's environmental problems goes hand in hand with the signing of international environmental agreements and the process of legal revision they have implied (Wu & Wang 2007: 398). Particularly in the field of fisheries, the country has embarked on a series of reform of its policy framework towards a more responsible fisheries management and the protection of the marine environment, as it is shown in the following section.

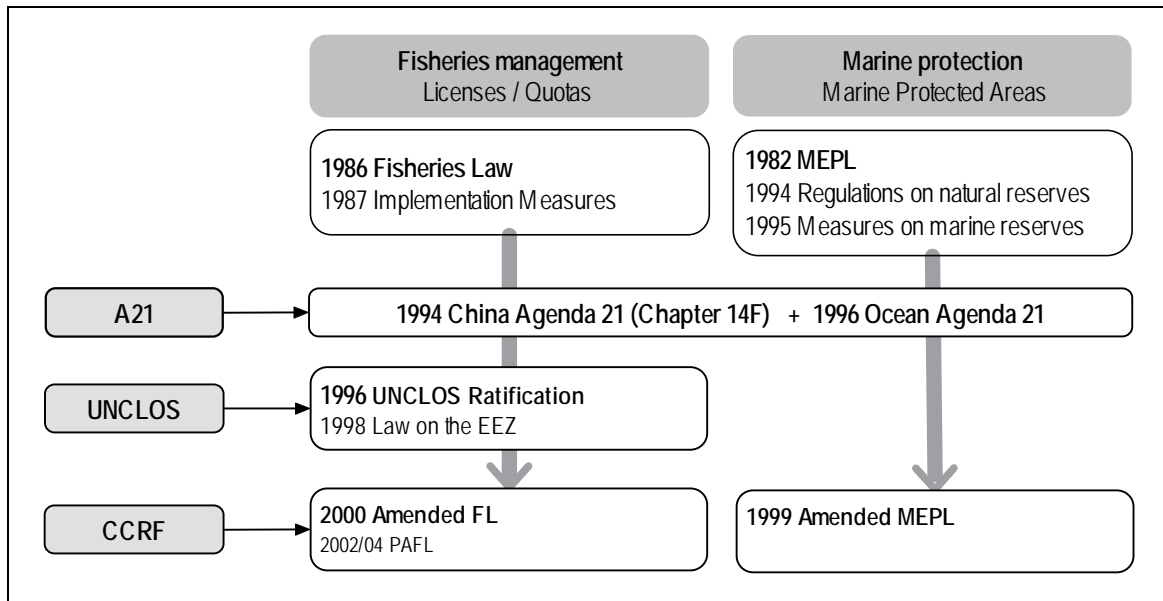
5. The policy framework in China

The policy framework of the country will be analyzed vis-à-vis the request of the WSSD Plan of Implementation to comply with the UNCLOS, Agenda 21, and the CCRF. In this framework, the eventual change in national policy objectives and the shift towards a commitment to the protection of the marine biodiversity and stock restoration will be also analyzed. The body of Chinese national legislation relevant to fisheries includes two main strands of laws: one related to fisheries resources management and one covering marine environmental protection (figure 1.5).

With regard to the first strand, although a system of fisheries management was initiated in China in the 1950s, a complete legal framework has been put in place only since the 1980s, when, following the Cultural Revolution (1966-1976), China recreated its entire national legal system⁷ (Saich 2004: 136; Zou 2005: 7). The 1986 Fisheries Law of the People's Republic of China (Fisheries Law 1986) represents the first basic legal instrument ruling all aspects of fisheries management in China (Xue 2005: 86; Zou 2005: 9). As for all policy fields during the Deng period, both the 1986 Fisheries Law (FL 1986) and its 1987 Implementation Measures for the Fisheries Law of the PRC (Implementation Measures 1987) emphasized economic development rather than the conservation of natural resources and sustainable management (Xue 2005: 80-115; Zou 2005: 9).

⁷ In 1978, Deng Xiaoping initiated a new political period in China, characterized by a policy of openness and economic reforms (Beyer 2006; Zou 2005: 7).

Figure 1.5
The legal framework for fisheries in China



Source: personal elaboration

Similarly to fisheries management, China's environmental legal framework 'started almost from scratch' after the Cultural Revolution (Zou 2005: 200). While the first Environmental Protection Law (EPL) was enacted in 1979 (Beyer 2006: 185, 192; Wu & Wang 2007: 403), marine environmental protection, in particular, started to be disciplined when the Marine Environmental Protection Law of the People's Republic of China was adopted, in 1982 (MEPL 1982) (Beyer 2006: 192; Zou 2001; 2005).

In 1992, China attended the United Nations Conference on Environment and Development (UNCED) (Zou 2005: 197). In 1994, on the wake of the UNCED and the adoption of Agenda 21, the State Council issued China Agenda 21 ('White Paper on China's Population, Environment and Development in the 21st Century'), which promotes sustainable development, also with regard to marine resources (see China Agenda 21, Chapter 14.F) (Wu & Wang 2007: 405; Zou 2005: 20, 121). In order to specify this general framework for the specific use of the marine environment, another policy guideline, China Ocean Agenda 21, was adopted in 1996 for the sustainable use of marine resources and ecosystem protection (Xue 2005: 89-90; Zou 2005).

