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# Towards Sustainable Fisheries Law

A Comparative Analysis



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# **Towards Sustainable Fisheries Law**

## A Comparative Analysis

edited by Gerd Winter

IUCN Environmental Policy and Law Paper No. 74



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This publication has been made possible by funding from University of Bremen.

Published by: IUCN, Gland, Switzerland in collaboration with the IUCN Environmental Law Centre, Bonn, Germany

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Citation: Winter, Gerd (Ed). 2009. *Towards Sustainable Fisheries Law. A Comparative Analysis*. IUCN, Gland, Switzerland. xiv + 340 pp.

ISBN: 978-2-8317-1142-3

Cover design by: IUCN Environmental Law Centre

Cover photo:

Layout by: ceterum printdesign - Dieter Müller, Meckenheim, Germany

Produced by: IUCN Environmental Law Centre

Printed by:

Available from: IUCN Publications Services  
Rue Mauverney 28  
1196 Gland  
Switzerland  
Tel . +41 22 999 0000  
Fax +41 22 999 0010  
books@iucn.org  
www.iucn.org/publications

A catalogue of IUCN publications is also available.

*The text of this book is printed on Novatech 90 g/m<sup>2</sup> paper made from raw materials originating from responsibly managed forests.*

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# Foreword

Ensuring sustainable and equitable management of biodiversity from local to global levels is the heartland of work for the International Union for the Conservation of Nature (IUCN). Conservation of marine biodiversity in general and fish resources in particular has been high on the agenda of IUCN and its Environmental Law Programme (ELP) since the early 1980s. One example of IUCN's commitment to this area of conservation can be demonstrated by its input to the development of Part XII of the Law of the Sea Treaty which inaugurates an environmental law of the sea.

The ELP has also contributed significantly to the development of a number of important international conventions on the conservation and sustainable use of species and ecosystems, and biodiversity per se (Convention on Migratory Species, Convention on International Trade in Endangered Species of Wild Fauna and Flora, or Convention on Biological Diversity). All of these are very relevant for the conservation of marine fish resources.

Only recently, the ELP identified and summarized regulatory and governance gaps in the international regime for the conservation and sustainable use of marine biodiversity in Areas Beyond National Jurisdiction (ABNJ), a crucial topic to be considered by the United Nations Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction.

In addition to contributing to the discussions on the further development of the international legal regime concerning marine biodiversity (including fishing activities as a widely recognized and significant threat to marine biodiversity), the ELP has a strong interest in supporting its current implementation at the regional and national level. In this context, this book promises to be a great tool which will, among other things

- Help the reader to learn more about the international legal regime for fisheries management which is currently in place;
- Improve the understanding of the institutional and legal problems related to fisheries management which countries face at the national level; and
- Provide guidance for sustainable use of fish resources through a 'legal clinic' for fisheries management.

Importantly, the book fits perfectly in the IUCN Environmental Law Programme Plan 2009-2012, 'Environmental Law for a Just and Sustainable Future', which will continue to focus on:

- The conceptual development of environmental law;
- The generation of knowledge and the dissemination of information;
- Capacity building and training; and
- Technical 'on-the-ground' legal assistance.

I would like to congratulate the editor Gerd Winter, a long standing member of the IUCN Commission on Environmental Law, as well as the authors of this volume for developing a practical tool towards sustainable fisheries law. The lessons presented here in the case studies, and especially in the legal clinic, provide valuable insights not only for the six states analyzed, but also for any other state aiming for sustainable fisheries management.

**Alejandro Iza**

Head, Environmental Law Programme  
Director, Environmental Law Centre

Bonn, February 2009



# Preface

With the growing scarcity of fish resources, instruments of fisheries management become crucial. While current literature focusses on modelling and technical crafting of management tools this volume suggests a legal approach. Taking the law seriously can make a contribution to better management. Good laws create legal certainty, integrate higher rank human rights and resource protection obligations, clarify objectives, lay out rights and duties of fishers, design the appropriate mix of instruments, determine governmental competences, limit administrative discretion, provide enforcement tools and allow for judicial review of administrative measures. Besides formal quality laws must of course produce good policy. As elaborated in this book fisheries law should, for instance, accord the often found antagonism between the fostering of fishing capacity and the restriction of fishing activities, reserve coastal resources for self-regulated exploitation by artisanal fishers, establish a more centralised (albeit participatory) regime for off-shore fisheries, etc.

The book consists of six case studies including Indonesia, Kenya, Namibia, Brazil, Mexico, and the EU. These states border the main oceans of the earth: the East Pacific, the South and North Atlantic, and the West and East Indian Ocean. Besides geographical distribution the cases represent different institutional factors of fisheries management such as the wealth of resources, the size and thus fishing pressure of fishing capacity, the choice of instruments, the degree of centralization within states, and the professionalism of the administration. The six studies follow a common structure including information on the state of fisheries and fish resources, fisheries issues debated in the country, domestic law and institutions promoting fisheries and managing resource use, external relations concerning fisheries, and a case study highlighting a characteristic legal problem of the country.

The case studies are preceded by an analysis of the international law requirements concerning fisheries management, with a focus on fisheries in Exclusive Economic Zones. It shows that international law already provides a useful range of norms for national fisheries management, if carefully interpreted.

The final part of the book summarises the case studies. Building on this material, a proposal on a 'legal clinic' for fisheries management is developed, creating a methodology for diagnosing problems in existing management systems and developing proposals for reform. Twelve rules of good fisheries governance are suggested as a guide for the legal clinic exercise.

The project here presented was elaborated as workpackage no 10 (legal instruments) of the Incofish project. This project was an interdisciplinary endeavour with worldwide participation studying multiple demands on coastal zones and viable solutions for resource use with emphasis on fisheries. It was funded by the European Union and directed by the Leibniz Institut für Meeresforschung (IfM-GEOMAR) Kiel. The complete results of the project are available at [www.incofish.org](http://www.incofish.org).

I very much welcome the opportunity to publish the legal studies in the IUCN Environmental Law and Policy series. This series has established itself as an important forum for studies striving both for thorough analysis and practical utility. It is a unique stimulus of worldwide discussions and mutual learning. May the present work be found to meet these standards.

The authors of this volume express their sincere thanks to all project partners. It was a great experience to communicate with and learn from persons of so many different characters, disciplines and origins. Particular thanks are due to Dr. Rainer Froese, the inspiring project leader, Dr. Silvia Opitz and Antje Spalink, the

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understanding project managers, and Dr. Cornelia Nauen, the demanding project supporter. The linguistic assistance and editorial work of Anna-Maria Hubert, Tiina Rajamets and Ann DeVoy is also gratefully acknowledged.

**Gerd Winter**

Bremen, February 2009

# PART A

## The International Law Framework





# The International Legal Standard for Sustainable EEZ Fisheries Management

Marion Markowski

## I. Introduction

After centuries of extensive high seas freedom of fishing, the introduction of exclusive economic zones (EEZs) and the adoption of the 1982 United Nations Convention on the Law of the Sea<sup>1</sup> (UNCLOS or 'the Convention') sought to provide a more effective framework for the management and conservation of marine living resources.<sup>2</sup> In the EEZ, extending up to 200 nm, the coastal state enjoys sovereign rights and jurisdiction for the purpose of exploring, exploiting, conserving and managing the natural resources, and the protection and preservation of the marine environment.<sup>3</sup> Over 90 percent of commercially important fish stocks are found within EEZs.<sup>4</sup> However, exclusive coastal state jurisdiction has not subsequently put an end to the decline of fish stocks.<sup>5</sup> In fact, it has been suggested that even the most developed states have failed in managing and conserving fisheries in their EEZs effectively.<sup>6</sup>

The FAO Fisheries and Aquaculture Department estimates that in 2005 one quarter of the global marine capture fish stocks were overexploited, depleted, or recovering from depletion, while about another half

of the stocks were fully exploited and producing catches at or close to their maximum sustainable limits. Most stocks of the top ten species that account for about 30 percent of the global catch are considered to be fully exploited or overexploited.<sup>7</sup> In 2004, FAO further observed in some areas a 'recurring pattern... [of] long-term change in catch composition following the depletion of more traditional stocks and the targeting of other less valuable and previously lightly exploited or non-exploited species'.<sup>8</sup> The average trophic levels of marine capture fisheries production were declining in most regions of the world, a phenomenon also labelled 'fishing down the food chain'.<sup>9</sup> FAO concluded that '[o]bserved trends of many exploited stocks suggest a grim picture, yet the pressure on fishery resources continues to intensify'.<sup>10</sup>

The present paper undertakes to identify the international environmental norms that govern EEZ fisheries management. It is here proposed that international law already provides a useful range of norms for national fisheries management, if carefully interpreted.

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- 1 United Nations Convention on the Law of the Sea, Montego Bay, 10 December 1982, in force 16 November 1994, UN Doc. A/CONF. 62/122; (1982) 21 ILM 1261.
  - 2 FAO. (1995). *Code of Conduct for Responsible Fisheries*, p.v. Rome: FAO; Birnie, P.W. and Boyle, A.E. (2002). *International law and the environment*, p.660. 2nd Edition. New York: Oxford University Press.
  - 3 Articles 56(1)(a), (b)(iii), 57 UNCLOS.
  - 4 Barnes, R. (2006). 'The Convention on the Law of the Sea: An Effective Framework for Domestic Fisheries Conservation?' In: Freestone, D., Barnes, R. and Ong, D.M. (Eds). *The Law of the Sea: Progress and Prospects*, p.233. Oxford: Oxford University Press; Christie, D.R. (1999). 'The conservation and management of stocks located solely within the exclusive economic zone'. In: Hey, E. (Ed.). *Developments in international fisheries law*, pp.395-419. at 397. The Hague: Kluwer Law International.
  - 5 Birnie and Boyle, *supra*, note 2, p.648; Christie, D.R. (2004). 'It don't come EEZ: The failure and future of coastal state fisheries management'. *Journal of Transnational Law and Policy* 14: 1-36, at 3, 5, 34.
  - 6 Birnie and Boyle, *supra*, note 2, p.660; Christie, *supra*, note 4, p.396; Christie, *supra*, note 5, pp.4-5.
  - 7 FAO Fisheries and Aquaculture Department. (2007). *The State of World Fisheries and Aquaculture 2006*, p.29. Rome: FAO.
  - 8 FAO Fisheries Department. (2004). *The State of World Fisheries and Aquaculture 2004*, p.32. Rome: FAO.
  - 9 *Ibid.*, p.143.
  - 10 *Ibid.*, p.142.

## II. International legal requirements on EEZ fisheries management

The sovereign right of states to exploit their own resources pursuant to their own environmental policies, which is expressed in Principle 21 of the 1972 Declaration of the United Nations Conference on the Human Environment,<sup>11</sup> Principle 2 of the 1992 Rio Declaration on Environment and Development<sup>12</sup> ('Rio Declaration') and Article 193 UNCLOS, has long been established as a rule of international custom.<sup>13</sup> Moreover, according to Article 56(1)(a) UNCLOS, coastal states have 'sovereign rights for the purpose of exploring and exploiting, conserving and managing' the living resources in the 200 nm EEZ. Besides, they exercise jurisdiction with regard to the protection and preservation of the marine environment in their EEZs.<sup>14</sup> The allocation of rights in the EEZ as set out in Article 56 UNCLOS is also part of international customary law.<sup>15</sup>

However, the sovereignty of states over their natural resources is not absolute. It is qualified by treaties and customary international law relating to the conservation of natural resources and environmental protection.<sup>16</sup> Article 2(3) UNCLOS states accordingly that '[t]he sovereignty over the territorial sea is exercised

subject to this Convention and to other rules of international law'. Similarly, in exercising its rights and duties in the EEZ, the coastal State must have 'due regard' to the rights and duties of other states and act in a manner compatible with the provisions of UNCLOS.<sup>17</sup>

First and foremost, the conservation and management of fisheries resources in the EEZ is the subject of Part V of UNCLOS. Besides, offshore fisheries management is also affected by the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks<sup>18</sup> ('UN Fish Stocks Agreement' or 'the Agreement'). In addition to specific treaty provisions, environmental standards for national fisheries management may emanate from other sources of international law, such as international custom or general principles of law. The environmental requirements on EEZ fisheries management deriving from any of these sources will be analyzed in the following sections.

### 1. Conservation and sustainable use of fisheries resources

While older agreements refer to the 'conservation' of living resources or 'maximum sustainable yield' (MSY),<sup>19</sup> later agreements speak also of 'sustainable utilization' or 'sustainable use'.<sup>20</sup> The idea of sustainable use is common to all of these terms.<sup>21</sup> Although

sustainable use represents one element of the notion of sustainable development, it is first and foremost an independent concept, whose legal status and implications must be considered separately.<sup>22</sup>

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11 UN Doc. A/CONF/48/14/REV.1.

12 Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26 (Vol. I).

13 Cf. Birnie and Boyle, *supra*, note 2, pp.137-9; Sands, P. (2003). *Principles of International Environmental Law*, pp.235-7. 2nd Edition. Cambridge: Cambridge University Press.

14 Article 56(1)(b)(iii) UNCLOS.

15 Attard, D.J. (1987). *The Exclusive Economic Zone in International Law*, pp.150-2, 290. Oxford Monographs in International Law. Oxford: Clarendon Press; Burke, W.T. (1994). *The New International Law of Fisheries: UNCLOS 1982 and Beyond*, p.40. Oxford: Clarendon Press; Churchill, R.R. and Lowe, A.V. (1999). *The law of the sea*, p. 161. Melland Schill Studies in international law, Third edition. Manchester: Manchester University Press.

16 Cf. Birnie and Boyle, *supra*, note 2, p.138.

17 Article 56(2) UNCLOS.

18 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, 4 August 1995, in force 11 December 2001, A/CONF. 164/37; (1995) 34 ILM 1542.

19 E.g., Article 61 UNCLOS.

20 E.g., UN Fish Stocks Agreement, *supra*, note 18, Article 5(h).

21 Birnie and Boyle, *supra*, note 2, p.88.

22 Cf. also *ibid*.

## 1.1 The 1982 UNCLOS

Article 61 UNCLOS sets out the obligations of coastal states with regard to the conservation of the living resources in their EEZs.

### a) *Primary obligations*

The primary substantive obligation on coastal states is contained in Article 61(2) UNCLOS, according to which '[t]he coastal state... shall ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation'. 'Proper' conservation and management measures can be understood as measures appropriate within the overall context of the fishery in question, i.e., as environmentally sound and consistent with international law.<sup>23</sup>

Nonetheless, the coastal state has a wide discretion in determining the 'proper conservation and management measures' in each individual case.<sup>24</sup> Article 62(4) UNCLOS contains a non-exhaustive catalogue of conservation measures and 'other terms and conditions' that the coastal state may establish. It includes the licensing of fishermen and vessels; fees; catch quotas; area, time and gear restrictions; minimum fish sizes; monitoring requirements; and enforcement procedures.

Over-exploitation in itself is not prohibited by Article 61(2), unless it presents a danger to the maintenance of the living resources in the EEZ.<sup>25</sup> The provision has also been criticized for not specifying the unit to be maintained ('stock, species, or biomass'), nor the precise level at which it is to be maintained.<sup>26</sup>

However, Article 61(2) UNCLOS is in fact concretized by paragraph 3. According to this paragraph, proper conservation and management measures shall be 'designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield'. The term 'populations' is not defined by the Convention, but is generally understood to refer to a group of fish of one species sharing common ecological and genetic features and more likely to breed with one another than with individuals from another such group.<sup>27</sup>

MSY is also not defined by UNCLOS, but is 'generally defined as the largest annual catch or yield of a fishery that can be taken continuously from the stock, based on the renewability of the resource'.<sup>28</sup> The concept is, however, widely criticized because of the difficulties in determining MSY in practice, due to the natural variability of stocks and other uncertainties. Besides, it is seen as largely inadequate to the task of managing an already fully exploited or even declining resource and ignores the effects of fishing on non-target species.<sup>29</sup>

The non-exhaustive list of environmental and economic factors to be taken into account in determining MSY includes the economic needs of coastal fishing communities, the special requirements of developing states, fishing patterns, the interdependence of stocks, and any generally recommended international minimum standards, whether subregional, regional or global.<sup>30</sup> The last clause in particular opens the UNCLOS provisions to subsequent agreements as well as soft law instruments

23 Applebaum, B. and Donohue, A. (1999). 'The role of regional fisheries management organizations'. In: Hey, E. (Ed.). *Developments in International Fisheries Law*, pp.217-49, at 226. The Hague: Kluwer Law International.

24 Lagoni, R. and Proelß, A. (2006). 'Kapitel 3. Festlandsockel und ausschließliche Wirtschaftszone'. In: Vitzthum, W. Graf von (Ed.). *Handbuch des Seerechts*, pp.161-286, at 235. München: C.H. Beck; cf. also Barnes, supra, note 4, p.241.

25 Barnes, *ibid.*, p.242. In contrast Christie, supra, note 5, p.10, who suggests that 'the clearest obligation created for coastal states by article 61 is the duty to prevent overexploitation'.

26 Barnes, *ibid.*, p.242; also Burke, supra, note 15, p.51.

27 Incofish ICZM Glossary, <http://www.incofish.org/>; FAO Fisheries Glossary, <http://www.fao.org/fi/glossary/> (accessed 20 February 2008).

28 Christie, supra, note 4, p.402; Christie, supra, note 5, p.11; cf. also Barnes, supra, note 4, p.243; Birnie and Boyle, supra, note 2, p.552. For background of the concept see Kaye, S.M. (2001). *International Fisheries Management*, pp.49-53. International Environmental Law and Policy Series. The Hague: Kluwer Law International.