In 1996, China also ratified the UNCLOS, fourteen years after signing it (1982) (Xue 2005: 8; Zou 2005). Zou (2005: 92) highlights how, although China had been very active in the negotiation and conclusion of the UNCLOS, some dissatisfaction with issues falling outside the domain of fisheries (e.g., the definition of the continental shelf) slowed down the ratification process. Consequently (in 1998), the country expanded its jurisdiction from the 12 nautical miles of territorial sea (according to the Territorial Sea Declaration of 1958) to an Exclusive Economic Zone (Law on the EEZ and the

Continental Shelf of the People's Republic of China of 1998) (Zou 2005: 5-8, 93-96). With the exception of the Bohai Sea (which is an internal sea), all seas are shared by China with other adjacent countries, with whom China had to establish maritime borders. Consequently, in none of these seas, the Chinese EEZ extends to the 200 nautical miles foreseen by the UNCLOS (Xue 2005: 71-72, Zou 2005: 90).

By mid-1990s the Chinese legal framework for fisheries management became inadequate and needed to be adapted to multiple international and national drivers: a) the challenges and objectives identified by China's Agenda 21 and Ocean Agenda 21; b) the ratification of the UNCLOS; c) other international instruments promoting the sustainable use of fisheries resources such as the FAO Code of Conduct; d) and the internal shift from socialism to market economy (marked by Deng's leadership since the late 1970s) (Xue 2005: 87-89, 104).

In 2000, China amended its Fisheries Law (FL 2000), which extended China's jurisdiction to fishing activities in its EEZ and emphasized the conservation of fisheries resources. The new law, which covers all fishing activities in all Chinese waters (Art. 2, FL 2000), incorporates the guidelines of the CCRF (Chen 2000; Matthew⁸ 01.03.2007; Xue 2005: 122). Similarly, the Marine Environmental Protection Law (MEPL) of 1982 was amended in 1999, to incorporate the principle of sustainable development highlighted by international environmental law since the early 1990s and transposed into the Chinese policy framework by China Agenda 21 and China Ocean Agenda 21 (Zou 2005: 10, 205-208).

6. The policy approaches in China

The main policy approaches promoted by the WSSD as improvements to the policy-making are the ecosystem approach, integrated management, and regional cooperation. The application of these approaches in China is analyzed in the following sections.

6.1. Ecosystem approach

It has been clarified above (see Box 1.4 'Ecosystem approach') that a broad conceptual perspective will be used to trace the presence of an ecosystem approach in China's policy framework. If the presence of (marine) ecosystem considerations is looked for in the national legal frameworks analyzed, it becomes clear that the international legal and normative framework has only partially

⁸ Sebastian Matthew is Programme Advisor for the International Collective in Support of Fishworkers (ICSF).

influenced China's fisheries policy (Xue 2005: 231). Recent policy documents (e.g. Ocean Agenda 21), environmental laws (e.g. MEPL 1999), administrative regulations and technical guidelines have confirmed the need to focus on the interactions existing within the ecosystem, and the interplay between ecological and socio-economic considerations (Cheng et al. 2006: 9; Xue 2005: 121; Zou 2005: 126, 271).

Nevertheless, a large part of Chinese laws and regulations precedes the international shift towards the sustainable use of resources in fisheries management, which explains the focus of Chinese legislation on economic development rather than environmental protection (Xue 2005: 95-96). The same amended FL, brought forth by the Ministry of Agriculture, mainly focuses on fisheries issues without broader concerns on the ecosystem. The ecosystem approach (EA) is still not mature enough in China (Cheng et al. 2006: 6); the concept is rather unfamiliar among local officers and fishermen (Interviews with civil servants, Guangdong, June 2007 and May 2008).

6.2. *Integrated management*

Most Chinese laws have been adopted without a systemic and integrated approach; they are rather sectorial and lack harmony (Xue 2005: 95). In addition, the high fragmentation of the administration represents a serious impediment to any effort of policy integration. In the Chinese system the management of fisheries resources is separate from the protection of marine environment (Zou 2005: 214). Fisheries management is a full responsibility of the Fisheries Management Bureau (FMB), while marine environmental protection is competence of the State Oceanic Administration (SOA). The Fisheries Management Bureau (FMB) responds to the Ministry of Agriculture (MOA), while the State Oceanic Administration (SOA) acts like a 'quasi-ministry' under the supervision of the Ministry of Land and Resources (MOLR).

This FMB/SOA 'split' is mirrored at the sub-national level, in the provincial administration and all local agencies. This introduces conflictual elements in implementation, since the provincial administration and local agencies refer to different superiors for finance, personnel and political support. The selection of a patron constitutes a serious problem in the day-to-day management of fisheries and marine affairs (Interviews with an MPA management official, Guangdong, December 2007).

Although the State Oceanic Administration is in charge of developing a National Ocean Policy, as foreseen by Ocean Agenda 21 (1996), bureaucratic conflicts within the Chinese administration has prevented the establishment of any interagency mechanism (Cicin-Sain et al. 2006: 18-19).