29 E.g. Barnes, *ibid.*, p.243; Birnie and Boyle, *ibid.*, p. 552; Christie, supra, note 4, pp.402-4; Christie, supra, note 5, pp.11-14; Churchill and Lowe, supra, note 15, p.282; Schram, G.G. and Tahindro, A. (1999). 'Developments in principles for the adoption of fisheries conservation and management measures'. In: Hey, E. (Ed.). *Developments in international fisheries law*, pp.251-86, at 257-8. The Hague: Kluwer Law International.

30 Article 61(3) UNCLOS.

relating to fisheries management.<sup>31</sup> The essential question, however, remains whether such ‘qualification’ of MSY allows coastal states to set catch limits *beyond* the actual MSY level.

The wording of Article 61(3) UNCLOS lacks clarity in this respect. However, MSY is a biological concept defined as the largest annual catch that can be taken continuously from the stock. It thus marks the upper limit beyond which harvesting levels are no longer sustainable. If this strict biological limit is to be ‘qualified’ by environmental and economic factors, this can only be in terms of lower catch levels than the concept of MSY would actually permit. Higher catch levels are *per se* contrary to the concept and cannot pass for a qualification.

Besides, catch levels beyond MSY would naturally prevent the maintenance or restoration of populations ‘at levels which *can* produce the maximum sustainable yield’.<sup>32</sup> By definition, a stock or population that is exploited beyond the MSY level cannot continue to produce the same catch levels. Levels of harvesting beyond MSY are therefore contrary to the primary obligation contained in Article 61(3).<sup>33</sup>

What is more, continuous catch levels beyond MSY would inevitably lead to over-exploitation and eventually contradict the general obligation under Article 61(2) UNCLOS, once populations become endangered.<sup>34</sup> Moreover, the UN Fish Stocks

Agreement must be taken into account in the interpretation of the Convention as a ‘subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions’ within the meaning of Article 31(3)(a) of the 1969 Vienna Convention on the Law of Treaties.<sup>35</sup>

<sup>36</sup> The Agreement does not allow MSY to be exceeded for economic or other reasons.<sup>37</sup> Consequently, the concept of qualified MSY allows states to set catch limits below, but not above the biological MSY level.<sup>38</sup>

It has further been criticized that the conservatory obligations of Article 61 UNCLOS are undermined by the requirement of Article 62(1) that coastal states shall promote the objective of optimum utilization of the living resources in the EEZ.<sup>39</sup> However, optimum utilization does not require the maximum or full utilization of the resource.<sup>40</sup> Moreover, Article 62(1) must be read ‘without prejudice to article 61’.<sup>41</sup> Hence, Article 62(1) UNCLOS cannot serve coastal states as an argument for exceeding the MSY level.<sup>42</sup>

#### **b) The determination of total allowable catch**

According to Article 61(1) UNCLOS, the coastal state ‘shall determine the total allowable catch of the living resources in its exclusive economic zone’. While Burke suggests that the purport of this provision is to enable only the coastal state, to the exclusion of other entities, to determine the allowable catch in its EEZ,<sup>43</sup> the language is clearly mandatory. Besides, as Article 56(1)(a) UNCLOS attributes to the coastal state

31 Cf. also Christie, *supra*, note 5, p.18.

32 Article 61(3) UNCLOS (emphasis added).

33 Cf. also Kaye, *supra*, note 28, p.100.

34 Cf. also Der Rat von Sachverständigen für Umweltfragen (SRU). (2004). *Meeresumweltschutz für Nord- und Ostsee, Sondergutachten*, p.120. Baden-Baden: Nomos.

35 Vienna Convention on the Law of Treaties, Vienna, 23 May 1969, in force 27 January 1980, (1969) 8 ILM 679.

36 Anderson, D.H. (1996). ‘The Straddling Stocks Agreement of 1995: an initial assessment’. *International and Comparative Law Quarterly* 44: 463-75, at 468; cf. also Freestone, D. (1999). ‘Implementing Precaution Cautiously: The Precautionary Approach in the Straddling and Highly Migratory Fish Stocks Agreement’. In: Hey, E. (Ed.). *Developments in International Fisheries Law*, pp.287-325, at 318. The Hague: Kluwer Law International; Freestone, D. (1999). ‘International Fisheries Law Since Rio: The Continued Rise of the Precautionary Principle’. In: Boyle, A. and Freestone, D. (Eds). *International Law and Sustainable Development: Past Achievements and Future Challenges*, pp.135-64, at 159. New York: Oxford University Press.

37 See 2.a) below.

38 Cf. also Kaye, *supra*, note 28, p.100. To the contrary Barnes, *supra*, note 4, p.243; Christie, *supra*, note 4, pp.402-3; Christie, *supra*, note 5, p.12.

39 Birnie and Boyle, *supra*, note 2, p.660.

40 Cf. also *ibid.*; Burke, *supra*, note 15, p.60; Christie, *supra*, note 4, p.398, n.11; Nordquist, M.H. (Ed.). (1993). *United Nations Convention on the Law of the Sea 1982: a commentary*, 5, II, p.635. Dordrecht: Martinus Nijhoff Publishers.

41 Article 62(1) UNCLOS.

42 Cf. also Christie, *supra*, note 4, p.398; Kaye, *supra*, note 28, pp.104-5; Nordquist, *supra*, note 40, II, p.636.

43 Burke, *supra*, note 15, p.46.



exclusive sovereign rights for the conservation and management of natural resources in its EEZ, Burke's interpretation would render Article 61(1) meaningless.

Burke further argues against a legal obligation to determine the total allowable catch (TAC) that especially developing countries may not be able to establish the requisite scientific basis.<sup>44</sup> However, Article 61(1) UNCLOS is only concerned with the basic duty to limit resource exploitation, not with pertinent data requirements. The latter issue is left to Article 61(2), calling on the coastal state to 'take into account the best scientific evidence available to it' in taking conservation and management measures, which seems but a small burden.<sup>45</sup>

The wording of Article 61(1) UNCLOS appears to suggest that a TAC must be established for every fish stock within the EEZ.<sup>46</sup> However, the use of the term 'resources', rather than 'stocks' or 'species', may imply that the obligation applies only to such stocks or species that are affected by exploitation.<sup>47</sup>

On the other hand, the determination of TAC is requisite for the identification of the potential surplus that exceeds the coastal state's own harvesting capacity and must be made available to foreign fishing vessels.<sup>48</sup> When it is alleged that a coastal state has arbitrarily refused to determine the TAC and its harvesting capacity at the request of another state with respect to stocks which that other state is interested in fishing, the dispute is subject to conciliation.<sup>49</sup> This implies that a coastal state would have to determine the TAC for a stock that is of interest to other states, even though it is not harvested by the coastal state itself. Yet the conciliation provision supports the view that the obligation to establish a TAC does not apply to *all*

living resources in the EEZ, as it appears 'highly unlikely that a dispute would arise over a failure of the coastal state to determine an allowable catch for a species or population that is only of theoretical interest for harvesting'.<sup>50</sup> This interpretation is also supported by practical considerations.<sup>51</sup>

In summary, whereas it appears unreasonable to require for the purpose of Article 61(1) UNCLOS the determination of TAC for stocks that are not at all affected, nor of any interest to exploitation, the obligation indeed applies to stocks actually or potentially affected by exploitation, whether as target species or bycatch.<sup>52</sup>

In any event, the determination of the actual TAC level in each individual case is subject to the discretion of the coastal state.<sup>53</sup> Nevertheless, in setting TAC levels the coastal state remains bound by the primary obligations to ensure that the living resources in the EEZ are not endangered by overexploitation, and to maintain populations of target species at, or restore them to, sustainable levels. The obligation to establish TACs does not exclude other management measures.<sup>54</sup>

### *c) Non-target species*

According to Article 61(4) UNCLOS, in taking conservation and management measures the coastal state must consider the effects on associated or dependent species, 'with a view to maintaining or restoring populations of such... species above levels at which their reproduction may become seriously threatened'. It has been criticized that it was not clear from the wording or background of this paragraph what kinds of effects on non-target species it precisely refers to.<sup>55</sup>

44 Ibid., p.45.

45 On the role of scientific evidence see d) below.

46 Cf. Churchill and Lowe, *supra*, note 15, p.289; Kaye, *supra*, note 28, p.102.

47 Burke, *supra*, note 15, p.46; Wolff, N. (2002). *Fisheries and the environment: public international and European Community law aspects*, p.57. Schriften des Europa-Instituts der Universität des Saarlandes – Rechtswissenschaft, vol. 40. Baden-Baden: Nomos Verlagsgesellschaft.

48 Cf. Article 62(2) UNCLOS; Christie, *supra*, note 4, p.399; Christie, *supra*, note 5, p.8.

49 Article 297(3)(b)(ii) UNCLOS.

50 Burke, *supra*, note 15, p.47.

51 Cf. *ibid.*

52 Cf. also Christie, *supra*, note 4, p.398; Christie, *supra*, note 5, p.7.

53 Cf. Article 297(3)(a) UNCLOS; cf. also Burke, *supra*, note 15, pp.44, 47-8; Churchill and Lowe, *supra*, note 15, p.289.

54 Cf. Article 61(2) UNCLOS ('proper conservation and management measures'); cf. Burke, *ibid.*, pp.45-6, 47.

55 Burke, *supra*, note 15, p.58; Christie, *supra*, note 4, p.404; Christie, *supra*, note 5, p.14. Similar Attard, *supra*, note 15, p.154.

Christie seems to suggest that the obligation does not extend to complex biological relationships or 'ecosystem management', but is limited to the direct effects of fishing on non-target species in the form of incidental catch or bycatch.<sup>56</sup> However, Article 61(4) does not expressly refer to bycatch and incidental catches, but to the more general 'effects on species associated with or dependent upon harvested species', thus implying that some biological relationships of stocks beyond the occurrence of bycatch and incidental catches need to be taken into account.

Christie argues that '[b]ecause states generally lacked the capacity, it seems unlikely that the LOS Convention's drafters envisioned states' obligations under this section to extend to ecosystem management'.<sup>57</sup> This argument, however, appears doubtful in the face of Articles 61(3) and 192 *et seq.* The former provision indeed calls on coastal states to take into account the 'interdependence of stocks' in determining MSY for harvested species. Article 192 provides that '[s]tates have an obligation to protect and preserve the marine environment', while Article 194(5) requires that states take the measures necessary to 'protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life'.

Therefore, the biological relationships between stocks need to be considered beyond the occurrence

of incidental catch and bycatch. Nonetheless, Article 61(4) UNCLOS merely seeks 'to maintain the viability of such species, not to protect their role within the food web or the functioning of the marine ecosystem as a whole'.<sup>58</sup>

#### *d) The role of scientific evidence*

Article 61(2) UNCLOS requires the coastal state to take 'into account the best scientific evidence available to it' in determining conservation and management measures, albeit not to base its action solely on such evidence.<sup>59</sup> Limited data suffice, as long as they are the best available to the coastal state. There is thus no express positive duty on coastal states to undertake scientific research.<sup>60</sup>

However, the primary obligation to conserve the living resources in the EEZ 'reasonably imposes the burden of acquiring data that make this obligation achievable' within the limits of the coastal state's financial resources.<sup>61</sup> In any case, 'available' data is not only data generated by the coastal state, but includes data from other sources, such as other states involved in the fishery and international organisations, that can reasonably be obtained.<sup>62</sup> Article 61(5) UNCLOS places a positive duty on all states participating in a given fishery 'where appropriate' to exchange a range of scientific information and data relevant to the conservation of fish stocks on a regular basis through competent international organizations.

## 1.2 The UN Fish Stocks Agreement

The 1995 UN Fish Stocks Agreement must be interpreted and applied in the context of and in a manner consistent with UNCLOS,<sup>63</sup> but in turn informs the interpretation of the relevant UNCLOS provisions as a 'subsequent agreement between the

parties regarding the interpretation of the treaty or the application of its provisions' within the meaning of Article 31(3)(a) of the Vienna Convention on the Law of Treaties.<sup>64</sup> Its objective is 'to ensure the long-term conservation and sustainable use of straddling fish

<sup>56</sup> Christie, *supra*, note 4, pp.404-6; Christie, *supra*, note 5, pp.14-16.

<sup>57</sup> Christie, *supra*, note 4, p.405.

<sup>58</sup> Broadus, J.M. and Vartanov, R.V. (Eds). (1994). *The Oceans and Environmental Security: Shared U.S. and Russian Perspectives*, p.235. Washington, DC: Island Press; cf. also Freestone, D. (1996). 'The Conservation of Marine Ecosystems under International Law'. In: Bowman, M.J. and Redgwell, C.J. (Eds). *International Law and the Conservation of Biological Diversity*, pp.91-107, at 104. London: Kluwer Law International.

<sup>59</sup> Cf. also Barnes, *supra*, note 4, p.242; Burke, *supra*, note 15, p.56; Kaye, *supra*, note 28, p.103; Nordquist, *supra*, note 40, II, p.609.

<sup>60</sup> Cf. also Barnes, *ibid.*, p.242; Burke, *ibid.*, p.57; Kaye, *ibid.*, pp.102-3.

<sup>61</sup> Burke, *ibid.*, p.57; cf. also Kaye, *ibid.*, pp.103-4.

<sup>62</sup> Cf. Article 61(5) UNCLOS; Burke, *ibid.*, p.57.

<sup>63</sup> UN Fish Stocks Agreement, *supra*, note 18, Article 4.

<sup>64</sup> Anderson, *supra*, note 36, p.468; cf. also Freestone, *supra*, note 36, 'Implementing Precaution Cautiously', p.318; Freestone, *supra*, note 36, 'International Fisheries Law Since Rio', p.159.

stocks and highly migratory fish stocks through effective implementation of the relevant provisions of [UNCLOS].<sup>65</sup>

The UN Fish Stocks Agreement as a whole applies only to the conservation and management of straddling and highly migratory fish stocks on the high seas. Only a few of its provisions apply also to straddling and highly migratory stocks *within* areas under national jurisdiction. In particular, the coastal state must apply the general principles of Article 5 in the exercise of its sovereign rights for the purpose of exploring and exploiting, conserving and managing straddling and highly migratory stocks within its EEZ.<sup>66</sup>

#### a) *Primary obligations*

Article 5 of the Agreement provides that, in order to conserve and manage straddling and highly migratory fish stocks, coastal states and states fishing on the high seas shall 'adopt measures to ensure [their] long-term sustainability... and promote the objective of their optimum utilization'.<sup>67</sup> They shall in particular 'ensure that such measures... are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global'.<sup>68</sup>

Although the UN Fish Stocks Agreement thus continues to refer to the concept of qualified MSY, it goes beyond UNCLOS in requiring the application of the precautionary approach in Articles 5(c) and 6. Its Annex II on Guidelines for the Application of Precautionary Reference Points in Conservation and

Management of Straddling Fish Stocks and Highly Migratory Fish Stocks elucidates the role of MSY under the Agreement. The Annex distinguishes (i) conservation, or limit, reference points, which identify safe biological limits for harvesting, and (ii) management, or target, reference points, which define management objectives *within* safe biological limits.<sup>69</sup> MSY is to be regarded as a 'minimum standard for limit reference points', rather than a management objective.<sup>70</sup> It is thus clarified that MSY 'as qualified by relevant environmental and economic factors' would have to operate within the limits of conservation reference points. In other words, states must not exceed the MSY level for economic reasons.<sup>71</sup>

What is more, because MSY serves as a minimum standard for limit reference points under the Agreement, management objectives will have to be set below MSY and thus at a lower level than was previously required under UNCLOS.<sup>72</sup>

The reference to 'stocks' in Article 5(b) UN Fish Stocks Agreement indicates that the conservation obligation applies to each single stock. It is therefore not sufficient to maintain or restore only some stocks of a given species in order to conserve the species. However, the term 'stock' is not defined in the Agreement, and scientific definitions vary and cannot clearly be distinguished from those of 'population'. Recurring elements are, however, that a stock is a group of individuals reproducing independently of other stocks, and is defined by a certain area or range.<sup>73</sup>

The measures to be taken according to Article 5 UN Fish Stocks Agreement further include the development and use of selective and environmentally safe fishing gear,<sup>74</sup> the prevention or elimination of overfishing and excess capacity, and the limitation of

65 UN Fish Stocks Agreement, *supra*, note 18, Article 2.

66 *Ibid.*, Article 3(2).

67 *Ibid.*, Article 5(a).

68 *Ibid.*, Article 5(b).

69 *Ibid.*, Para. 2, Annex II.

70 *Ibid.*, Para. 7, Annex II.

71 Cf. Rayfuse, R. (1999). 'The interrelationship between the global instruments of international fisheries law'. In: Hey, E. (Ed.). *Developments in International Fisheries Law*, pp.107-58, at 129. The Hague: Kluwer Law International; Wolff, *supra*, note 47, p.74.

72 Nelson, D. (1999). 'The Development of the Legal Regime of High Seas Fisheries'. In: Boyle, A. and Freestone, D. (Eds). *International Law and Sustainable Development: Past Achievements and Future Challenges*, pp.113-34, at 126. New York: Oxford University Press; Rayfuse, *ibid.*, p.129.

73 Cf. Incofish ICZM Glossary, *supra*, note 27; FAO Fisheries Glossary, .

74 UN Fish Stocks Agreement, *supra*, note 18, Article 5(f).

fishing effort to levels commensurate with the sustainable use of fishery resources,<sup>75</sup> as well as monitoring, control and surveillance measures.<sup>76</sup>

#### **b) Non-target species**

Under the UN Fish Stocks Agreement, states must ‘assess the impacts of fishing, other human activities and environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent upon the target stocks’.<sup>77</sup> Where ‘necessary’, conservation and management measures must be adopted for dependent and associated species as well as other species belonging to the same ecosystem as target stocks, with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened.<sup>78</sup> Article 5(f) specifically requires the minimisation of catch of non-target species and impacts on associated

or dependent species. Moreover, *lit. g* calls for the protection of marine biodiversity. Thus, Article 5 UN Fish Stocks Agreement clearly adds substance to the requirement of Article 61(4) UNCLOS to merely consider the effects on associated or dependent species.<sup>79</sup>

#### **c) The role of scientific evidence**

In contrast to Article 61(2) UNCLOS, Article 5(b) UN Fish Stocks Agreement requires that conservation and management measures are *based* on the best scientific evidence available to the coastal state. Under the Agreement, coastal states must further assess the impacts of fishing, other human activities and environmental factors on target stocks, dependent and associated species, and other species belonging to the same ecosystem,<sup>80</sup> promote and conduct scientific research,<sup>81</sup> and collect and share data and information.<sup>82</sup>

### **1.3 Obligations under customary international law**

A number of states have so far abstained from UNCLOS and the UN Fish Stocks Agreement. Hence, the question arises if and to what extent these states are equally obliged under customary international law to conserve the fisheries resources within their EEZs. In the *North Sea Continental Shelf* cases the International Court of Justice (ICJ) identified the following conditions for a treaty rule to acquire customary status:

- (i) a fundamentally norm-creating character such as could be regarded as forming the basis of a general rule of law;
- (ii) a very widespread and representative participation in the convention, including that of states whose interests were specially affected;
- (iii) extensive and virtually uniform state practice,

including that of states whose interests are specially affected; and

- (iv) the passage of some time, short though it may be.<sup>83</sup>

#### **a) Propositions of norm-creating character**

The primary obligation under UNCLOS Part V, requiring the coastal state to ensure through proper conservation and management measures that the maintenance of the living resources in the EEZ is not endangered by overexploitation, is certainly norm-creating. This finding is supported by the fact that the alleged failure of a coastal state to ensure the maintenance of the living resources in its EEZ through proper conservation and management measures is subject to conciliation under UNCLOS,<sup>84</sup> and is thus made justiciable.

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75 Ibid., Article 5(h).

76 Ibid., Article 5(l).

77 Ibid., Article 5(d).

78 Ibid., Article 5(e).

79 Cf. also Schram and Tahindro, *supra*, note 27, p.259; Wolff, *supra*, note 47, p.70.

80 UN Fish Stocks Agreement *supra*, note 18, Article 5(d).

81 Ibid., Article 5(k).

82 Ibid., Article 5(j).

83 *North Sea Continental Shelf*, Judgement, [1969] ICJ Rep. 3, at paras 72-4; cf. also Lee, L.T. (1983). ‘The Law of the Sea Convention and Third States’. *The American Journal of International Law* 77: 541-68, at 561-2.

84 Article 297(3)(b)(i) UNCLOS.



The case is more difficult with regard to the requirement to maintain or restore populations of harvested species at levels which can produce MSY. The concept of MSY describes the annual catch that can be taken continuously from the stock on the basis of its reproduction rate.<sup>85</sup> In effect, the basic obligation contained in Article 61(3) UNCLOS is thus to maintain or restore populations of harvested species at sustainable levels. This finding is supported by the formulation in Article 5(a) UN Fish Stocks Agreement, obliging states to ‘adopt measures to ensure long-term sustainability’ of straddling and highly migratory fish stocks. Such obligation is of a norm-creating character.

On the other hand, the actual level of qualified MSY for a particular fish population can only be determined by applying biological and other criteria in the concrete case. This process of determining the actual MSY level is merely a practical or technical method applied in order to discharge the basic obligation.<sup>86</sup>

A similar distinction must be made with regard to the determination of TAC for stocks actually or potentially affected by exploitation. The establishment of the actual TAC level is subject to the discretion of states.<sup>87</sup> However, the underlying proposition that some upper limit for the exploitation of fish stocks must be determined represents a minimum management requirement. It appears to forbid completely unregulated open access regimes, and insofar does create a norm.

On the other hand, the UNCLOS requirements to ‘tak[e] into account the best scientific evidence available’<sup>88</sup> and to ‘take into consideration the effects’ on associated and dependent species ‘with a view to

maintaining or restoring populations of such species... above levels at which their reproduction may become seriously threatened’<sup>89</sup> are hardly justiciable. It is therefore difficult to view them as norm-creating provisions. The UN Fish Stocks Agreement tightens the respective requirements. However, the Agreement in itself lacks the capacity of UNCLOS to generate norms of customary international law, as will become evident in the following paragraph.

#### *b) Opinio juris*

In terms of *opinio juris*, the ICJ requires in particular ‘a very widespread and representative participation in the convention..., includ[ing] that of States whose interests were specially affected’.<sup>90</sup> The 1982 UNCLOS was accepted by consensus at a global conference and has been ratified by a large number of states.<sup>91</sup> Attard shows that the conservation objectives of Article 61 UNCLOS received widespread support at the Third United Nations Conference on the Law of the Sea and remained the same throughout the Conference’s texts ever since they appeared in the 1975 Informal Single Negotiating Text.<sup>92</sup>

The number of states that have so far ratified the UN Fish Stocks Agreement is considerably smaller.<sup>93</sup> Albeit its rules have therefore not yet entered into customary law *per se*, the Agreement illustrates the *opinio juris* of the signatory states. Subsequent ‘soft law’ documents, only some of which can here be addressed, also add to the evidence of *opinio juris*.

Chapter 17 of the non-binding Agenda 21<sup>94</sup> addresses the protection of the oceans, all kinds of seas, and the protection, rational use and development of their living resources, and refers to UNCLOS as the ‘basis upon which to pursue the protection and

85 See Section 1.1.a) above.

86 Cf. Kwiatkowska, B. (1988). ‘Conservation and optimum utilization of living resources’. In: Clingan, T.A. Jr (Ed.). *The Law of the Sea: What Lies Ahead? Proceedings of the 20th Annual Conference of the Law of the Sea Institute, July 21-24, 1986, Miami, Florida*, pp.245-275, at 261. Honolulu: University of Hawaii.

87 Cf. Article 297(3)(a) UNCLOS; Kwiatkowska, *ibid.*, p.261.

88 Article 61(2) UNCLOS.

89 *Ibid.*, Article 61(4).

90 *North Sea Continental Shelf*, *supra*, note 83, para. 73.

91 UNCLOS has 151 parties as of 3 April 2007.

92 Attard, *supra*, note 15, p.154, see also p.290.

93 The UN Fish Stocks Agreement has 61 parties as of 14 April 2007.

94 Agenda 21, adopted at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, 3-14 June, 1992.

sustainable development of the marine and coastal environment and its resources'.<sup>95</sup> Moreover, Agenda 21 calls on states to 'maintain or restore populations of marine species at levels that can produce the maximum sustainable yield as qualified by relevant environmental and economic factors' for the conservation and sustainable use of marine living resources under their national jurisdiction,<sup>96</sup> and to '[i]mplement strategies for the sustainable use of marine living resources'.<sup>97</sup>

Article 6 is the core provision of the non-legally binding 1995 FAO Code of Conduct for Responsible Fisheries<sup>98</sup> ('FAO Code of Conduct' or 'the Code'). It sets out 19 'general principles' from which the remaining provisions of the Code are derived.<sup>99</sup> Article 6.1 asserts that '[t]he right to fish carries with it the obligation to do so in a responsible manner so as to ensure effective conservation and management of the living aquatic resources', and calls upon states and individual users to conserve aquatic ecosystems. According to Article 6.2, '[f]isheries management should promote the maintenance of the quality, diversity and availability of fishery resources in sufficient quantities for present and future generations in the context of food security, poverty alleviation and sustainable development'.

The elaborate provisions under Article 7 FAO Code of Conduct specifically address fisheries management and include areas under national jurisdiction.<sup>100</sup> Their overriding objective is the long-term conservation and sustainable use of fisheries resources.<sup>101</sup> In particular, states 'should ensure that

levels of fishing effort are commensurate with the sustainable use of fishery resources'.<sup>102</sup> The Code, once again, envisages conservation and management measures 'designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors'.<sup>103</sup> At the same time, however, a central role is accorded to the precautionary approach to fisheries conservation and management.<sup>104</sup> Although MSY is not explicitly defined as the minimum standard for limit reference points in the Code, it must be so interpreted in the light of precaution.<sup>105</sup>

The Plan of Implementation of the World Summit on Sustainable Development (JPol), adopted by the World Summit on Sustainable Development held in Johannesburg in 2002, addresses the 'sustainable development of the oceans' in paras 30-37. Paragraph 30(a) endorses UNCLOS as the overall legal framework for ocean activities and promotes its implementation. Actions asked for 'at all levels' to achieve sustainable fisheries include the maintenance at or restoration of stocks to levels that can produce MSY, 'with the aim of achieving these goals for depleted stocks on an urgent basis and where possible not later than 2015'.<sup>106</sup>

The recent UN General Assembly Resolution on sustainable fisheries<sup>107</sup> once again '[r]eaffirms the importance [the General Assembly] attaches to the long-term conservation, management and sustainable use of the marine living resources of the world's oceans and seas and the obligations of States to cooperate to this end, in accordance with international law, as reflected in the relevant provisions of [UNCLOS]'.<sup>108</sup>

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95 Ibid., S. 17.1.

96 Ibid., S. 17.74(c).

97 Ibid., S. 17.79(b).

98 FAO, *supra*, note 2.

99 Moore, G. (1999). 'The Code of Conduct for Responsible Fisheries'. In: Hey, E. (Ed.). *Developments in international fisheries law*, pp.85-105, at 89. The Hague: Kluwer Law International.

100 Cf. e.g., FAO, *supra*, note 2, Article 7.1.1, 2.

101 Ibid., Article 7.1.1, 7.2.1.

102 Ibid., Article 7.1.8, cf. also Article 7.6.3.

103 Ibid., Article 7.2.1.

104 Ibid., Article 7.5; cf. Moore, *supra*, note 99, p.96.

105 Cf. also Christie, *supra*, note 5, p.28.

106 Para. 31(a) JPol.

107 Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments, 8 December 2006, A/RES/61/105.

108 Ibid., Para. 1.

Besides expressly endorsing the 1982 UNCLOS, all these subsequent 'soft law' documents restate, or embrace within more far-reaching provisions, a similar set of obligations as first stated in the Convention. In fact, it has been observed that '[m]ost states, including the United States, now regard the fisheries provisions of the Convention as reflective of customary international law'.<sup>109</sup>

#### c) *State practice*

A further requirement is that 'State practice, including that of States whose interests are specially affected, should have been both extensive and virtually uniform'.<sup>110</sup> Burke finds reference to catch limits in a large number of states, while '[m]any countries explicitly refer to "total allowable catch"'.<sup>111</sup> Kwiatkowska also names a number of states whose legislative practice 'shows a good deal of similarity to the relevant provisions of the LOS Convention, including those on the determination of the TAC'.<sup>112</sup> According to Attard, the stability of Article 61 UNCLOS throughout the treaty negotiations 'has encouraged a considerable number of States to bring

their legislation into conformity with the UNCLOS III conservation measures'.<sup>113</sup> He observes that the main conservation goals of Article 61 UNCLOS 'generated a widespread general practice which conformed with the said goals well before the 1982 Convention'.<sup>114</sup>

#### d) *The time element*

Attard denotes that state practice as well as *opinio juris* existed even 'well before the 1982 Convention'.<sup>115</sup> In any case, the time that has elapsed since UNCLOS entered into force in 1994 should fulfil the requirement of the passage of some time, 'short though it might be'.<sup>116</sup>

Consequently, the UNCLOS obligations to ensure through proper conservation and management measures that the maintenance of the living resources in the EEZ is not endangered by overexploitation, to maintain or restore populations of harvested species at sustainable levels, and to determine the TAC seem to have entered into the body of customary international law.

### 1.4 General principles of law

We have seen that the somewhat elusive wording of UNCLOS provides no basis for the protection of associated and dependent species, nor for the requirement to base conservation and management measures on scientific evidence and to conduct fisheries research, under customary international law. Whether obligations to this effect have nevertheless emerged under customary law appears difficult to establish. However, such norms may exist as general principles of law within the meaning of Article 38(1)(c) of the Statute of the International Court of Justice ('ICJ Statute').

In contrast to customary law, which is established through both state practice and *opinio juris*, recognition as law, i.e., the subjective element alone, is central to the existence of 'the general principles of law recognized by civilized nations'.<sup>117 118</sup> Recognition by a majority of states representative of 'the main forms of civilization and of the principal legal systems of the world' (*cf.* Art. 9 ICJ Statute) will, however, suffice.<sup>119</sup> Next to the general principles recognized by states in their municipal legal orders, Art. 38(1)(c) ICJ Statute includes principles originating at the international

109 Balton, D.A. (1996). 'Strengthening the Law of the Sea: The New Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks'. *Ocean Development & International Law* 27: 125-51, at 130.

110 *North Sea Continental Shelf*, supra, note 83, para. 74.

111 Burke, supra, note 15, pp.50-1.

112 Kwiatkowska, supra, note 86, p.248.

113 Attard, supra, note 15, p.152.

114 Ibid., pp.154, 290, cf. also pp.152-6.

115 Ibid., p.154.

116 *North Sea Continental Shelf*, supra, note 83, para. 74.

117 Article 38(1)(c) ICJ Statute.

118 Maurmann, D. *Rechtsgrundsätze im Völkerrecht am Beispiel des Vorsorgeprinzips*, Teil 1, 6. Kapitel, A. [In press]; Weiss, W. (2001). 'Allgemeine Rechtsgrundsätze des Völkerrechts'. *Archiv des Völkerrechts* 39: 394-431, at 397, 403.

119 Lammers, J.G. (1980). 'General Principles of Law Recognized by Civilized Nations'. In: Kalshoven, F., Kuyper, P.J. and Lammers, J.G. (Eds). *Essays on the Development of the International Legal Order*, pp.53-75, at 62-3. Alphen aan den Rijn: Sijthoff & Noordhoff; Mosler, H.

level.<sup>120</sup> International general principles derive in particular from international treaties and so-called ‘soft law’ documents, such as conference declarations and declarations of international organizations.<sup>121</sup>

According to Article 5(b) UN Fish Stocks Agreement, conservation and management measures must be ‘based on the best scientific evidence available’, a clearly normative requirement. With regard to associated and dependent species and other species belonging to the same ecosystem as target stocks, states must assess the impacts of fishing and other factors on such species,<sup>122</sup> ‘adopt, where necessary, conservation and management measures’ for such species ‘with a view to maintaining or restoring populations... above levels at which their reproduction may become seriously threatened’,<sup>123</sup> and minimize bycatch.<sup>124</sup>

The UN Fish Stocks Agreement itself expressly applies only to straddling and highly migratory stocks. However, the recognition of such propositions as law is further supported by a number of non-binding instruments that have secured widespread participation.

Agenda 21 calls for the protection and restoration of endangered marine species,<sup>125</sup> and the preservation of rare or fragile ecosystems, habitats, and other ecologically sensitive areas.<sup>126</sup> In maintaining or restoring populations of marine species at levels that can produce MSY, states should ‘take into consideration relationships among species’.<sup>127</sup> Section 17.86 sets out certain requirements relating to data and information. States should, *inter alia*, promote ‘enhanced collection and exchange of data necessary for the conservation and sustainable use of the marine living resources under

national jurisdiction’. In addition, one programme area under Chapter 17 specifically relates to ‘addressing critical uncertainties for the management of the marine environment and climate change’. Research and impact assessment requirements are present throughout Chapter 17.

The FAO Code of Conduct was adopted by consensus at the Twenty-eighth Session of the FAO Conference on 31 October 1995. According to its Article 6.2, fisheries management measures ‘should not only ensure the conservation of target species but also of species belonging to the same ecosystem or associated with or dependent upon the target species’. Critical fisheries habitats should be protected and rehabilitated.<sup>128</sup> Conservation and management decisions should be based on the best scientific evidence available.<sup>129</sup> According to Article 12.1, ‘States should ensure that appropriate research is conducted into all aspects of fisheries’, so as to provide a sound scientific basis for decision making. In particular, ‘[i]n the absence of adequate scientific information, appropriate research should be initiated as soon as possible’.<sup>130</sup> The actions required to promote such research, as well as the collection and efficient use of data, are concretized through Article 12.2-20. Paragraphs 5 and 6 of Article 12 call on states to establish the necessary research capacity, with special provisions on support to developing countries in paragraphs 18 and 20.

JPoI also calls for the improvement of ‘the scientific understanding and assessment of marine and coastal ecosystems as a fundamental basis for sound decision making’, *inter alia* through cooperation and promotion of ‘the use of environmental impact assessments and

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(1995). ‘General principles of law’. In: Bernhardt, R. (Ed.). *Encyclopedia of Public International Law*, II, pp.511-27, at 517. Amsterdam: North-Holland; Weiss, *ibid.*, p.408.

120 Lammers, *ibid.*, pp.66-8; Maurmann, *supra*, note 118, Kapitel, C.II.2; Mosler, *ibid.*, p.517; Verdross, A. and Simma, B. (1984). *Universelles Völkerrecht: Theorie und Praxis*, pp.386-7. 3rd Edition. Berlin: Duncker & Humblot; Weiss, *ibid.*, pp.400-3. To the contrary Doebling, K. (2004). *Völkerrecht: Ein Lehrbuch*, p.179. 2nd Edition. Heidelberg: C. F Müller Verlag; Heintschel von Heinegg, W. (2004). ‘4. Kapitel: Die weiteren Quellen des Völkerrechts’. In: Ipsen, K. (Ed.). *Völkerrecht*, pp.210-56, at 231. 5th Edition. München: Beck; Sands, *supra*, note 13, p.150. For an overview of the doctrinal views see Lammers, *ibid.*, pp.53-9.