6.3. Regional cooperation in the South China Sea

In accordance with international provisions and the commitment stated in China Agenda 21 (Zou 2005: 222), China is promoting regional co-operation for marine environmental protection and the management of shared stocks in the South China Sea (Xue 2005: 233). The South China Sea (SCS) is a place of high tensions (Saich 2004; Xue 2005: 208). Firstly, four countries have territorial claims on those waters: China, Vietnam, Thailand, and the Philippines (Xue 2005: 205; Zou 2005: 102). Secondly, fisheries stocks are shared in the SCS by China, Vietnam and the Philippines (Cheng et al. 2006: 7).

Although institutionalized regional arrangements are still lacking (Zou 2005: 21), some initiatives have taken place, promoted by international institutions or born within the region. On the one hand, two international institutions are facilitating regional cooperation in the area: the newly reconstructed Asia-Pacific Fishery Commission (a regional body established under the FAO), and the Fisheries Working Group of the Asia Pacific Economic Cooperation forum (Zou 2005: 130). On the other hand, China has participated in the Regional Code of Conduct in the South China Sea adopted by the ASEAN member states and China in November 1999 (Xue 2005: 208-209). The ASEAN-China Regional Code of Conduct in the South China Sea is a voluntary agreement, but with a binding legal effect for the parts already present in other binding instruments (Song 2000: 451). Finally, a long cooperative mechanism has been established by the Sino-Vietnamese Fisheries Agreement (see Box 1.6).

Box 1.6

China's fisheries cooperation with Vietnam

Land and maritime boundaries issues and tensions between China and Vietnam dating back to the 1970s were finally solved during the 1990s; sea borders were defined in 1999 in accordance with the UNCLOS. Issues of shared resources had nonetheless still to be solved, particularly in the Gulf of Tonkin. In 2000, the two countries signed two important agreements: the Sino-Vietnamese Demarcation Agreement and the Sino-Vietnamese Fisheries Agreement (Xue 2005: 209-216).

The two agreements, which entered into force in 2004, established a cooperative mechanisms for the sustainable use of shared fisheries resources on a Joint Fishing Zone falling under the EEZ (and part of the territorial seas) of the two countries in the Gulf of Tonkin. The Sino-Vietnamese Fisheries Agreement establishes a permanent body, i.e. the Joint Fisheries Committee (JFC), in charge of implementing management measures on this area. On each side of the JFZ the national jurisdiction of either China or Vietnam is applied; yet the two countries have to consult each other on management and enforcement issues (Xue 2005: 216-220).

The agreement (which will last for twelve years, with an automatic extension of another three years) is a clear implementation of the provision of the UNCLOS calling for regional cooperation and highlights the importance of bilateral consultation for the management of shared resources (Cheng et al. 2006: 7-8; Xue 2005: 228).

7. The policy tools in China

With regard to the policy tools to put in place for fisheries management and marine biodiversity protection, the following sections analyze the establishment of marine protected areas (and their networks), the ban on destructive fishing practices, and capacity reduction initiatives.

7.1. *Marine protected areas*

Although some forms of marine protected areas (MPAs) were sporadically established in China since the 1950s, MPAs were legally foreseen for the first time by the Marine Environmental Protection Law (MEPL) of 1982. Nevertheless, most of the MPAs designated on the basis of this law remained on paper because of the absence of detailed regulations implementing the law for many years. The text of the MEPL (1982) was specified more than ten years later by the Measures on the Management of Marine Nature Reserves issued by the State Oceanic Administration (SOA) in 1995 (Xue 2005: 121; Zou 2005: 251).

This first failing experience, together with the worsening conditions of the marine environment reported by scientists to the Party, and the focus on MPAs promoted by the UN Conference on Environment and Development (UNCED) process and Agenda 21 re-directed the attention of the Chinese government to this policy tool (Xue 2005: 89-90; Zou 2005: 90; confirmed in interviews with civil servants, Guangdong, May 2008). Provisions on MPAs are present in the two national documents (China Agenda 21 and China Ocean Agenda 21) that respond to the UNCED process and call for a revision of the MEPL 1982 (Xue 2005: 89-90; Zou 2005).

The process of amendment of the MEPL 1982 was delayed by bureaucratic conflicts on the allocation of competences among the multiple governmental departments involved in marine affairs and environmental protection. The solution found consisted in the recognition of multiple competent authorities, whose exact role in the implementation of the new law would be better specified by measures adopted by the State Council after approval of the new law by the National People's Congress (NPC) (Zou 2005: 204-205).

Therefore, although the new Marine Environmental Protection Law (MEPL 1999) has improved the division of competences for environmental protection (Interviews with civil servants, Guangdong, May 2008), the law has left the division of authority among national administrations still unclear – mainly between the State Environmental Protection Administration (SEPA) and the State Oceanographic Administration (SOA) (Zou 2005). Conflicts within the bureaucratic arena seem to be the main cause of the lack of implementing measures of the MEPL 1999 (Interviews with academics, Guangdong, May

2008). Indeed, after the adoption of the new MEPL (1999) no new executive act has been produced and the management of MPAs is still ruled by the Measures of 1995.

It follows that the policy in place is inadequate under some aspects. For example, the sanctions foreseen by the Management Measures and the Regulations for Natural Reserves are extremely low to deter violations from fishers. Nevertheless, these violations do not seem to represent the main problem in the daily management and enforcement of MPAs. Tensions emerge more frequently within the bureaucratic arena, across national administration (again mainly between SEPA and SOA) and along the Beijing-Province axis.

According to the 1994 Regulations on nature reserves, most of the funding should come from the provincial government where the nature reserve is located. Concerned with economic development rather than environmental protection, local governments have usually not included any budget line for MPAs management into their financial plan, with the consequence that MPAs management has not been sufficiently funded (Zou 2005: 268; confirmed by interviews with MPA's management bodies and civil servants, Guangdong, November-December 2007 and May 2008). Hence, the decentralization of MPAs' management empowers provincial governments to prioritize development projects to the detriment of the good functioning of MPAs, even when Beijing commits to sustainability.

In conclusion, the pace in the designation of MPAs has particularly increased after the amendment of the MEPL (1999) (Xue 2005: 111-120; Zou 2005: 244-245). Nevertheless, the actual establishment of MPAs is still very limited compared to the vast marine area of the country. Furthermore, even when MPAs have been established, their management is weakened by bureaucratic conflicts of competence.

7.2. *Ban on destructive fishing practices and other technical measures*

The amended 2000 Fisheries Law (art. 30) bans destructive fishing methods (Cheng et al. 2006: 12; Xue 2005: 122) and foresees the definition of closed zones/seasons, gear specification and method restrictions, minimum mesh size, and all other measures for the conservation of protected species (Xue 2005: 123). Closed seasons for all seas, including the South China Sea, are established between June and September (Zou 2005: 127). During this summer *moratorium*, fishermen receive a special allowance by the government (Xue 2005: 114).

With regard to technical measures, results are unsatisfactory (Cheng et al. 2006: 6); for example, by-catch is still very high because of the spread use of non-selective gears (Cheng et al. 2000; quoted in Cheng et al. 2006: 12); destructive fishing practices are still very present (Xue 2005: 232). Conflicts with stakeholders influence the success of Chinese legislation with regard to technical measures: it is

worth recalling that the existing bans on destructive fishing methods (e.g. trammel nets, as well as electric, toxic and bomb fishing) (art. 30 Fishery Law) have been highly opposed by fishermen. As a result their implementation has been difficult (Cheng et al. 2006: 12).

7.3. Capacity reduction

Although the Chinese Fisheries Law (in both texts of 1986 and 2000) envisages that the state will make “rational arrangements of fishing forces” (FL 1986, Art. 14; FL 2000, Art. 21), the issue of capacity reduction has not been explicitly addressed by China’s primary legislation. Nevertheless, China is promoting capacity control through a vessel reduction programme (Xue 2005). In 2002, the Ministry of Agriculture adopted a five-year Buy-Back Programme (of licenses) (BBP for simplicity) to discard 30,000 vessels from the Chinese commercial fleet (FAO 2007). In this framework, the Chinese government has offered subsidies to fishermen leaving their profession and training for redundant fishers (Cheng et al. 2006: 3; FAO 2007: 6).

According to the interviews conducted in Beijing (Ministry of Agriculture, October 2009) and the Guangdong Province (Guangdong Fisheries Administration – GDOFA, October 2007) the initiative has faced three main difficulties: the voluntary nature of its design, the discretion left to provinces, and the burden for administrative resources implied by the content of the initiative.

The reduction plan targets both small and large fishing vessels and is aimed at buying back both vessels and licenses. It is based on a voluntary participation to the initiative; hence, its results strictly depend on the incentives put in place. For this system of incentives, Beijing largely depends on the commitment of the Province. The programme specifies obligatory reduction targets for each coastal province and heavily relies on provincial governments for carrying out its implementation and for the allocation of financial resources. In a context characterized by a high level of provincial discretion, each province (competent for defining and financing the implementation of the BBP) carries out its own plan at its own pace according to its own priorities (Interviews with a civil servant, Fisheries Administration, Guangdong, October 2007).

Although outcome assessment is particularly difficult in China due to the high level of unregulated fishing and lack of accurate data, the information available shows that Chinese attempts to reduce fishing intensity and excess capacity are still inadequate. Fishing intensity and excess capacity still need further reduction in China (Cheng et al. 2006: 3; confirmed in interviews with civil servants from the local Fisheries Administration, Guangdong, May 2008).

Part B – Senegal

8. Senegal's fisheries policies vs. the WSSD Plan of Implementation

Marine fisheries represent for Senegal a vital source of economic development, export, employment, and food. With a current annual production of 400,000 tons on average, the fishing sector largely contributes to the GDP of the country, and represented 1.4% of the total GDP in 2006. Since the 1980s fisheries have also represented 25% of the national export revenue (Pramod & Pitcher 2006: 4) and constituted 32% of all national export in 2006. Export is mainly destined to the EU (60% of export) and African countries (35%), especially West Africa. A remaining 5% of export goes to Asian countries (MME 2008: 23; see also FAO Country Profile). The Senegalese fisheries sector largely contributes to employment. Approximately 600.000 people were directly and indirectly employed in the sector in 2006, which corresponds to 17% of the whole population; in other words, one Senegalese out of six works in the fishing sector (FAO Country Profile). Finally, fish products constitutes an important source of food: about 70% of animal protein intake comes from fisheries (based on FAO Country Profile; MME 2007: 4-5; 2008: 8-9, 44; Pramod & Pitcher 2006: 4-5).