121 Maurmann, *ibid.*, Kapitel, C.III.2-6; Verdross and Simma, *ibid.*, p.386; Weiss, *ibid.*, pp.400-401, 402-3, 409-10.

122 UN Fish Stocks Agreement *supra*, note 18, Article 5(d).

123 *Ibid.*, Article 5(e).

124 *Ibid.*, Article 5(f).

125 Agenda 21, *supra*, note 94, s. 17.74(e).

126 *Ibid.*, s. 17.74(f).

127 *Ibid.*, s. 17.74(c).

128 FAO, *supra*, note 2, Article 6.8.

129 *Ibid.*, Article 6.4.

130 *Ibid.*, Article 12.3.

environmental evaluation and reporting techniques'.<sup>131</sup>

It should further be noted that the requirements to maintain or restore stocks or populations at levels that can produce MSY in Agenda 21, the FAO Code of Conduct and JPoI are not restricted to target species, as in Article 61(3) UNCLOS, and therefore apply equally to non-target species directly affected by exploitation.<sup>132</sup>

Consequently, general principles of law seem to require active conservation of non-target species above

levels at which their reproduction may become seriously threatened, or even, in the case of species directly affected by fishing activities, at sustainable levels. General principles further require that coastal states base conservation and management measures on the best scientific evidence available and conduct the research necessary to discharge their primary obligations, albeit this may only apply within the limits of the country's financial capacities.

## 2. The precautionary principle

Principle 15 of the Rio Declaration as the most frequently cited formulation provides that '[i]n order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall

not be used as a reason for postponing cost-effective measures to prevent environmental degradation'. In the fisheries management context, however, the precautionary principle or approach<sup>133</sup> has found specific recognition.

### 2.1 The 1982 UNCLOS

It has been suggested that UNCLOS, although it lacks any express reference to the precautionary principle, already implies a precautionary approach to fisheries conservation.<sup>134</sup> Freestone and Hey base their interpretation on Articles 61(2) and 119(1) UNCLOS, which require that states must take into account 'the best scientific evidence available' in determining fisheries conservation and management measures. This formulation would raise the question 'whether, in the absence of convincing scientific evidence (...), measures should be designed to ensure continued

exploitation or to ensure conservation'.<sup>135</sup> It is then argued that the UNCLOS provisions, by making conservation the primary obligation, place a presumption in favour of conservation on the potential exploiter. The scientific evidence must be adduced to show that the projected harvesting meets the requirement to maintain or restore populations at levels that can produce MSY, rather than the other way round. In other words, if adequate scientific evidence is not available, the primary conservative obligations of UNCLOS prevail.<sup>136</sup>

131 Para. 36 JPoI.

132 Cf. Agenda 21, supra, note 94, s. 17.74(c); FAO, supra, note 2, Article 7.2.1; para. 31(a) JPoI.

133 The distinction between the two terms is of no legal significance, cf. Birnie and Boyle, supra, note 2, p.116; Sadeleer, N. de. (2002). *Environmental Principles: From Political Slogans to Legal Rules*, p.92. New York: Oxford University Press.

134 Cf. *Southern Bluefin Tuna Cases* (New Zealand v. Japan; Australia v. Japan), Provisional Measures, Order of 27 August 1999 (ITLOS, cases no. 3 and 4), Separate opinion of Judge Laing, at para 17; Freestone, supra, note 36, 'International Fisheries Law Since Rio', pp.141, 160; Freestone, supra, note 36, 'Implementing Precaution Cautiously', pp.299, 319.

135 Freestone, D. and Hey, E. (1996). 'Implementing the Precautionary Principle: Challenges and Opportunities'. In: Freestone and Hey (Eds). *The Precautionary Principle and International Law: The Challenge of Implementation*, pp.249-68, at 261. The Hague: Kluwer Law International; Freestone, ibid., 'International Fisheries Law Since Rio', p.159; Freestone, ibid., 'Implementing Precaution Cautiously', p.318; cf. also Ellis, J. (2001). 'The Straddling Stocks Agreement and the Precautionary Principle as Interpretive Device and Rule of Law'. *Ocean Development & International Law* 32(4): 289-311, at 291.

136 Freestone and Hey, ibid., 'Implementing the Precautionary Principle', pp.261-2; Freestone, ibid., 'International Fisheries Law Since Rio', pp.159-60; Freestone, ibid., 'Implementing Precaution Cautiously', pp. 318-9. More cautious Ellis, ibid., pp.295-6.



## 2.2 The UN Fish Stocks Agreement

Article 6 of the UN Fish Stocks Agreement, concerning the ‘application of the precautionary approach’, applies to the conservation and management of straddling and highly migratory fish stocks on the high seas as well as within areas under national jurisdiction.<sup>137</sup> Paragraph 1 provides that ‘[s]tates shall apply the precautionary approach widely to conservation, management and exploitation of straddling and highly migratory fish stocks in order to protect the living marine resources and preserve the marine environment’. Paragraph 2 specifies the content of the precautionary approach by stating that ‘[s]tates shall be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures’.

The Agreement then goes on to set out the methodology for implementing the precautionary approach. States shall, *inter alia*, obtain and disseminate the best scientific information available;<sup>138</sup> improve knowledge on the impact of fishing on non-target species and their environment;<sup>139</sup> enhance monitoring of target and non-target species where their status is of concern, and revise conservation and management measures in the light of new information.<sup>140</sup>

With regard to decision making, states must implement ‘improved techniques for dealing with risk and uncertainty’.<sup>141</sup> These techniques are, however, not specified in the Agreement.<sup>142</sup> Uncertainties must further be taken into account, relating, for instance, to the size and productivity of stocks, reference points, levels of fishing mortality, environmental and socio-

economic conditions, and the impact of fishing activities on non-target species.<sup>143</sup>

The management measures set out in Article 6 include first and foremost the setting of stock-specific reference points.<sup>144</sup> Annex II to the Agreement provides guidelines for the application of such ‘precautionary reference points’. Precautionary reference points are so-called ‘target reference points’ defining management objectives, and ‘limit reference points’ identifying safe biological limits for harvesting.<sup>145</sup> The action to be taken if such reference points are exceeded must be determined in advance.<sup>146</sup> This means that conservation measures will automatically become applicable.<sup>147</sup> However, the Agreement itself does not specify what kind of measures these should be. In particular, it does not explicitly require fishing moratoria, and has been heavily criticized for not doing so.<sup>148</sup>

Nonetheless, by way of interpretation the Agreement does give guidance in this respect. The mechanism which makes conservation measures automatically applicable (if not the precautionary approach *per se*) in effect results in a reversal of the burden of proof in favour of conservation. It requires the potential exploiter to demonstrate that exploitation of the concerned fish stock can be resumed or continued without endangering the stock.<sup>149</sup>

This finding is supported by the fact that Annex II of the Agreement *inter alia* employs limit reference points (as opposed to management reference points), which place an absolute limit on exploitation. At least when limit reference points are exceeded, any action

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137 UN Fish Stocks Agreement, *supra*, note 18, Article 3(1).

138 Ibid., Article 6(3)(a).

139 Ibid., Article 6(3)(d).

140 Ibid., Article 6(5).

141 Ibid., Article 6(3)(a).

142 Critical of this lack of specification Erben, C. (2005). *Das Vorsorgegebot im Völkerrecht*, p.128. *Schriften zum Völkerrecht*, 157. Berlin: Duncker & Humblot.

143 UN Fish Stocks Agreement, *supra*, note 18, Article 6(3)(c).

144 Ibid., Article 6(3)(b).

145 Ibid., Para. 2, Annex II.

146 Ibid., Articles 6(3)(b), (4) and para. 4, Annex II.

147 Cf. also Freestone, *supra*, note 36, ‘Implementing Precaution Cautiously’, p.293.

148 Ellis, *supra*, note 135, p.300; Freestone, *supra*, note 36, ‘International Fisheries Law Since Rio’, p.161; Freestone, *ibid.*, ‘Implementing Precaution Cautiously’, p.321.

149 Freestone, *ibid.*, ‘Implementing Precaution Cautiously’, p.293; cf. also Ellis, *ibid.*

short of a halt to fishing would contradict the concept of limit reference points itself.

Moreover, when precautionary reference points are approached, ongoing fishing activities would have to be characterized as overfishing.<sup>150</sup> It may thus be argued that Article 61(2) UNCLOS itself, laying down the duty of coastal states to ensure that the marine living resources are not endangered by overexploitation, requires a halt to fishing in such instances.

Additionally, states are obligated under the Agreement to 'adopt plans which are necessary' to

conserve non-target species and protect habitats of special concern.<sup>151</sup> Article 6(6) requires the adoption of cautious conservation and management measures, including catch and effort limits, for new or exploratory fisheries as soon as possible, which are to remain in force until sufficient data allow assessment of the long-term impact on the stocks. Besides, the Agreement provides for emergency measures to be taken where natural phenomena adversely affect straddling or highly migratory fish stocks, so as to ensure that fishing does not exacerbate such impacts. Notably, the same applies where fishing activities themselves seriously threaten the sustainability of such stocks.<sup>152</sup>

## 2.3 General international law

As the UN Fish Stocks Agreement binds merely the contracting parties and applies to straddling and highly migratory fish stocks only, the question arises whether states are also obligated under general international law to apply the precautionary principle to fisheries conservation and management. First of all, this depends on whether the precautionary principle, by its structure and substance, represents a normative rather than a policy concept.<sup>153</sup>

### a) Normative quality

The overall connotation of the precautionary approach appears to be that regulatory inaction is unjustified where environmental risks are uncertain but non-negligible.<sup>154</sup> More precisely, the precautionary principle comes into play when there is a 'lack of full scientific certainty'<sup>155</sup> or, in the terms of the UN Fish Stocks Agreement, when 'information is uncertain,

unreliable or inadequate'.<sup>156 157</sup> This distinguishes precaution from the principle of preventive action: while the latter is concerned with known or scientifically proven risks, the former comes in advance of prevention, requiring action before scientific proof of harm exists.<sup>158</sup>

Garcia has observed that '[o]ne reason for the relative failure of fisheries management (among many others) is uncertainty and ignorance about important bio-ecological as well as socio-economic processes involved in fisheries. Scientists and managers have now recognised formally the amount of uncertainty and risk still involved in strategic assessment as well as day-to-day advice, decision-making and implementation'.<sup>159</sup> Nonetheless, it should not be overlooked that the critical state of many fisheries is indisputable. With regard to known factors, preventive rather than

150 Freestone, *ibid.*, 'Implementing Precaution Cautiously', p.321; Freestone, *supra*, note 36, 'International Fisheries Law Since Rio', p.161.

151 UN Fish Stocks Agreement, *supra*, note 18, Article 6(3)(d).

152 *Ibid.*, Article 6(7).

153 Instructive Maurmann, *supra*, note 118, Teil 2.

154 Cameron, J. and Abouchar, J. (1996). 'The Status of the Precautionary Principle in International Law'. In: Freestone, D. and Hey, E. (Eds). *The Precautionary Principle and International Law: The Challenge of Implementation*, pp.29-52, at 45. The Hague: Kluwer Law International; cf. also Birnie and Boyle, *supra*, note 2, p.120.

155 Cf. Principle 15 Rio Declaration; Article 3(3) United Nations Framework Convention on Climate Change (UNFCCC), New York, 9 May 1992, in force 21 March 1994, (1992) 31 ILM 851; Preamble of the Convention on Biological Diversity, Rio de Janeiro, 05 June 1992, in force 29 December 1993, (1992) 31 ILM 818.

156 UN Fish Stocks Agreement, *supra*, note 18, Article 6(2).

157 Cf. Maurmann, *supra*, note 118, Teil 2, 13. Kapitel, A.I.

158 E.g., Freestone, D. and Makuch, Z. (1996). 'The New International Environmental Law of Fisheries: The 1995 United Nations Straddling Stocks Agreement'. *YbIEL* 7: 3-51, at 13; Freestone, *supra*, note 36, 'International Fisheries Law Since Rio', p.139; Maurmann, *ibid.*, Teil 2, 7. Kapitel; Sadeleer, *supra*, note 133, p.158; Wolfrum, R. (2000). 'Precautionary Principle'. In: Beurrier, J.-P., Kiss, A. and Mahmoudi, S. (Eds). *New technologies and law of the marine environment*, pp.203-213, at 206-7. London: Kluwer Law International.

159 Garcia, S.M. (2000). 'The precautionary approach to fisheries: progress review and main issues (1995-2000)'. In: Nordquist, M.H. and Moore, J.N. (Eds). *Current fisheries issues and the Food and Agriculture Organization of the United Nations*, pp.479-560, at 479. The Hague; Boston; London: Martinus Nijhoff Publishers.

precautionary measures must be taken. In respect of already depleted or even collapsed fish stocks, international obligations to conserve the marine living resources require remedial action (besides averting a further decline of stocks), without reliance on either precautionary or preventive arguments. Therefore, the obligation of a coastal state to take, or abstain from, action in a certain case may well arise without recourse to the precautionary principle.<sup>160</sup>

The different manifestations of the precautionary principle at the international level set out varying thresholds of risk and potential harm.<sup>161</sup> Sometimes 'threats of serious or irreversible damage' are required.<sup>162</sup> The UN Fish Stocks Agreement as well as the FAO Code of Conduct specify neither the level of risk nor the potential damage. Hence, no such threshold appears to exist in respect of the precautionary approach as applied to fisheries conservation and management. Some residual, i.e., purely hypothetical risks, though, would not require precautionary action.<sup>163</sup>

Some formulations of the precautionary principle moreover contain a proportionality test, to the effect that only cost-effective measures must be taken.<sup>164</sup> No such qualifications are made regarding the precautionary principle as applied to fisheries.

In effect, the precautionary principle lowers the standard of proof that is required before positive action

to protect the environment is demanded.<sup>165</sup> It thus determines, and actually brings forward, the point of time at which an obligation to take conservative action arises.<sup>166</sup> In some cases, application of the precautionary principle can take the effect of reversing the burden of proof of risk, so that the proposed activity is impermissible unless it can be shown that it will not cause unacceptable harm to the environment.<sup>167</sup>

The 1989 UN General Assembly Resolution on driftnet fishing,<sup>168</sup> for instance, places the burden of proof on those who seek to continue driftnet fishing by recommending moratoria 'with the understanding that such measures will not be imposed in a region or... can be lifted, should effective conservation and management measures be taken based upon statistically sound analysis... to prevent unacceptable impact of such fishing practices on that region and to ensure the conservation of the living marine resources of that region'.<sup>169</sup> The 1994 Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea<sup>170</sup> is also frequently cited as an example, as it does not allow fishing for Aleutian Basin pollock unless its biomass is determined to exceed 1.67 million metric tonnes (albeit only in case the allowable harvest level cannot be established by consensus).<sup>171, 172</sup>

Birnie and Boyle seem to doubt the normative character of the precautionary principle on the grounds that it:

160 On the remaining pertinence of the principle of prevention see also Sadeleer, supra, note 133, p.223.

161 Cf. Maurmann, supra, note 118, Teil 2, 13. Kapitel, A.II.

162 Principle 15 Rio Declaration; Article 3(3) UNFCCC.

163 Sadeleer, supra, note 133, pp.157-8, 159-60; Erben, supra, note 142, pp.202-3.

164 Cf. Principle 15 Rio Declaration; Article 3(3) UNFCCC. Cf. Maurmann, supra, note 118, Teil 2, 13. Kapitel, A.IV.

165 Birnie and Boyle, supra, note 2, p.117; Freestone, D. and Hey, E. (1996). 'Origins and Development of the Precautionary Principle' In: Freestone and Hey (Eds). *The Precautionary Principle and International Law: The Challenge of Implementation*, pp.3-15, at 13. The Hague: Kluwer Law International.

166 Birnie and Boyle, *ibid.*, p.676; Freestone and Hey, *ibid.*, 'Origins and Development of the Precautionary Principle', p.12; Freestone, supra, note 36, 'International Fisheries Law Since Rio', p.141; Freestone, supra, note 36, 'Implementing Precaution Cautiously', p.299; Wolfrum, supra, note 158, p.205.

167 Birnie and Boyle, *ibid.*, p.118; Freestone and Makuch, supra, note 158, pp.12-13; Freestone, *ibid.*, 'International Fisheries Law Since Rio', p.140; Freestone, *ibid.*, 'Implementing Precaution Cautiously', pp.297-8; Juda, L. (1997). 'The 1995 United Nations Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks: A Critique'. *Ocean Development and International Law* 28: 147-66, at 152. For a general reversal of the burden of proof Sadeleer, supra, note 133, pp.202-3; Wolfrum, *ibid.*, p.207.

168 Large-scale pelagic driftnet fishing and its impact on the living marine resources of the world's oceans and seas, 22 December 1989, A/RES/44/225.

169 *Ibid.*, para. 4(a); cf. Freestone and Hey, supra, note 135, 'Implementing the Precautionary Principle', p.260; Freestone, supra, note 36, 'International Fisheries Law Since Rio', pp.151-2; Freestone and Makuch, supra, note 158, pp.17-18; Freestone, supra, note 36, 'Implementing Precaution Cautiously', pp.308-9; Wolfrum, supra, note 158, p.207.

170 Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea, Washington DC, 16 June 1994, in force 8 December 1995.

171 *Ibid.*, Article VII(1).

172 *Ibid.*, Article VII(2), Annex Part 1(c); cf. Freestone and Hey, supra, note 135, 'Implementing the Precautionary Principle', pp.262-3; Freestone, supra, note 36, 'International Fisheries Law Since Rio', pp.152-3; Freestone and Makuch, supra, note 158, p.18; Freestone, supra, note 36, 'Implementing Precaution Cautiously', p.309.



*helps us identify whether a legally significant risk exists by addressing the role of scientific uncertainty, but it says nothing about how to control that risk, or about what level of risk is socially acceptable. Those are policy questions which in most societies are best answered by politicians and by society as a whole, rather than by courts or scientists.*<sup>173</sup>

However, the duty arising from an application of the precautionary principle is clearly an obligation of the state concerned to take adequate measures to protect the environment, even though a choice of measures may be open to the state. Beyerlin aptly emphasizes that '[a]lthough the legal consequences flowing from the state's duty to take precautionary action may be indeterminate in substance, this flaw does not affect the core of the duty that arises'.<sup>174</sup> In this respect, the precautionary principle does not differ from the principle of prevention, which is well established as a norm of international law.<sup>175</sup> Hence, the precautionary principle is clearly of normative quality and may well qualify as a rule of law.<sup>176</sup>

#### **b) Acceptance as law**

Whether or not the precautionary principle has as yet acquired the status of customary international law seems still a matter of uncertainty and debate.<sup>177</sup> To evaluate state practice in implementing the precautionary principle in fisheries management would go beyond the scope of this work. In any event, Freestone and Hey observe that the precautionary principle 'has been included in virtually every recent

treaty and policy document related to the protection and preservation of the environment'.<sup>178</sup>

As regards its application to fisheries, the precautionary principle has not only been codified in the UN Fish Stocks Agreement. The FAO Code of Conduct also accords a central role to the precautionary approach, phrasing it in the following terms: 'States should apply the precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment. The absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures.'<sup>179</sup> In broadly the same terms as the UN Fish Stocks Agreement, the Code calls upon states to take into account a number of uncertainties in implementing the precautionary approach; to determine target and limit reference points and the action to be taken when they are approached or exceeded; and to adopt cautious conservation and management measures for new or exploratory fisheries, as well as emergency measures to avert certain detrimental effects of fishing.<sup>180</sup>

Besides, Chapter 17 of Agenda 21 calls for approaches that are 'precautionary and anticipatory in ambit'.<sup>181</sup> Section 17.21 explicates that '[a] precautionary and anticipatory rather than a reactive approach is necessary to prevent the degradation of the marine environment', including, *inter alia*, the adoption of precautionary measures and environmental

173 Birnie and Boyle, *supra*, note 2, p.119.

174 Beyerlin, U. (2001). 'Different types of norms in international environmental law: policies, principles and rules'. In: Bodansky, D., Brunnée, J. and Hey, E. (Eds). *The Oxford Handbook of International Environmental Law*, pp.425-48, at 440. Oxford; New York: Oxford University Press.

175 On the principle of prevention cf. Freestone, *supra*, note 36, 'International Fisheries Law Since Rio', pp.139-40; Sands, *supra*, note 13, pp.246-9; Wolfrum, *supra*, note 158, p.206.

176 Cf. Beyerlin, *supra*, note 174, p. 440; Cameron and Abouchar, *supra*, note 154, p.30; Maurmann, *supra*, note 118, Teil 2, 13. Kapitel, A.VI; Winter, G. (2004). 'The Legal Nature of Environmental Principles in International, EC and German Law'. In: Macrory, R. (Ed.). *Principles of European Environmental Law*, pp.11-28, at 21-2. Groningen: Europa Law Publishing; Winter, G. (2006). 'The legal nature of environmental principles in international, EU, and exemplary national law'. In: Winter, G. (Ed.). *Multilevel Governance of Global Environmental Change*, pp.587-604, at 595, see also 603-4. Cambridge: Cambridge University Press.

177 Cf. Beyerlin, *ibid.*, pp.440-1; Birnie and Boyle, *supra*, note 2, pp.118-20; Cameron and Abouchar, *ibid.*, pp.36-8; Erben, *supra*, note 142, pp.245-50; Sadeleer, *supra*, note 133, pp.316-8. Pro at least evolving customary status Beyerlin, *ibid.*; Cameron and Abouchar, *ibid.*, pp.30-1, 52; Ellis, *supra*, note 135, p.292; Erben, *ibid.*, p.247; Freestone, *supra*, note 36, 'International Fisheries Law Since Rio', p.137; Rayfuse, *supra*, note 71, p.132; Sadeleer, *ibid.*, pp.100, 318-9; Sands, *supra*, note 13, p.279. To the contrary Birnie and Boyle, *supra*, note 2, p.120.

178 Freestone and Hey, *supra*, note 165, 'Origins and Development of the Precautionary Principle', p.3. Cf. the instruments referred to under a) above.

179 FAO, *supra*, note 2, Article 7.5.1.

180 *Ibid.*, Article 7.5.2-5.

181 Agenda 21, *supra*, note 94, s. 17.1.

impact assessments. Moreover, the UN General Assembly Resolution on sustainable fisheries calls upon states 'to apply widely, in accordance with international law and the Code, the precautionary approach... to the conservation, management and exploitation of fish stocks... and also calls upon States parties to the [UN Fish Stocks] Agreement to implement fully the provisions of article 6 of the Agreement as a matter of

priority'.<sup>182</sup>

The precautionary approach to fisheries conservation and management thus qualifies as a general principle of international law within the meaning of Article 38(1)(c) ICJ Statute,<sup>183</sup> if not a rule of customary international law.

### 3. Transboundary cooperation

#### 3.1 Fisheries treaties

Part V of UNCLOS on the Exclusive Economic Zone contains a number of specific requirements for transboundary cooperation between states. Article 61(2) requires the coastal state to cooperate with competent subregional, regional or global organizations 'as appropriate' to ensure that the maintenance of the living resources in its EEZ is not endangered by overexploitation, thus leaving the coastal state a wide discretion.<sup>184</sup> Other cooperation requirements relate to species that occur not exclusively within the coastal state's EEZ, such as straddling and highly migratory species or anadromous and catadromous stocks.

Article 63(1) UNCLOS applies to transboundary stocks, i.e., situations where 'the same stock or stocks of associated species occur within the exclusive economic zones of two or more coastal states'. It provides that the coastal states concerned shall seek to agree upon the necessary measures to coordinate and ensure the conservation and development of such stocks within their EEZs, either directly or through appropriate subregional or regional organizations. In effect, the coastal states concerned are obligated to cooperate in implementing their original EEZ obligations of conservation and sustainable use. This entails that the coastal states must seek to adopt jointly, or coordinate, the conservation measures for the shared

stock or stocks; jointly determine the TAC; and allocate the TAC among themselves. Nonetheless, within its own portion of the TAC each state may regulate access to the fishery for both national and third state vessels individually.<sup>185</sup>

Article 63(2) UNCLOS relates to so-called straddling stocks, i.e., situations where the same stock or stocks of associated species occur both within the EEZ of a coastal state and in the adjacent high seas. In this case, cooperation between the coastal state and states fishing on the high seas is required with regard to high seas conservation measures only. The obligation is restated in Article 7(1)(a) UN Fish Stocks Agreement.

Notably, the cooperation obligations established under Article 63(1) and (2) UNCLOS both include associated species. Besides, both paragraphs equally require states to 'seek to agree', rather than to cooperate or to reach an agreement. Thus, they create obligations to enter into negotiations, or *pacta de negotiando*, rather than obligations to negotiate and to reach an agreement, or *pacta de contrahendo*.<sup>186</sup> Nevertheless, these *pacta de negotiando* do require states to enter into negotiations in good faith, to respond to genuine attempts at negotiation, and to be prepared to modify their original positions.<sup>187</sup>

182 A/RES/61/105, *supra*, note 107, para. 5, cf. also para. 7.

183 Cf. for general international law Maurmann, *supra*, note 118, Teil 2, 13. Kapitel, C.

184 Cf. also Attard, *supra*, note 15, p.153.

185 Hey, E. (1989). *The regime for the exploitation of transboundary marine fisheries resources: the United Nations Law of the Sea Convention Cooperation between States*, pp.56, 68, 91. Dordrecht: Martinus Nijhoff Publishers; cf. also Kaye, *supra*, note 28, p.158.

186 Kaye, *ibid.*, pp.118, 158; cf. also Churchill and Lowe, *supra*, note 15, p.294.

187 Kaye, *ibid.*, pp.116-8, 158-9; cf. *Lake Lanoux Arbitration* (France v. Spain) (1957) 24 ILR, 101, 119, 128, 130; cf. also Churchill and Lowe, *ibid.*, p.294.

Article 64 UNCLOS concerns the highly migratory species enlisted in Annex I to the Convention, such as tuna and tuna-like species. This Article stipulates that the coastal state and other states fishing for such species in a given region shall cooperate with a view to ensuring conservation and promoting the objective of optimum utilization, both within and beyond EEZs.<sup>188</sup> This obligation, which is restated in Article 7(1)(b) UN Fish Stocks Agreement, entails, *inter alia*, the coordinated or joint determination and allocation of the TAC for such species, inclusive of the catch taken within areas under national jurisdiction.<sup>189</sup> Nevertheless, Article 64(2) UNCLOS clarifies that the sovereign rights and responsibilities of the coastal state within its EEZ persist also with regard to highly migratory species.<sup>190</sup> Within its EEZ the coastal state retains in particular the sole right to determine the conditions under which fishing may take place, the enforcement responsibility and the control over research and data collection.<sup>191</sup>

States are free to ‘cooperate directly or through appropriate international organizations’ under Article 64 UNCLOS. Where no international organization exists, they shall cooperate to establish one and participate in its work.<sup>192</sup> The latter provision indicates a preference for cooperation through regional fisheries organizations,<sup>193</sup> but would hardly create a genuine obligation.<sup>194</sup> Firstly, states remain free to cooperate directly. Secondly, the claim to establish an ‘appropriate international organization’ also lacks detail.<sup>195</sup> Kaye moreover observes that ‘it is difficult to conceive of a situation where a State that was willing to negotiate and conclude a fisheries agreement could be liable for

failing to assist in the establishment of an organization to do the same task’.<sup>196</sup>

Article 7 of the UN Fish Stocks Agreement goes beyond the obligations under UNCLOS by requiring states to cooperate to ensure compatibility between national and high seas measures for straddling and highly migratory fish stocks.<sup>197</sup> Article 7(2) UN Fish Stocks Agreement lists a number of factors to be taken into account in determining compatible conservation and management measures, such as existing national and high seas measures, the biological unity of the stocks, and the impact of such measures on the living marine resources as a whole.

With regard to anadromous stocks<sup>198</sup> Article 66(1) UNCLOS ascribes the ‘primary interest... and responsibility’ to the state in whose rivers such stocks originate. The state of origin must ensure the conservation of anadromous stocks through appropriate regulatory measures ‘in all waters landward of the outer limits’ of its EEZ, including the territorial sea and internal waters,<sup>199</sup> and on the high seas.<sup>200</sup>

Fishing for anadromous stocks on the high seas is allowed by way of exception where its prohibition would result in economic dislocation for another state traditionally fishing the stocks.<sup>201</sup> In such cases, the states concerned are to ‘maintain consultations with a view to achieving agreement on terms and conditions’ of high seas fishing, ‘giving due regard to the conservation requirements and the needs of the State of origin in respect of these stocks’.<sup>202</sup> The state of origin is to cooperate in minimizing economic dislocation in

188 Article 64(1) UNCLOS.

189 Hey, *supra*, note 185, p.60; Kaye, *supra*, note 28, p.126.

190 Cf. also Hey, *ibid.*, p.59; Kaye, *ibid.*, pp.125-6.

191 Kaye, *ibid.*, p.127.

192 Article 64(1) UNCLOS.

193 Hey, *supra*, note 185, p.58.

194 Cf. Kaye, *supra*, note 28, p.121.

195 *Ibid.*

196 *Ibid.*

197 Cf. UN Fish Stocks Agreement, *supra*, note 18, Article 7(2); Birnie and Boyle, *supra*, note 2, pp.666, 676.

198 ‘[F]ish which spawn in fresh water within a State’s territorial jurisdiction, and migrate to sea for part of their life span, returning to the river of origin to spawn... [M]ost species die in the spawning process’, Nordquist, *supra*, note 40, II, p.667.

199 Nordquist, *ibid.*, II, p.678.

200 Article 66(2) UNCLOS; cf. also Churchill and Lowe, *supra*, note 15, p.315.

201 Cf. also Kwiatkowska, B. (1989). *The 200 Mile Exclusive Economic Zone in the New Law of the Sea*, p. 83. Dordrecht: Martinus Nijhoff Publishers.

202 Article 66(3)(a) UNCLOS.

such other states, and give special consideration to states contributing to the renewal of the stocks.<sup>203</sup> Enforcement of the high seas regulations shall be governed by agreement between the states concerned.<sup>204</sup>

Where anadromous stocks migrate into or through waters under national jurisdiction of another state than the state of origin, these states must cooperate with regard to the conservation and management of the stocks.<sup>205</sup>

The TAC for anadromous stocks, with regard to catches both within and beyond the EEZ of the state of origin, may be established by the state of origin after consultations with any other states fishing these stocks in accordance with Article 66 UNCLOS.<sup>206</sup> The state of origin and the other states fishing these stocks under Article 66 UNCLOS shall further ‘make arrangements’ for the implementation of this Article through regional organizations ‘where appropriate’.<sup>207</sup> Notably, with

regard to anadromous stocks the other provisions of Part V of the Convention do not apply in addition to Article 66.<sup>208</sup>

Similarly, coastal states in whose waters catadromous species<sup>209</sup> spend the greater part of their life cycle are responsible for the management of these species.<sup>210</sup> Catadromous species may not be exploited on the high seas.<sup>211</sup> Where catadromous fish migrate through the EEZ of another state, the management and exploitation of such fish is to be regulated by agreement between the coastal state in whose waters the fish spend the greater part of their life cycles and this other state.<sup>212</sup>

In contrast to Article 63, Articles 64, 66 and 67 UNCLOS create genuine duties of cooperation or *pacta de contrahendo*, as indicated by requirements that states ‘shall cooperate’<sup>213</sup> and that regulation or enforcement shall be ‘by agreement’.<sup>214, 215</sup>

### 3.2 Customary international law

Under international environmental law, the customary obligation of states to prevent, reduce and control environmental harm is complemented by the procedural duty to cooperate in mitigating transboundary environmental risks through notification, consultation, negotiation and, where appropriate, environmental impact assessment.<sup>216</sup> This, however, does not entail that states may act only by agreement. In other words, the customary obligation can be characterized as a *pactum de negotiando*, i.e., a duty to enter into negotiations in good faith, rather than a duty to reach an agreement.<sup>217</sup> As Articles 64,

66 and 67 UNCLOS create genuine duties of cooperation or *pacta de contrahendo*, these obligations may go beyond the general procedural obligation under customary international law. Therefore, the question arises whether the pertinent UNCLOS provisions have also acquired customary status.

The UNCLOS regime for the management of transboundary, straddling and highly migratory species and anadromous and catadromous stocks comprehensively sets out the respective rights and duties of coastal states and other states concerned. On

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203 Ibid., Article 66(3)(b), (c).

204 Ibid., Article 66(3)(d).

205 Ibid., Article 66(4).

206 Ibid., Article 66(2); Kaye, *supra*, note 28, p.135.

207 Article 66(5) UNCLOS.

208 Hey, *supra*, note 185, p.64.

209 ‘Catadromous species, of which the freshwater eel is a prominent example, spawn in the ocean and migrate to fresh water for most of their lives before returning to the ocean to reproduce. (This life cycle is the opposite of anadromous stocks, dealt with in article 66.)’, Nordquist, *supra*, note 40, II, p.681.

210 Article 67(1) UNCLOS.

211 Ibid., Article 67(2).

212 Ibid., Article 67(3).

213 Ibid., Articles 64(1), 66(3)(b), (4).

214 Ibid., Articles 66(3)(d), 67(3).

215 Cf. Kaye, *supra*, note 28, pp.118, 126.

216 Cf. Birnie and Boyle, *supra*, note 2, pp.104-5, 126-9; Sands, *supra*, note 13, pp.249-51.

217 Cf. *Lake Lanoux Arbitration* (France v. Spain) (1957) 24 ILR, 101, 119, 128, 130; Birnie and Boyle, *ibid.*, pp.126, 128.

the whole, it is clearly norm-creating. Exceptions are only the second sentence of Article 61(2) UNCLOS and Article 66(5), leaving coastal states a wide discretion to cooperate with, or through, international organizations, and the second sentence of Article 64(1), calling for the establishment of regional organizations for highly migratory species while direct cooperation is also permitted.<sup>218</sup> The widespread and representative participation in the 1982 UNCLOS and the passage of a sufficient time span have been ascertained under 1.3 above.