With fisheries as a vital resource for the economy and society of the country, Senegal has for some time promoted the development of the fisheries sector through open access and financial support (République du Sénégal 2007: 16). Since the independence from France (1960), the government has promoted a fisheries policy based on the hard utilization of fisheries resources, which has been accompanied by the development of artisanal and industrial fleets, and the establishment of a transformation industry (MME 2007: 5; 2008: 44).

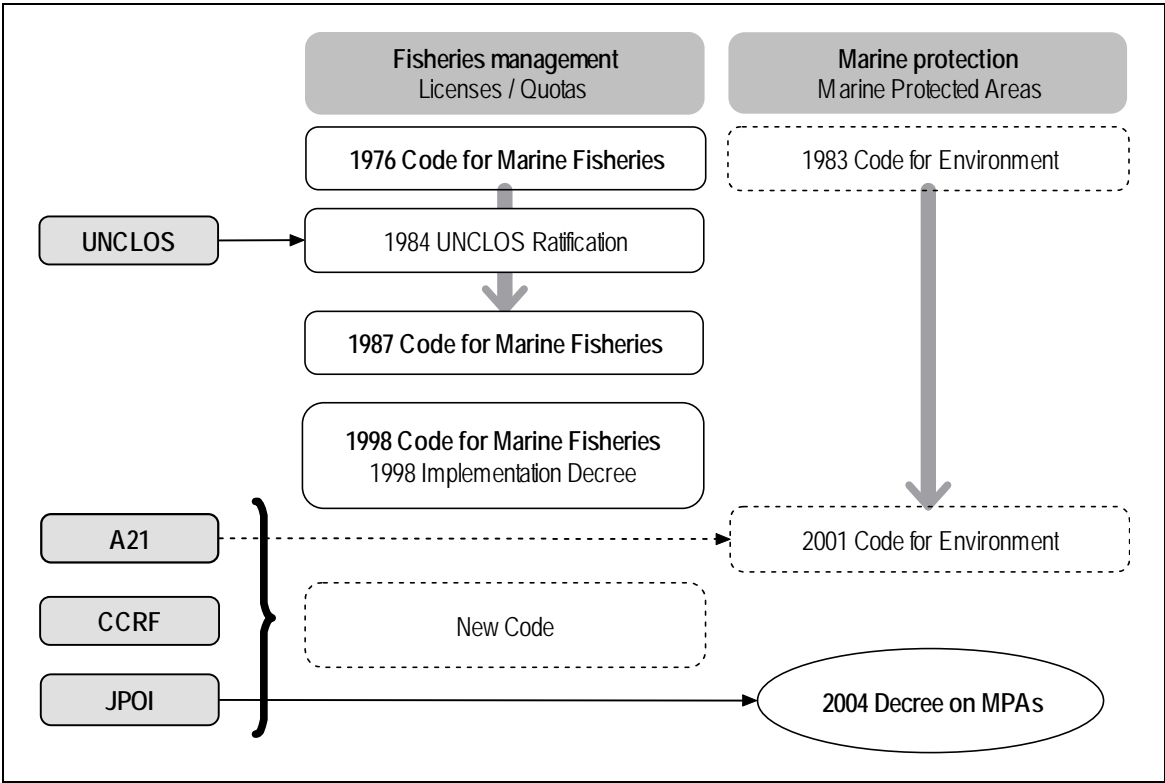
This growth-driven policy framework has resulted in the strong exploitation of available fish stocks that has taken place under the pressure of both national and international demand. Intense exploitation beyond any limit of sustainability has produced negative environmental and socio-economic effects, which have become more visible during the last twenty years (MME 2007: 5; 2008: 8, 44; République du Senegal 2007: 73). On the environmental side, the country has experienced a severe destruction of marine ecosystems, as well as fish stocks. On the socio-economic side, the fishing sector has experienced a loss in production (Pramod & Pitcher 2006: 13). The recent drop in catches (up to about 30% for some species) has caused an enormous decrease in the contribution of the fishing sector to the national GDP and export of fisheries products. In terms of employment, suffice it to recall here that 23 companies involved in fisheries transformation closed between 1999 and 2006 (based on MME 2007: 5; 2008: 8-9).

The contribution of fisheries to Senegal’s economic growth and fight against poverty makes the socio-economic consequences of this overexploitation alarming. Fisheries are embodied in the broader national strategy for economic development and poverty reduction (MME 2008: 44). Faced with an alarming crisis in fish stocks, the national government has started to promote policy reforms for a more sustainable utilization of fisheries resources during the last few years (MME 2008: 8, 44).

9. The policy framework in Senegal

The policy framework of the country will be analyzed vis-à-vis the request of the WSSD Plan of Implementation to comply with the UNCLOS, Agenda 21, and the CCRF. In this framework, the eventual change in national policy objectives and the shift towards a commitment to the protection of the marine biodiversity and stock restoration will be also analyzed. Figure 1.6 summarizes the information presented in this section.