According to Kwiatkowska:

*[n]eighbouring coastal states in various regions increasingly acknowledge their joint responsibility for seeking an agreement on conservation and management of stocks migrating between their EEZs in conformity with the LOS Convention. This is evidenced by practice of, e.g., the United States and Canada, the European Economic Community with regard to stocks shared with other states; the Baltic states; the Gulf of Guinea states; and activities of the regional fishery commissions of the FAO.*<sup>219</sup>

Similarly, Churchill and Lowe find that ‘[i]n practice States have been able to agree on co-operative arrangements for the management of [transboundary] stocks to a considerable extent’.<sup>220</sup> They refer to ‘at least twenty agreements... dealing with the management of shared stocks’, including periodic arrangements negotiated under framework treaties, bilateral commissions, regional fisheries organizations and agreements on an *ad hoc* basis.<sup>221</sup> Hey has also

compared a large number of cooperative arrangements with the pertinent UNCLOS provisions in order to ascertain if, and to what extent, the arrangements reflect these provisions. She finds that most cooperative arrangements concluded by states with regard to transboundary stocks conform to the requirements of Article 63(1) UNCLOS.<sup>222</sup> Limited divergences seem to exist with regard to highly migratory species.<sup>223</sup> Kwiatkowska states in this respect that ‘state practice shows an increasing acceptance of the obligation of international cooperation established in Article 64’.<sup>224</sup> Moreover, she observes with regard to straddling stocks that:

*state practice in the regions where such stocks are at present exploited reflects basically shared responsibility of the coastal states and the relevant organizations for coordination of fisheries measures within and beyond 200 miles; at the same time there is a noticeable tendency to ensure the consistency of measures applicable to the high seas with those adopted by the coastal state in the EEZ.*<sup>225</sup>

Finally, ‘state practice in the regions where anadromous stocks occur show recognition of primary interest and responsibility of the state of origin, limitation of fishing to the areas within 200 mile zones, and the indispensability of international cooperation in conservation and management of such stocks’.<sup>226</sup>

Consequently, the cooperation requirements of Articles 63, 64, 66 and 67 UNCLOS appear to have been transformed into customary international law.<sup>227</sup>

218 See Section III.1. above.

219 Kwiatkowska, *supra*, note 86, pp.252-3; cf. also Kwiatkowska, *supra*, note 201, p.78.

220 Churchill and Lowe, *supra*, note 15, p.294.

221 *Ibid.*, pp.294-6.

222 Hey, *supra*, note 185, p.95.

223 *Ibid.*, pp.106-7.

224 Kwiatkowska, *supra*, note 86, p.253.

225 *Ibid.*; cf. also Kwiatkowska, *supra*, note 201, pp.79-80.

226 Kwiatkowska, *ibid.*, ‘Conservation and optimum utilization’, p.254, cf. also p.260; cf. also Kwiatkowska, *ibid.*, *The 200 Mile Exclusive Economic Zone*, p.85.

227 Cf. also Kwiatkowska, *ibid.*, ‘Conservation and optimum utilization’, p.260 with regard to the regime for anadromous stocks, and p.259 for an ‘emerging’ customary status of the regime for transboundary and straddling stocks; cf. also Kwiatkowska, *ibid.*, *The 200 Mile Exclusive Economic Zone*, pp.79, 80.



### III. Conclusion

The international law of fisheries has frequently been criticized for its alleged lack of contemporary and legally binding EEZ fisheries management standards.<sup>228</sup> Nevertheless, the 1982 UNCLOS in particular, as well as general international law, seem to provide a useful range of norms for national fisheries management, if carefully interpreted. Such legally binding norms include the coastal state's primary obligation to ensure that the maintenance of the living resources in its EEZ is not endangered by overexploitation; the duty to maintain or restore populations of target species at

sustainable levels; the determination of catch limits for stocks actually or potentially affected by exploitation; the duty to apply the precautionary approach widely to conservation, management and exploitation of living marine resources; and duties to cooperate for the conservation and management of species not exclusively occurring within the coastal state's EEZ. It thus appears that even greater professional attention is owed to the full and coherent implementation of the existing international standards than to the future development of the international law of fisheries.

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228 E.g., Barnes, *supra*, note 4; Christie, *supra*, note 5.

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# **PART B:**

## **Exemplary National Approaches**



# 1 Promotion and Management of Marine Fisheries in Indonesia

Laode M. Syarif\*

## Summary

Indonesia has some of the richest fisheries resources in the world, with the world's most diverse coral reefs, 81,000 km of coastline (the second longest in the world), and about 5.8 million km<sup>2</sup> of sea area. The environmental features that support these resources, such as coral reefs, mangrove forests and the quality of the water around coastal zones, have been severely degraded by the combined effects of unsustainable fishing practices, urban development pressures, and inadequate fisheries legislation.

The environmental degradation has been exacerbated by unsuitable strategic policies for fisheries management developed by both central and local governments. Serious efforts in fisheries development only started in 1999 with the establishment of the Department of Marine Affairs and Fisheries (DKP). Prior to 1999, the fisheries sector was managed under the Directorate General of Fisheries within the Department of Agriculture. The management and promotion of fisheries in Indonesia were then strengthened with the enactment of *Law No. 31/2004 on Fisheries (Fisheries Act)*.

Compared to the old regime, the *Fisheries Act* brought a new perspective to Indonesia's fisheries sector because it introduced several management measures which were unknown in the past. The *Fisheries Act*, for instance, established several provisions on: (a) fisheries management planning, (b) fish resources, (c) total allowable catch (TAC), (d) types, amount and

size of fishing gear, (e) zone, route and time of fishing season, (f) fishing fleet surveillance systems, (g) rehabilitation of fish resources and their environment, (h) minimum size and weight, (i) fish sanctuaries, and other measures. In addition, the *Fisheries Act* also provided several supporting measures for small-scale traditional fishermen such as technical assistance, fuel subsidies, and a limited number of soft loans.

However, the full implementation of these measures is still problematic because some provisions of the *Fisheries Act* contradict *Law No. 32/2004 on Local Government* and *Law No 33/2004 on Financial Balance between Central and Local Government*. The full implementation of the *Fisheries Act* is further hindered by a lack of personnel and facilities in the DKP and a lack of support from other government agencies such as the navy and water police with regard to law enforcement. As a result, the use of destructive fishing methods such as explosives and poisons is still common in many coastal areas.

In addition, the lack of skills and capacity of provincial and district governments to deal with multi-layered fisheries problems also hampers full implementation of the *Fisheries Act*. There is great disparity between written law and practised law. Therefore, the aims of the fisheries management reform introduced by the *Fisheries Act* still require much effort in order to be realized.

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# I. Environmental and socio-economic background

## 1. Geography

Figure 1. The Indonesian archipelago



Source: US Central Intelligence Agency. (2002).

Available at: <http://www.lib.utexas.edu/maps/indonesia.html> (consulted: 1 April 2006).

The Indonesians call their homeland *Tanah Air Kita* (Our Land and Water). It is made up of 18,108 islands (based on 2003 satellite-imaging data by the Aviation and Space Institute) with a total landmass of 1.91 million km<sup>2</sup>. However, only about 6,000 islands are inhabited.<sup>1</sup> The total marine area covers more than 5.8 million km<sup>2</sup> (3.1 million km<sup>2</sup> territorial and archipelagic waters and 2.7 million km<sup>2</sup> of EEZ).

Indonesia's approximate geographic centre is at 5°ES and 120°EE. It lies between the Indian and Pacific Ocean and between Asia and Australia, south of Malaysia and the Philippines, and northwest of

Australia. Indonesia is the largest archipelago in the world, extending some 2,000 km from north to south and more than 5,000 km from east to west. The largest islands are Kalimantan (Borneo), Sumatra, Papua (formerly Irian), Sulawesi and Java (where the capital Jakarta is).

The climate in Indonesia is tropical - hot and humid in the low elevations and jungles but cooler in the highlands. Temperatures range from 21°C(70°F)-33°C(90°F). Humidity ranges from 60-90%. Indonesia's wet season lasts from November to April and its dry season from May to October, with slight

<sup>1</sup> To date, the government has no official number of islands within Indonesian territory, because some of them are just atolls and uninhabited. Some authors put the figure at 13,677 islands and islets, while others just say more than 10,000 islands. The government departments and authorities that are responsible for the management of Indonesian small islands are the Department of Defence, the Department of Marine Affairs and Fisheries, and the National Coordination Agency for Surveys and Mapping (<http://www.bakosurtanal.go.id> – consulted: 4 April 2006). For the total size of the sea, see Putra, Sapta and Yaya, Mulyana. Linking Coral Reef Conservation into Integrated Coastal Management as Part of Indonesia Sea Large Marine Ecosystem: An Experience of Coral Reef Rehabilitation and Management Program (COREMAP Phase II). Available online at: <http://www.iucn.org/themes/wcpa/wpc2003/pdfs/programme/cct/marine/coremapabstract.pdf> (consulted: 12 April 2006).



variations in regional sub-climates. Annual precipitation levels in Indonesia lie between 200 cm (79 in) and 380 cm (150 in) depending on the region.

While Indonesians are scattered across many different islands, they are also divided into many ethnic groups. Indonesia is a very diverse nation with 350 recognized ethno-linguistic groups, of which 180 are located in Papua. The biggest ethnic group is Javanese making up 45% of the population, followed by Sundanese (14%), Madurese (7.5%), coastal Malays (7.5%), and others (26%). It is important to note that, apart from indigenous ethnic groups, there are a significant number of non-indigenous groups, such as Chinese, Indians and Arabs. They are mostly concentrated in urban areas throughout the archipelago.

Although the majority of the population can speak the national language *Bahasa Indonesia* (the Indonesian Language), ethnic languages are still spoken on a daily basis. The Javanese language, for instance, is spoken by about 75 million people, while Sundanese is spoken by at least 27 million people. Similarly, some other ethnic groups such as Batak in North Sumatra, Minang in West Sumatra, Bugis and Makassar in South Sulawesi, Muna and Buton in Southeast Sulawesi, and Ternate in the eastern part of Indonesia still speak their own languages in daily informal conversations. In total, there are more than 300 languages and dialects spoken in Indonesia.

Another important indicator that makes Indonesia a socially unique country is the religion of its citizens. The Indonesian Constitution guarantees religious freedom.<sup>2</sup> However, the Moslem population dominates with 88% making Indonesia the biggest Islamic country in the world. Five percent of the population are Protestant, while another 3% are Roman Catholic. Hindu constitutes about 2% of the population and its

followers mainly live on the island of Bali. One percent of the population follows Buddhism.<sup>3</sup>

According to an estimate by the Asian Development Bank (ADB), the total population of Indonesia is about 216.4 million, making it the fourth largest nation after China, India and the USA. The average population density per square kilometre is 114,<sup>4</sup> with a population growth rate of 1.49% per year. The Indonesian population is not evenly distributed throughout the archipelago. The island of Java, together with the smaller adjoining islands of Madura and Bali, accounts for around 7% of Indonesia's land area, but is populated by 59.5% of the total population. By contrast, Papua represents 22% of the total land mass, yet has only 1% of the total population.

The Statistics Bureau of Indonesia (*Badan Pusat Statistik - BPS*) estimated that the total labour force in 2005 was 105,802,372, but only 68.2% are employed. The unemployment rate in 2005 reached 10.26%.<sup>5</sup> Until 2003, the agricultural sector provided about 42% of the jobs, while manufacturing only provided about 12%. However, the proportion of output percentage of the GDP at current prices is now the opposite: (i) agriculture 15.4%, (ii) industry 43.7% and (iii) services 40.9%. The total GDP of Indonesia in 2004 was Rp 2,303,031 trillion (about US\$ 230,303.1 million).<sup>6</sup> The contribution of the fisheries sector to the GDP is about 2.2% and has been constantly increasing over the last five years.<sup>7</sup>

Total export values from the non-oil, gas and commodity sectors in 2004 were as follows: (i) agricultural products, US\$ 2,496.2 million; (ii) industrial products, US\$ 48,677.3 million; (iii) mining products, US\$ 4,761.4 million; and (iv) fisheries (excluding shrimp) US\$ 470.7 million. Meanwhile, shrimp alone contributes US\$ 824 million.<sup>8</sup> From these figures we can conclude that the contribution of the

2 The Indonesian Constitution, Article 28E (1) states 'Every person shall be free to choose and to practice the religion of his/her choice...'  
 3 See 'Overview of Indonesia', at <http://www.expatri.or.id/info/overview.html#THE%20LAND> (consulted: 6 April 2006).  
 4 ADB. (2005). Key Indicators 2005: Labor Markets in Asia: Promoting Full, Productive, and Decent Employment, p.244. Manila: ADB. Available online at [http://www.adb.org/Documents/Books/Key\\_Indicators/2005/pdf/INO.pdf](http://www.adb.org/Documents/Books/Key_Indicators/2005/pdf/INO.pdf) (consulted: 4 April 2006).  
 5 BPS, available online at <http://www.bps.go.id/sector/employ/table1.shtml> (consulted: 6 April 2006).  
 6 ADB, supra, note 4.  
 7 Patlis, J. (2007). 'Indonesia's New Fisheries Law: Will it Encourage Sustainable Management or Exacerbate Over-Exploitation'. Bulletin of Indonesian Economic Studies 43(2): 201-226, p.202.  
 8 BPS, available online at <http://www.bps.go.id/sector/frade/export/table2.shtml> (consulted: 6 April 2006).

fisheries sector to the national economy is still below the target and projection of the government.

To provide a general picture of Indonesia's current (macro) economy, the Indonesian Statistics Agency and

the ADB analyses show that the Indonesian economy has steadily increased over the last five years and has started to recover from the Asian economic crisis in 1997/8.

**Table 1. Major economic indicators, 2004-2007 (%)**

Item	2004	2005	2006	2007
GDP growth	5.1	5.5	6.0	6.5
GDI/GDP	21.3	22.3	24.2	26.1
Inflation (CPI)	6.2	5.9	5.4	5.5
Money supply (M2) growth	8.1	12.0	12.0	12.0
Fiscal balance/GDP	-1.3	-0.8	-1.0	-0.5
Merchandise export growth	9.4	6.0	7.0	8.0
Merchandise import growth	13.3	9.6	11.0	12.0
Current account/GDP	2.6	2.1	1.5	1.0

Source: ADB. "Asian Development Outlook", available online at: <http://www.adb.org/Documents/Books/ADO/2005/ino.asp> (consulted: 16 January 2008).

Key: CPI = Consumer Price Index. GDI = Gross Domestic Investment. GDP = Gross Domestic Product.

## 2. State of the environment

Since the status of other natural resources cannot be separated from the issue of fisheries in general, this section examines several of Indonesia's important key natural resources. This section briefly discusses the status of mangrove forests and coral reefs because they play a major role in maintaining fish stocks in Indonesia. In addition, since the quality of coral reefs and mangrove forests has declined significantly in the last 20 years due to human pressure and illegal activities, their condition needs comprehensive assessment.

### *a) Mangrove forests*

The FAO states that Indonesia has the largest mangrove forest area in the world.<sup>9</sup> However, detailed calculations of Indonesia's mangrove forest area vary. According to Martosubroto and Naamin's estimate in 1977, the total area of Indonesia's mangrove forest was 9,500,000 hectares,<sup>10</sup> while the Ministry of Environment put the figure at 9,200,000 hectares.<sup>11</sup> However, several authors have estimated that the total area is only 3,743,500 hectares<sup>12</sup> while, according to Aizpuru *et al.*, it covers about 4,000,000 hectares.<sup>13</sup>

- 9 Wilkie, M.L. and Fortuna, S. (2003). Status and Trends in Mangrove Area Extent Worldwide. Forest Resources Assessment Working Paper 63. Rome: Forest Resources Development Service, Forest Resources Division, Forestry Department, Food and Agriculture Organization of the United Nations (FAO). This data also available online at [http://www.fao.org/documents/show\\_cdr.asp?url\\_file=/docrep/007/j1533e/J1533E46.htm](http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/007/j1533e/J1533E46.htm) (consulted: 11 April 2006). See also Wilkie, M.L., Fortuna, S. and Souksavat, O. (2002). FAO's Database on Mangrove Area Estimates. FAO Forest Resources Assessment Working Paper 62. Rome: Forest Resources Division, Forestry Department, Food and Agriculture Organization of the United Nations (FAO).
- 10 Martosubroto, P. and Naamin, N. (1977). 'Relationship between Tidal Forests (mangroves) and Commercial Shrimp Production in Indonesia'. Marine Resources Indonesia 18: 81-86.
- 11 Ministry of Environment of the Republic of Indonesia. (2005). Status Lingkungan Hidup Indonesia 2004 (State of Environment of Indonesia 2004: Chapter 4 Coastal and Marine (Pesisir dan Laut), Jakarta: Ministry of Environment.
- 12 FAO. (1995). Directorate General of Forest Inventory and Land Use Planning, Second Interim Forest Resources Statistics Indonesia. UTF/INS/066/INS.
- 13 Aizpuru, M., Achard, F. and Blasco, F. (2000). Global Assessment of Cover Change of the Mangrove Forests using satellite imagery at medium to high resolution. In: EEC Research project n 15017-1999-05 FIED ISP FR. Ispra: Joint Research Centre.



Apart from its significant size, the diversity of Indonesia's mangroves is the highest in the world.<sup>14</sup> Indonesia has 75% of all mangrove species in South-east Asia and about 27% of the world's mangrove species. However, the quality of Indonesia's mangrove forest is cause for alarm. Due to land conversion, illegal clearing for aquaculture, and other purposes, the average loss of mangroves is about 200,000 hectares per year.<sup>15</sup>

Due to a lack of environmental awareness on the part of the government and the Indonesian people, and uncontrolled mangrove conversion, the latest data from the Department of Forestry states that 73% of Indonesia's mangrove forests are damaged. This means that only 2,648,309 hectares are in good condition. In order to mitigate further destruction, the Department of Forestry, in cooperation with provincial and district governments, international donors and non-governmental organizations (NGOs), has developed a programme called the National Rehabilitation of Mangrove Forests. This programme rehabilitated 29,526 hectares in 2005, and plans to rehabilitate 1,738,076 hectares in 2006-2010.<sup>16</sup>

### **b) Coral reefs**

The Reefs at Risk in South-east Asia (RRSEA) Project study estimated that Indonesia has approximately 51,000 km<sup>2</sup> of coral reefs. This does not include sub-surface reefs or reefs in remote areas that have not been mapped. If this conservative estimate is accurate, 51 percent of the region's coral reefs and 18% of the world's coral reefs are found in Indonesian waters.<sup>17</sup> Most of these reefs are fringing reefs, adjacent to the coastline and easily accessible to coastal communities.<sup>18</sup>

Unsustainable practices of the coastal communities, population growth, and land-based pollution have put additional pressure on Indonesia's coral reefs.