Figure 1.5
The legal framework for fisheries in Senegal



Source: personal elaboration

After obtaining the independence from France (1960), the Republic of Senegal issued its own Code

for Marine Fisheries (CMF) in 1976 (Camara 2008: 78). This national law is the main act still ruling all aspects of fisheries management in Senegal, although the text has undergone several amendments. The first amendment of the text, which took place in 1987 (Law 87-27) and followed the ratification of the UNCLOS (1984), extended Senegalese jurisdiction to the Exclusive Economic Zone (FAO Country Profile). In 1998, the Code was subject to a second revision aimed at specifying aspects of a commercial relevance. The text that resulted from this revision (*Code de la Pêche Maritime*, Law No. 98-32) still rules all marine fisheries in the sea area under Senegalese jurisdiction (EEZ fisheries). Although this Code for Marine Fisheries (CMF 1998) has been immediately followed by implementing measures, i.e. the Implementation Decree of 1998 (Decree No. 98/498), the provisions of the CMF 1998 have not been correctly executed (Pramod & Pitcher 2006: 7).

Recent strategic documents have acknowledged the key role of fisheries for poverty reduction⁹ and economic growth¹⁰, which requires moving towards the sustainability of the sector (MME 2007: 4). The relevance recognized to fisheries together with the perception of a threatening crisis of the sector, on one side, and the awareness of the ineffective application of the Code, on the other, has led the government to issue a Sectoral Policy Letter (SPL) (*Lettre de Politique Sectorielle des Pêches et de l'Aquaculture*) in 2007. The SPL 2007 (covering the period 2008-2010) insists on the sustainable use of fisheries resources, confirms the recent political commitment to a reform of the sector¹¹, and calls for the revision of the current text of the Code (MME 2007: 6). A new text of the CMF is being elaborated at the time of writing (March 2009) (MME 2008: 38, 45).

The ongoing revision of the Code responds to the need of covering the implementation weaknesses of the previous code (e.g., a better definition of access rights and co-management arrangements), addressing new development of fisheries (e.g., reconsideration of fish size and available fishing technologies), and including new policy actions (e.g., functioning and responsibilities of MPAs). The new Code is also believed to fully respond to the evolution of international law for fisheries and the commitment to a more responsible use, as requested by the CCRF and the JPoI (Interviews with civil servants of the MME, Dakar, March 2009).

The new CMF also deals more in details with fisheries agreements and the need (according to UNCLOS) to allocate access to Senegalese fisheries resources 'only' when these resources are underexploited. This is not the current situation, which has then motivated the non renewal of agreements with the EU and Japan. Only (few) foreign vessels from the West African region are admitted to Senegal's EEZ at the moment in the framework of bilateral agreements (i.e. the *Accords de réciprocité*): Gambia (three vessels), Guinea Bissau (two vessels), Cap Vert and Mauritania

⁹ *Documents de stratégie de réduction de la pauvreté* (DSRP I for 2003-2005 and DSRP II for 2006-2010).

¹⁰ *Stratégie nationale de Croissance Accélérée-SCA* promoted by the DPR II.

¹¹ Through the introduction of licenses for artisanal fisheries and programmes for capacity adjustment, the establishment of marine protected areas, the promotion of co-management, the enhancement of surveillance on fishing activities, etc. (MME 2007: 6).

(tonniers only) (Interview with an industrial fisheries association, Dakar, March 2009).

Unlike China, Senegal does not have a specific legal act for marine environmental protection. The main document dealing with environment (in general) is the Code of the Environment (CoE). The text of 2001 (*Loi n° 2001-01 portant Code de l'Environnement*) has amended the previous Code of 1983 (*Loi n° 83-05 portant Code de l'Environnement*). As clearly stated in the new text of the Code of Environment of 2001 (CoE 2001), the old framework had to be revised for various reasons. Firstly, it did not take into account all possible aspects of environmental protection. Secondly, it had to be adapted to the international instruments to which Senegal has committed since the 1980s (e.g., Agenda 21¹²) and to new principles like sustainable development (which permeates the whole new text). Thirdly, the CoE had to take into account the adoption of new national legal frameworks for natural resources, such as the Code for Marine Fisheries of 1998 and the decentralization of competences.

10. The policy approaches in Senegal

The main policy approaches promoted by the WSSD as improvements to the policy-making are the ecosystem approach, integrated management, and regional cooperation. The application of these approaches in Senegal is analyzed in the following sections.

10.1. Ecosystem approach

It has been clarified above (see Box 1.4 'Ecosystem approach') that a broad conceptual perspective will be used to trace the presence of an ecosystem approach: it will be understood as the presence of (marine) ecosystem considerations in the national legal framework. The Code for Marine Fisheries (1998) clearly shows some concerns for the marine ecosystem; article 3 states what follows:

"The management of marine resources is competence of the state. For this purpose, the State defines public policies which are aimed at protecting and conserving these resources, and envisage their sustainable exploitation in order to preserve the marine environment" (Art. 3 CMF).

Nevertheless, existing texts are rarely applied (Ndiaye 1992: 21). The correct execution of legal commitments is weakened not only by the scarcity of resources, but also (and more importantly) by conflicts among bureaucratic agencies and with target groups. On the one hand, interdepartmental coordination among the ministries, agencies, and bureaus is very low (as it has emerged during our

¹² Senegal also ratified the CBD, in 1994 (Decree 2004-1408).

filed research in Dakar); this does not facilitate the integrative decision-making demanded by the ecosystem approach. On the other hand, target groups are particularly reluctant to opt for fishing sustainable practices and discard ecosystem concerns from their daily activity (FAO country profile).

In conclusion, although the Sectoral Policy Letter promotes the introduction of an ecosystem approach to fisheries management (MME 2007: 14), concepts such as 'ecosystem linkages' or 'ecosystem impact' seem to be absent from Senegal's regulatory framework for fisheries (Pramod & Pitcher 2006: 8). Fisheries resources are still managed through plans fragmented per species rather than an integrated approach (MME 2007: 7).

10.2. Integrated management

No evidence has been found on cross-sectoral coordination mechanisms for integrated management. Coordination within the field of fisheries management seems to be guaranteed by a strong vertical centralization that makes the Ministry for Marine Economy the pivotal authority in fisheries management, as I explain here.

In the framework of a devolution process, some competences have been transferred to local collectivities¹³ (e.g. environment and natural resources). Nevertheless, fisheries policy is not part of the competences delegated to local governments (*competences déléguées*). Senegalese fisheries are managed by the state at the national level through a highly centralized model characterized by simple deconcentration (Camara 2008: 88). The process of deconcentration consists in the mere creation of regional and departmental offices of central government's ministries (Rondinelli & Minis 1990: 452).

The Ministry of Marine Economy (MME) (*Ministère de l'Economie Maritime*) is competent for fisheries management, aquaculture, fishing industry, international maritime traffic (MME 2008: 32; Pramod & Pitcher 2006: 10). The MME comprises seven directorates, of which three are particularly relevant for the focus of this study:

- the Directorate for Marine Fisheries (DMF) (*Direction des Pêches Maritimes*) ;
- the Directorate for the Protection and Surveillance of Fisheries (DPSF) (*Direction de la Protection et de la Surveillance des Pêches*) ;
- and the Directorate for Fishing Industries (DFI) (*Direction des Industries de Transformation de la Pêche*) (Decree 2005-569; MME 2008: 32-33).

¹³ A further reason why the Code of the Environment had to be revised in 2001 (in addition to the explanations given below) was, indeed, the need to harmonize the old legal framework for environment with the decentralization of competences (Rondinelli & Minis 1990).

Particularly, the Directorate for Marine Fisheries (DMF) is responsible for all matters of marine fisheries management, including the issuing of licenses and the negotiation of fisheries agreements (Decree 2005-569; Camara 2008: 92; FAO country profile; Pramod & Pitcher 2006: 4).

10.3. Regional cooperation in West Africa

Senegal's regional cooperation is promoted in the framework of several regional institutions: *Union Economique et Monétaire Ouest Africaine* (UEMOA), *Communauté Economique des Etats de l'Afrique de l'Ouest* (CEDEAO), and *Commission Sous-Régionale des Pêches* (CSRP) (FAO country profile; MME 2008: 40). Particularly, the latter, i.e. the Regional Fishery Commission (CSRP), was established in 1985 and included 7 States: Cap Vert, Gambia, Guinea Bissau, Mauritania, Senegal, Guinea, and Sierra Leone. The objective of the CSRP is to harmonize national policies of the member states with regard to the exploitation and conservation of their marine resources (Camara 2008: 109; MME 2008: 40). Regional cooperation is also promoted through bilateral agreements between Senegal and the neighbouring countries: Guinea Bissau, Gambia, Mauritania, Cap-Vert (FAO country profile; MME 2008).

Out of the strict framework of regional cooperation, Senegal has also signed fisheries agreements with Japan and the European Union. Agreements with the EU have been suspended at the time of writing (November 2009) (MME 2008: 38). Finally multilateral cooperation is carried through several organizations and institutions: the Food and Agriculture Organization of the United Nations (FAO), the World Trade Organization (WTO), the *Conférence Ministérielle sur la Coopération Halieutique entre les Etats Riverains de l'Océan Atlantique* (COMAHFAT), *Comité des Pêches de l'Atlantique Centre-Est* (COPACE), *Comité International pour la Conservation du Thon de l'Atlantique* (ICCAT), *Comité pour la Pêche Continentale et l'Aquaculture* (CPCA) (FAO country profile; MME 2008: 40).

11. The policy tools in Senegal

With regard to the policy tools to put in place for fisheries management and marine biodiversity protection, the following sections analyze the establishment of marine protected areas (and their networks), the ban on destructive fishing practices, and capacity reduction initiatives.

11.1. Marine protected areas

There is no trace of the concept of MPAs in the primary legislation of Senegal, neither under the Code for Marine Fisheries (CMF) of 1998, nor under the Code of the Environment of 2001 (MME 2008: 46; confirmed by interviews with civil servants, Dakar, March 2009). Yet, five MPAs have been designated in 2004 by presidential decree (Decree No. 2004-1408). The designation of the five MPAs by the presidential Decree is the direct result of the President's commitment to the provisions of the Plan of Johannesburg (JPOI), signed by the country in 2002, which has put the creation of MPAs high on the political agenda (Interview with civil servants, Dakar, March 2009).