Apart from their sheer magnitude, Indonesia's coral reefs are also among the most biologically rich in the world, containing an extraordinary amount of plant and animal diversity. According to the current study, more than 480 species of hard coral have been recorded in the eastern part of Indonesia which is approximately 60% of the world's described hard coral species.<sup>19</sup> In addition, eastern Indonesian reefs are home to more than 1,650 species of fish, which makes it the most diverse (coral) reef fish collection in the world. In fact, Indonesia's coral reefs (help to) support one of the largest marine fisheries in the world, generating 3.6 million tons of total marine fish production in 1997.<sup>20</sup> It is important to note that the exact extent of Indonesia's biological heritage is still unknown since many reefs in eastern Indonesia have yet to be studied.<sup>21</sup>

While Indonesia has the reputation of being the country with the richest coral reefs in the world, most of Indonesia's coral reefs are seriously threatened. Based on the report of the Ministry of Environment, only 5-6% of the coral reefs are in very good condition, while about 35% have been damaged.

The combined effects of destructive fishing practices and land-based activities contribute most to coral reef destruction. Destructive fishing practices (cyanide and blast fishing) occur throughout the archipelago and cause significant destruction of coral reefs in many islands. For instance, about 65% of coral reefs in the Maluku islands showed evidence of bomb

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- 14 Eighty-nine species of mangrove are found in Indonesia. Among them are *Rhizophora*, *Avicennia*, *Sonneratia*, *Bruguiera*, *Xylocarpus*, *Ceriops* and *Excoecaria*.
  - 15 Dahuri, R. (2002). 'Integrasi Kebijakan Pengelolaan Sumberdaya Pesisir dan Pulau-Pulau Kecil (Integration of Resources Policy in Coastal and Small Islands Management)'. Paper presented at the National Seminar on Mangrove Ecosystem Management, Jakarta 6 August 2002. Rokhmin Dahuri is a Former Minister of Marine Affairs and Fisheries of Indonesia.
  - 16 See Press Release of the Department of Forestry No: S.256/II/PIK-1/2005, 14 April 2005. Available at [http://www.dephut.go.id/INFORMASI/HUMAS/2005/256\\_05.htm](http://www.dephut.go.id/INFORMASI/HUMAS/2005/256_05.htm) (consulted: 11 April 2006).
  - 17 Reef area estimates for Southeast Asia are developed from coral reef maps developed under the Reefs at Risk in Southeast Asia project. Global totals for reef area come from United Nations Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC). (1999). *Global Coral Reef Distribution*. Cambridge: UNEP-WCMC.
  - 18 Dahuri, R. and Dutton, I.M. (2000). 'Integrated Coastal and Marine Management Enters a New Era in Indonesia'. *Integrated Coastal Zone Management* 1:11-16.
  - 19 Suharsono and N. Purnomohadi. (2001). 'International Coral Reef Initiative Country Report: Indonesia', p.1. Paper presented at the Regional ICRI Workshop for East Asia, Cebu, Philippines, 2 April 2001.
  - 20 Hopley, D. and Suharsono, (Eds). (2000). *The Status of Coral Reefs in Eastern Indonesia*, p.38. Townsville: Global Coral Reef Monitoring Network.

damage.<sup>22</sup> Despite short-term profits, studies have shown that the economic costs of blast and poison fishing are remarkable.<sup>23</sup> The RRSEA estimates that the net economic loss from blast fishing in Indonesia over the next 20 years will exceed US\$ 570 million, while the economic loss from cyanide fishing is estimated to be US\$ 46 million annually.<sup>24</sup>

In addition, land-based activities such as extensive deforestation have increased coastal sedimentation, smothering coral reefs. Similarly, pollution from industrial effluents, sewage and fertilizers has affected the diversity of the coral reefs. A study demonstrated that 30-50% of coral reefs at a depth of 3 m are less diverse compared to a pristine reef.<sup>25</sup>

So far, the Indonesian government in collaboration with international donors and NGOs has developed several programmes to mitigate further destruction of their reefs. The Ministry of Marine Affairs and Fisheries (DKP) has initiated the Coral Reef Rehabilitation and Management Program (COREMAP) to strengthen the management of the country's coastal resources.

COREMAP is a 15-year project, divided into three phases: COREMAP I, II and III. The primary goal of COREMAP is to protect, rehabilitate and sustain the utilization of coral reefs and associated ecosystems in Indonesia. COREMAP I focused on the progressive accumulation of knowledge, skills and capacity for coral reef management at the central, provincial and local levels. The goal of COREMAP II is to accelerate the growth in capacity of the relevant government institutions to manage coral reefs, while the goal of COREMAP III is to hand over the management of coral reefs and their associated ecosystems to the local government and communities.<sup>26</sup>

It is important to note that COREMAP is based on a combination of two development approaches, top-down and bottom-up, with the main focus on community-based management. The community focus mainly stems from experiences learned from failed top-down approaches of government projects without the participation of local communities. In contrast, the bottom-up approach considers coastal communities as primary stakeholders that participate from the very beginning of the programme, such as identifying the problems, needs, and potential solutions. In addition, COREMAP is based on four main component strategies: (i) community-based management (CBM), (ii) public communication (PC), (iii) monitoring control and surveillance (MCS), and (iv) coral reef research, information, and training centre (CRITC).<sup>27</sup>

In order to maintain the continuation of the project, the DKP launched COREMAP II on 26 September 2004. Under this programme, the DKP has established Project Management and Implementation Units in seven provinces (North Sumatra, West Sumatra, Riau, South Sulawesi, Southeast Sulawesi, East Nusa Tenggara and Papua) in cooperation with the Indonesian Institute of Science, National Development Agency (BAPPENAS), Departments of Forestry and Home Affairs, Police Headquarter and the Military. The project in eastern Indonesia is funded by the ADB, while that in the western part of Indonesia is funded by the World Bank.<sup>28</sup>

The Government of Indonesia also planned to establish 85 marine protected areas (MPAs) covering 10 million hectares by 1990. They were to be expanded up to 50 million hectares by the year 2000. However, the above targets were not fulfilled. By the year 2000,

21 Hopley and Suharsono, *supra*, note 20, pp.10-11.

22 Hopley and Suharsono, *supra*, note 20, p. 35.

23 Pet-Soede, L., Cesar, H. and Pet, J. (2000). 'Blasting Away: The Economics of Blast Fishing on Indonesian Coral Reefs'. In: Cesar, H. Collected Essays on the Economics of Coral Reefs, pp.77-84. Kalmar: CORDIO, Kalmar University; see also Cesar, H. (1996). *Economic Analysis of Indonesian Coral Reefs*. Working Paper Series 'Work in Progress'. Washington, DC: World Bank.

24 Hopley and Suharsono, *supra*, note 20, p. 42.

25 For more information, see Edinger, E.N., Jompa, J., Limmon, G.V., Widjatmoko, W. and Risk, M.J. (1998). 'Reef Degradation and Coral Biodiversity in Indonesia: Effects of Land-based Pollution, Destructive Fishing Practices and Changes over Time'. *Marine Pollution Bulletin* 36(8): 617-630.

26 Indonesia COREMAP Program, available online at [http://www.unescap.org/DRPAD/VC/conference/ex\\_id\\_14\\_icp.htm](http://www.unescap.org/DRPAD/VC/conference/ex_id_14_icp.htm) (consulted: 12 April 2006).

27 Deny, Hidayati (2003). *Coral Reef Rehabilitation and Management Program in Indonesia*, pp.304 and 310. Proceedings of the 3rd International Surfing Reef Symposium, Raglan, New Zealand.

28 COREMAP II. (2004). *Healthy Coral Reefs – Abundance of Fish*. Jakarta: DKP. Available online in Bahasa Indonesia at <http://www.dkp.go.id/content.php?c=1534> (consulted: 12 April 2006).

the Indonesian government had only established 51 MPAs, covering only about 6.2 million hectares.<sup>29</sup>

Since COREMAP is the first integrated national programme to save Indonesia's coral reefs, it has not been fully successful. However, this programme has

increased public awareness that coral reefs sustain the life of the sea and the livelihood of many Indonesians who live in coastal areas. It is also important to acknowledge the role of local NGOs because they have been successful in protecting certain important coral reefs in their areas.

### 3. The state of relevant fisheries resources

Indonesia has one of the richest fisheries in the world.

Eastern Indonesia (all the islands of the archipelago except Sumatra, Java and Bali and their surrounding islands) has more fish resources than western Indonesia due to the diversity of its ecosystems and lower population pressure. Based on the report of the Indonesian Institute of Science (LIPI), the total sustainable potential catch of fish above 200 m depth is around 6.7 million tonnes per year. Assuming an

80.2% Total Allowable Catch (TAC), the total amount of annual catchable fish is 5.4 million tonnes.<sup>30</sup> With such a rich resource, Indonesia is the fourth largest fish producer after China, Peru and the USA, with 4.5 million tonnes per year.<sup>31</sup> This number is lower than the (formal) data produced by the DKP.

The Indonesian government reported fish catch (excluding shrimp) production in 1999-2003 as follows:

**Table 2. Fish catch production 1999-2003 (in tonnes)**

Name of province	1999	2000	2001	2002	2003	Average increase (%)
<b>Indonesia total</b>	<b>4,010,071</b>	<b>4,125,525</b>	<b>4,276,720</b>	<b>4,378,495</b>	<b>4,691,796</b>	<b>4.02</b>
<b>SUMATRA</b>	<b>1,207,637</b>	<b>1,275,952</b>	<b>1,332,159</b>	<b>1,330,905</b>	<b>1,429,428</b>	<b>4.34</b>
Nanggroe Aceh Darussalam	112,615	91,243	103,753	93,259	135,040	7.35
North Sumatera	321,419	344,513	348,364	356,838	352,677	2.39
West Sumatera	99,158	102,684	108,188	90,006	105,973	2.46
Riau	275,982	299,576	315,286	322,881	328,043	4.45
Jambi	43,242	46,964	50,181	50,705	54,200	5.85
South Sumatera	190,872	202,457	87,961	91,992	119,064	-4.12
Bangka Belitung	-	-	127,866	136,526	143,897	6.09
Bengkulu	28,504	27,892	29,357	29,473	30,996	2.17
Lampung	135,845	160,623	161,203	159,225	159,538	4.39
<b>JAVA</b>	<b>873,406</b>	<b>866,363</b>	<b>972,375</b>	<b>1,046,541</b>	<b>1,014,839</b>	<b>4.01</b>
Banten	-	-	108,905	65,787	53,321	-29.27
DKI Jakarta	94,723	105,179	107,136	106,668	120,827	6.43
West Java	188,986	179,089	147,042	157,6	154,943	-4.41
Central Java	279,794	265,294	294,345	301,84	250,569	-2.17
D.I. Yogyakarta	2,693	2,640	2,214	2,772	2,903	2.96
East Java	307,210	314,161	312,733	411,874	432,276	9.62
<b>BALI - NUSATENGARA</b>	<b>216,925</b>	<b>226,788</b>	<b>234,173</b>	<b>249,679</b>	<b>267,613</b>	<b>5.40</b>

*continued on next page*

29 Reefs at Risk in Southeast Asia. 'Scientists call for better management of Indonesia's coral reefs'. News release, available at [http://newsroom.wri.org/newsrelease\\_text.cfm?NewsReleaseID=11](http://newsroom.wri.org/newsrelease_text.cfm?NewsReleaseID=11) (consulted: 13 April 2006).

30 This data can be viewed at the website of 'Indonesia Country Gateway' at [http://www.indonesia-gateway.web.id/content.php?id=eco&sid=natural\\_resources&pid=marine\\_fishery](http://www.indonesia-gateway.web.id/content.php?id=eco&sid=natural_resources&pid=marine_fishery) (consulted: 12 April 2006).

31 FAO. (2004). State of the World Fisheries and Aquaculture (SOFIA) 2004, Part 1, Figure 5. Rome: FAO Fisheries Department. This data includes inland captured fish.

**Table 2. Fish catch production 1999-2003 (in tonnes)** *(continued)*

Name of province	1999	2000	2001	2002	2003	Average increase (%)
<b>Bali</b>	<b>51,691</b>	<b>56,779</b>	<b>60,046</b>	<b>82,306</b>	<b>95,823</b>	<b>17.27</b>
West Nusa Tenggara	85,186	88,144	89,709	81,499	83,926	-0.23
East Nusa Tenggara	80,048	81,865	84,418	85,874	87,864	2.36
<b>KALIMANTAN</b>	<b>431,426</b>	<b>422,538</b>	<b>438,325</b>	<b>443,299</b>	<b>431,656</b>	<b>0.05</b>
West Kalimantan	73,185	73,232	77,577	78,009	75,532	0.84
Central Kalimantan	87,659	89,439	91,565	92,447	74,536	-3.50
South Kalimantan	156,508	157,044	158,043	161,925	165,661	1.44
East Kalimantan	114,074	102,823	111,140	110,918	115,927	0.64
<b>SULAWESI</b>	<b>737,445</b>	<b>766,747</b>	<b>786,128</b>	<b>827,217</b>	<b>849,966</b>	<b>3.62</b>
North Sulawesi	184,762	190,785	186,112	197,326	183,488	-0.04
Gorontalo	-	-	23,381	32,981	34,038	22.13
Central Sulawesi	87,918	92,748	79,786	65,866	65,687	-6.55
South Sulawesi	303,625	335,140	332,783	359,300	376,811	5.63
South-east Sulawesi	161,140	148,074	164,066	171,744	189,942	4.49
<b>MALUKU - IRIAN JAYA</b>	<b>543,232</b>	<b>567,137</b>	<b>513,560</b>	<b>480,854</b>	<b>698,294</b>	<b>8.45</b>
Maluku	361,224	361,225	217,642	171,536	373,777	14.24
North Maluku	-	-	83,787	91,342	77,832	-2.89
Papua	182,008	205,912	212,131	217,976	246,685	8.02

Source: Department of Marine Affairs and Fisheries.

This data is available online at [http://www.dkp.go.id/files/Lampiran\\_Data\\_Statistik\\_Th\[1\]\\_1999-2003.xls](http://www.dkp.go.id/files/Lampiran_Data_Statistik_Th[1]_1999-2003.xls) (consulted: 12 April 2006).

The above data shows that the total amount of annual catch is still under the TAC of 5.4 million tonnes per year.

Even though the annual catch is still below the TAC, certain areas of Indonesia's water, especially in the coastal areas of Java, Bali and Sumatra, have been heavily exploited. The coastal zone of Java, for instance, has been severely affected by overfishing since the early 1990s.<sup>32</sup> Similarly, Spalding states, 'if fishing is not reduced to more sustainable levels, both coral reefs and food security will be further imperilled'.<sup>33</sup> The ICRAN

also reported that overfishing and blast fishing are estimated to result in a net loss of over US\$ 1.3 billion in the next twenty years.<sup>34</sup>

Another study in 2002 estimated that due to overfishing, the economic value of fish resources at the northern coastline of Java has depreciated to about US\$ 200,000 per year. Similar conditions exist on the coastlines around the Malacca strait, Makassar and Bali.<sup>35</sup> In short, fishing activities in these areas have exceeded the maximum sustainable yield agreed by the government.<sup>36</sup>

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- 32 Wilkinson, C.R., Chou, L.M., Gomez, E., Mohammed, I., Soekarno, S. and Sudara, S. (1994). 'Status of Coral Reefs in Southeast Asia: Threats and Responses'. In: Ginsburg, R.N. (Comp.) *Global Aspects of Coral Reefs: Health, Hazards, and History*. Miami, FL: University of Miami.
- 33 Mark Spalding is a co-author of the report and an organizer of the International Coral Reef Action Network (ICRAN), a global partnership aimed at halting and reversing the decline of the world's coral reefs. His comment can be seen at the World Resources Institute website at [http://newsroom.wri.org/newsrelease\\_text.cfm?NewsReleaseID=11](http://newsroom.wri.org/newsrelease_text.cfm?NewsReleaseID=11) (consulted: 13 April 2006).
- 34 International Coral Reef Action Network (ICRAN). 'People and Reefs: A Partnership for Prosperity'. Leaflet, at [http://www.icran.org/doc/icran\\_wssd\\_eng.pdf](http://www.icran.org/doc/icran_wssd_eng.pdf) (consulted 13 April 2006).
- 35 Fauzi, Akhmad and Anna, Suzy. (2005). *Pemodelan Sumber Daya Perikanan dan Kelautan untuk Analisis Kebijakan* (Fisheries and Marine Resources Modelling for Policy Analysis), pp.166-169. Jakarta: Gramedia.
- 36 Fauzi, Akhmad. (2005). *Kebijakan Perikanan dan Kelautan: Isu, Sintesis, dan Gagasan* (Fisheries and Marine Policy: Issue, Synthesis and Idea), p.32. Jakarta: Gramedia.