MPAs, already foreseen by Agenda 21, started to be taken into serious account by the Senegalese government more than ten years later, under the new commitments of the JPOI. What was changed during the decade between Agenda 21 and the JPOI that allowed the introduction of MPAs in the Senegalese policy framework was the general situation of non opposition from the target groups, mainly artisanal fishers. At the beginning of the years 2000, small-scale fishers could no longer deny the crisis of fish stock which started to undermine their revenues (Interviews with civil servants and NGOs, Dakar, March 2009).

Target groups did not oppose the presidential decision, and neither did the bureaucracy of the country (Interviews with civil servants, Dakar, March 2009). More problems emerged during the execution phase, and at the level of the bureaucratic arena. According to the Presidential Decree 2004-1408, the five areas had to be jointly managed by the ministries in charge of fisheries and the environment, which had to define a managing authority and a plan for each MPA (Decree 2004-1408). In practice, since their creation and until 2008, MPAs have been direct competence of the Ministry of Environment, under the Directorate for National Parks (Camara 2008: 271).

In 2008 an institutional reorganization has shifted the competences for the management of MPAs from the Ministry of Environment (MoE) to the Ministry of Maritime Economy (MME) (although the related Decree still has not been published at the time of writing, March 2009). It seems that a new Directorate for MPAs, will be created within the MME. The final 'machinery' for the administration of MPAs is still unclear and constitutes the object of political pressures and personal stakes (Interview with civil servants, Dakar, March 2009).

In Senegal, competences at ministerial level seem to be periodically reshuffled, moved away, and moved back among ministries. Even when the machinery for implementation is clarified by the law, a continuous production of presidential decrees can easily change responsibilities. The point is that more ministerial competences imply more job creation by a specific ministry, which ultimately guarantees personal 'clients' and political support to the political elites. The result is that each minister tries to influence presidential decision on the allocation of competences, often by exploiting issues

brought on the political agenda by internal public debates or, as in the case of MPAs, international influences (Interviews with civil servants, Dakar, March 2009).

This bureaucratic politics with the 'slipping away' of competences from the MoE towards the MME results in a high level of confusion and paralysis in the actual management of the MPAs. The MoE has recently recalled its personnel from the existing MPAs, so that the President – and NGOs – had to intervene to avoid the collapse of the 5 areas (Interviews with civil servants, Dakar, March 2009). The conflicts (at the top) existing within the Senegalese's public administration, which create confusion already at the stage of execution and definition of the implementation framework, do not help solve the weaknesses present on the field and emerging during the enforcement of these areas.

This provides a further explanation for the weak opposition of artisanal fishers to the establishment of MPAs. Monitoring on the areas is extremely weak, so that, in fact, small fishers have continued to fish with no respect for the MPAs, without being sanctioned. The only MPA that works effectively (Bambouk) has never been a zone of marine fisheries (Interviews with artisanal fisheries associations, Dakar, March 2009).

11.2. *Bans on destructive fishing practices and other technical measures*

Destructive methods are forbidden by the Code for Marine Fisheries (1998). Some technical measures (e.g. closed areas and seasons, by-catch limits, restrictions on mesh sized) are included in agreements with the EU (Pramod & Pitcher 2006: 6, 7). For the rest, there are very few or no regulations at all on technical measures (Pramod & Pitcher 2006: 8, 14), so that – for example – by catch, ghost fishing, and destructive methods are still very common (Pramod & Pitcher 2006: 14, 15). Furthermore, sanctions on illegal fishing using banned method are inadequate (Pramod & Pitcher 2006: 21).

11.3. *Capacity reduction*

The national 'Strategy for the sustainable development of fisheries and aquaculture' adopted in 2001 has highlighted the need to reduce capacity and to manage fishing efforts as a priority for the fisheries domain (MME 2007: 3). Nevertheless, there is no reference in primary laws to capacity reduction and there are no concrete measures in place to actually reduce effort and capacity (Pramod & Pitcher 2006: 5). The current fleet size is still very high and exerts severe pressures on already depleted resources. Capacity has not been reduced.

Licenses for large-scale fisheries have increased from 222 in 1994 to 308 in 1998; then they have

decreased during the following years until 2007 (138 licensed units). Yet, illegal fishing is quite common (Pramod & Pitcher 2006: 12-21). With regard to small-scale fisheries, data are often not available and when they are available, they vary in different documents. On the basis of the data provided by the DPM (Département de la Pêche Maritime) (taken from République du Sénégal 2007: 7), the number of units involved in small-scale fisheries (i.e. the number of *pirogues*) is still very high (7,328 artisanal vessels in 2004).

In 2003 the issuing of licenses for industrial fisheries has been 'verbally' suspended. In 2006, licenses for industrial fisheries have been officially frozen (*gel des licenses*) by the *Arrêté 005166*: only existing licenses can be renewed, while no new licenses will be issued (Interview with civil servant of the MME, Dakar, March 2009).

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¹⁴

Acronym used in the text.

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