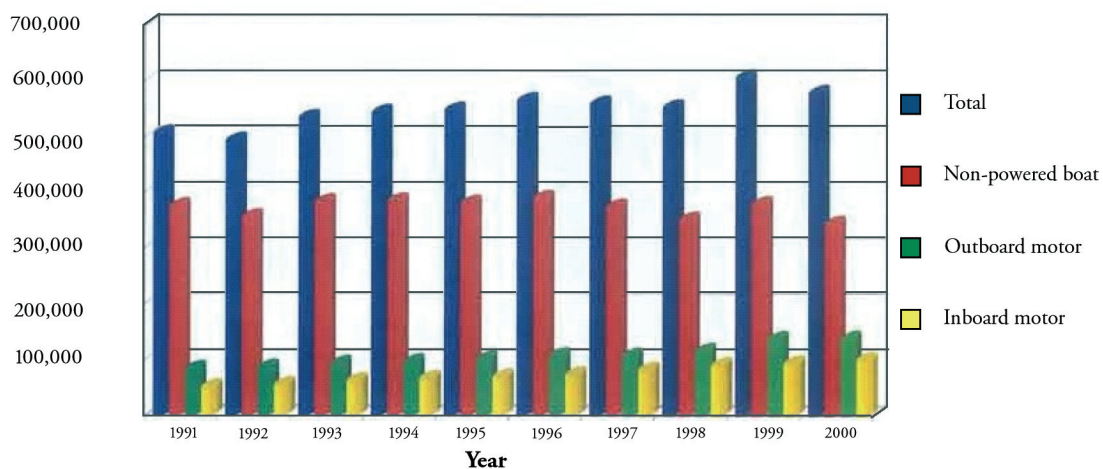
The rapid decline of fish resources on the coastline partially relates to the fact that the people who live and settle in the coastal areas are among the poorest in the country with a per capita income of US\$ 5 to US\$ 7 per month. This income level is clearly below the poverty threshold determined by the government, which is about US\$ 10 *per capita* per month.<sup>37</sup>

In contrast, due to the limited capacity of Indonesia's fishing fleets, the EEZ is under-exploited by Indonesian fishers. In fact, Indonesia's EEZ has turned into a playground for illegal foreign fishing fleets. These foreign fleets are categorized as illegal because they enter the Indonesian EEZ without authorization from the Indonesian government. Since they lack authorization the exact numbers of illegal foreign fleets are unknown. However, most observers agree that illegal foreign fleets have created a significant economic loss.<sup>38</sup>

The Indonesian government has encouraged domestic and foreign investors in the fishing industry to operate in the EEZ, but most Indonesian fishing fleets have very limited capacity to operate in this zone. So far the DKP has granted 7,000 fishing licences, but 70% of these are granted to foreign fishing operators.<sup>39</sup> The number of licences issued to nationals or foreigners is considered low compared to the total size of Indonesia's EEZ. Therefore, many observers believe that the EEZ is still under-exploited, even though the Indonesian authorities find it difficult to control the whole area.

In order to fully understand the capacity of Indonesia's fishing fleet, the DKP provides the following chart.

**Figure 2. Number of fishing fleets according to category, 1991-2000**



Source: Department of Marine Affairs and Fisheries at <http://www.dkp.go.id/index.php> (consulted: 12 April 2006).

Another report made by JICA in 2005 concluded that more than half of the Indonesian fleet is made up of non-powered boats. However, the number of non-powered boats is steadily decreasing as more fishers acquire small outboard and inboard motors. For

example, in 1999, there were 241,517 non-powered boats (53%) and by 2002 this number had dropped to 219,079 (47.6%). On the other hand, the number of outboard motors increased from 57,768 in 1999 to 74,292 in 2002.<sup>40</sup>

<sup>37</sup> Fauzi and Anna, *supra*, note 35, p.96.

<sup>38</sup> Fauzi, *supra*, note 36, p.133.

<sup>39</sup> Ibid.

<sup>40</sup> Japan International Cooperation Agency (JICA). (2005). A Study of the Current Indonesian Fisheries Scheme under Decentralization: Final Report. Prepared by PT Pacific Consulindo International Indonesia.



These figures not only demonstrate the capacity of Indonesian fishers to fish in the deep sea, but also reflect the actual economic capability of most Indonesian fishers. However, as long as about half of Indonesia's fishing fleet is not powered by motor, the total value of fish catch remains relatively low compared to actual fish resources.

In environmental terms, the above situation may be good for the preservation of the EEZ resources, but

#### 4. Multiple demands on the coastal zone

Since most coastal areas around the major islands of Indonesia serve multiple functions and purposes, such as: fishing villages, traditional and modern ports, trade centres, industrial estates, housing complexes and tourist attractions, they are usually overpopulated. As a result, the level of interest and demands on coastal zones is high, especially in urban areas.

One of the most obvious pressures on coastal zone in urban areas are waterfront cities that encroach on coastal zones for building new housing complexes, business centres, or tourist attraction facilities. These activities usually occur in urban centres where the demand for new space and facilities is high. The Governor of Jakarta, for instance, has designated the coastal zone of North Jakarta to be a new waterfront city. This Rp 20 trillion (US\$ 2 billion) project will reclaim a total area of 2,700 hectares and 32 km of the coastline of North Jakarta. This project was opposed by the Ministry of Resettlement and Regional Infrastructure and the Ministry of Environment because, according to their study, it will create a more acute flooding risk and significantly change the ecosystems of Jakarta's coastline. The assessment also found that the planned reclamation project would enhance marine pollution in the Thousand Islands (*Kepulauan Seribu*) district, damage marine ecosystems, and cause thousands of fishers to lose their livelihoods.<sup>41</sup>

Apart from the potential environmental calamities posed by the project, the direct victims are the fishing communities. Although the government has promised

at the same time it puts additional pressure on coastal areas. Since the EEZ is underexploited, the Indonesian government should develop and enable fisher fleets to operate in the EEZ. It is believed that the improvement of Indonesia's fishing fleet will not only create new jobs and revenue, but will also reduce the overexploitation of the coastal zone and internal waters.

to provide jobs for the people affected by the project, the government has no intention of preserving the North Jakarta coastline as it currently is. In fact, the Governor wants to change the unattractive face of Jakarta into a waterfront city like Singapore.

A similar project was introduced in Manado (North Sulawesi) by reclaiming about 10 km of Manado bay into a trade centre and tourist attraction. That particular project destroyed all mangrove forest on the bay and exposed the Bunaken Marine Park to direct land-based pollution. In addition, this project also affected the livelihoods of the traditional fishers around the bay because they had to move away from their villages or change their jobs.<sup>42</sup>

In addition, Makassar (the biggest city in Eastern Indonesia) has taken over the Tanjung Bunga beach and changed it into a housing and trade complex. This complex not only changed the structure of the coastline and created environmental damage, it also affected the traditional fishers who had lived in that area for many years.<sup>43</sup> The same thing has happened in other big cities, such as: Semarang in Central Java, Medan in North Sumatra, Samarinda in South Kalimantan, and others.

The industrial sector also wants access to coastal areas because of the many advantages for their industrial operations. Most heavy industries in Java and other major islands are located in coastal areas or close to river systems. The obvious advantages of a coastal zone are its close proximity to water resources and to the

41 Aurora, L. (2003). 'Jakarta Coastal Reclamation may Cause More Floods'. The Jakarta Post, 20 November.

42 'Teluk Manado jadi Bak Sampah (Manado Bay becomes a Garbage Bin)'. KOMPAS Daily, 2 May 2001.

43 'Makassar Menuju Kota Metropolitan? (Is Makassar Becoming a Metropolitan City?)'. KOMPAS Daily, 17 March 2003.

main port of the island. This situation can be observed in many big cities, such as: Medan, Padang, Palembang, Pekanbaru and Lampung in Sumatra; Batam in Riau islands; Jakarta, Semarang and Surabaya in Java; Makassar and Manado in Sulawesi; and some other big cities in Kalimantan, Maluku and Papua.

The establishment of industry in coastal areas also has a direct impact on fisher communities, because these industries 'force' traditional fishers to relocate outside these areas. In addition, they also create serious environmental damage to the coastal environment because most of them have inadequate waste treatment systems. As a result, many traditional fishers have changed their jobs and become workers in these industries.

Another sector that has a significant impact on coastal areas is tourism, especially marine tourism (*wisata bahari*). Being one of the main tourist attractions in Indonesia, marine tourism offers a lot of activities that include diving, snorkelling, traditional cruises, whale and dolphin watching, wave and wind surfing, and other general beach activities. The environmental impact of tourism on marine ecosystems is less compared to land encroachment and industry, but it also affects traditional fishing communities.

Most tourist operators in Indonesia, especially in Bali, Lombok, Sulawesi and Sumatra try to protect coastal ecosystems by asking the government to ban traditional fishing around tourist destinations.<sup>44</sup> In some cases, local fishers have been forced to move away from tourist areas because their fishing grounds have been designated as tourist attractions. As a result, some fishers have abandoned fishing altogether and now work for tourist operators. However, since most fishers are less educated or uneducated they cannot compete with more educated people or are simply not qualified to work in the tourism industry.

The last significant demand on the coastal zone comes from the shrimp industry. As explained above, one of the main causes of mangrove forest destruction is the extensive operation of shrimp farming. Shrimp is the highest agricultural export product, generating US\$ 824 million in 2004. However, the environmental cost of shrimp farming has never been included in government statistics. Shrimp farms covered about 170,000 hectares and produced about 677,800 tonnes in 2003. According to the government, shrimp farms will expand to 860,000 hectares. If such programme continues, it will convert about 25% of Indonesia's mangrove forests.<sup>45</sup>

In the past, traditional shrimp ponds were individually or communally owned by the coastal people. However, with the introduction of intensive modern shrimp farming in 1984, several big companies have significantly controlled shrimp farming through the *Tambak Inti Rakyat* programme (Nucleus Estate Smallholders Scheme – NESS). Based on this scheme, the big company provides financial and technical assistance to traditional shrimp farmers, but the farmers have to sell their products to the company until their 'loan' is paid off. This scheme has created problems in some places since it was accused of creating a debt trap for traditional fish farmers.<sup>46</sup>

The main shrimp farm operators using the NESS model are PT. Central Pertiwi Bratasena (PT. CBP), PT. Dipasena Citra Darmaja (PT. DCD), and PT Wahyuni Mandira (PT.WM). PT.CPB alone, which is 30%-owned by the shrimp multinational Charoen Pokphand from Thailand, owns an area of 10,500 hectares in South Sumatra and Lampung and plans to expand by a further 15,000 hectares in the same location. These companies dominate Indonesian shrimp exports.<sup>47</sup>

44 For an example of the efforts of tourism operators to protect the marine environment, see Erdmann, M.V. (2001). 'Saving Bunaken: Involved locals are saving one of the world's most beautiful marine parks'. Inside Indonesia 65, at <http://www.insideindonesia.org/content/view/493/29/> (consulted: 2 February 2009).

45 Siregar, P. Raja. (2001). 'Indonesia: Mounting Tension over Industrial Shrimp Farming'. World Rainforest Movement (WRM) Bulletin 51.

46 Shrimp Business Destroys Mangroves and Livelihoods, Down to Earth Newsletter, No 58, August 2003. Available at <http://dte.gn.apc.org/51srp.htm>. (consulted: 18/04/06).

47 Siregar, supra, note 45.



It is also important to note that Indonesia is among the top three shrimp exporting countries in the world. Most of Indonesia's shrimp products are exported to Japan, Hong Kong, Singapore, Malaysia and USA. The Indonesian government also plans to increase current production to fulfil the new emerging market for Indonesia's shrimp in the European Union (EU). According to Eurostat statistics 1996-2000, the EU

imported 2,879 metric tonnes of frozen shrimp from Indonesia in 1996; this had increased to 11,734 metric tonnes in the year 2000. The average increase of EU frozen shrimp imports from Indonesia is about 44.6% per year. Indonesia is the fifth biggest frozen shrimp supplier, capturing 4.88% of the EU market.<sup>48</sup> The following table shows the trend of EU imports of Indonesian frozen shrimp.

**Table 3. Trend of EU imports of frozen shrimp from Indonesia**

Year	Import value 0	Change (%)	Volume (million ton)	Change (%)	Price (value/volume)
1996	25,030	–	2,879	–	8,690
1997	48,145	92,35	4,799	66,69	10,03
1998	83,143	72,69	8,323	73,43	9,99
1999	85,699	3,07	9,856	18,42	8,70
2000	118,699	38,51	11,734	19,05	10,12

Source: The Department of Marine Affairs and Fisheries of Indonesia.  
Available online at <http://www.dkp.go.id/index.php> (consulted: 18 April 2006).

Since 1992, shrimp production in Indonesia has been affected by virus outbreaks, especially in Java and South Sulawesi, and shrimp investors are looking for new places to exploit. Many academic and NGO studies have pointed out that uncontrolled shrimp farming has become one of the major threats to mangrove forests. Shrimp farming also causes coastal erosion, sedimentation and water pollution, thereby affecting coral reefs, seagrass beds and the productivity of coastal waters. Rehabilitation of abandoned ponds due to soil acidification is too costly for local people and government units.

**5. Perception of basic fisheries issues**

An overview of basic fisheries issues should be addressed from the perspective of government officials and business actors on the one hand, and the traditional fishers on the other. The government as well as people in the fishing industry are aware that the current state

The above illustration provides a general picture of the conflicts of interest and demands of many stakeholders in coastal zones. To avoid such overlapping claims and demands, the government has initiated integrated approaches through relevant ministries and local governments, such as COREMAP. But they are in the early stages and still require much work to be fully implemented.

of Indonesia's fishing industry needs to be improved. However, the serious political debate on the importance of fisheries issues only started seven years ago due to multi-layered problems of fisheries management and more than 40 years of mismanagement.

48 Department of Marine Affairs and Fisheries of Indonesia. (2005). *Kajian Pasar Produk Udang Beku di Uni Eropa (Market Analysis of Frozen Shrimp in the EU Market)*. Jakarta: Department of Marine Affairs and Fisheries of Indonesia. Available online at <http://www.dkp.go.id/index.php> (consulted: 18 April 2006).

Until today, some government agencies outside the DKP still think that fisheries issues are not relevant to them and should be left to the DKP. As a result of this mistaken perception, some government policies in fisheries management are isolated from mainstream economic reforms. The situation is made worse by institutional arrogance within government agencies because the DKP is considered to be a newcomer with less experience than other well established government departments such as agriculture, trade, industry and forestry. In addition, some messages from the DKP are not properly disseminated throughout the country since the DKP still does not have enough offices at the provincial and district levels.

Since most initiatives in fishing-related industries require the involvement of other governmental agencies, such as the Departments of Agriculture, Industry, Trade, Finance and other ministries, the DKP has to create healthy relationships with these agencies. Otherwise all programmes initiated by the DKP to improve the quality of fisheries management will not be well received. Furthermore, certain basic fisheries issues, such as illegally operating foreign fleets and use of illegal fishing methods are left to the water police and the navy since they are not directly within the competence of the DKP.

Considering that these government agencies have different levels of understanding of fisheries management and the preservation of the marine environment, these basic issues are not well addressed by the government in general. As a result, the public has very little awareness of fisheries issues. The problem of overfishing, for instance, is neither a main topic of public political debate nor has it been widely published in the national and local media. Overfishing is only addressed by a small number of NGOs who concentrate on marine issues.

In fact, due to illegal and unregulated fishing, overfishing has become one of the main problems of Indonesia's fisheries sector. As mentioned previously, most coastal zones of Indonesia especially in Java, Sumatra and Sulawesi have reached an alarming level of overfishing. However, since overfishing is considered an 'abstract concept' by many people, including the government itself, this issue has not been fully explored and systematically discussed by the government. This perception is illustrated by provincial government brochures on foreign investment opportunities in marine and fishing industries. For instance, the *Business Profile on Marine and Fisheries Investment Opportunities in West Java* claims that fish resources in West Java have not been fully explored and exploited.<sup>49</sup> In fact, many studies suggest that the Java Sea has been overfished, especially in the territorial sea.<sup>50</sup>

Similarly, although the government and many people who are involved in fishing-related industries are aware of the urgency of improving the quantity and quality of the fishing industry, their concerns have never entered public political debate. This situation reflects the attitude of the past and current government that considers the marine and fisheries sector as a 'complementary' programme. To date, most government development programmes have concentrated on agriculture, forestry, mining and industry. The idea of reorienting national development towards marine resources is still in its infancy and requires serious efforts if it is to materialize.<sup>51</sup>

The only basic fisheries issue that attracts the attention of government officials and traditional fishers is illegal fishing conducted by foreign fishing fleets. Due to the enormous size of Indonesia's marine areas and a lack of monitoring, it is difficult for the government (navy and police) to safeguard all Indonesian waters. Illegal foreign fishing fleets,

49 See DKP and Fisheries Department of West Java Province. (2003). 'Profil Peluang Investasi dan Perikanan di Provinsi Jawa Barat'. Brochure. Jakarta: DKP and Fisheries Department of West Java Province. See also brochures from other provinces such as Bengkulu, Bali, East Kalimantan etc. published in 2003.

50 Squires, D., Omar, I., Jeon, Y., Kirkley, J., Kuperan, K. and Susliowati, I. (2003). 'Excess capacity and sustainable development in Java Sea fisheries'. *Environment and Development Economics* 8(1): 105-127. See also Stobutzki, I.C. and Hall, S.J. (2005). 'Rebuilding Coastal Fisheries Livelihoods after the Tsunami: Key Lessons from Past Experience'. *NAGA-WorldFish Center Newsletter* 28(1 & 2).

51 See Dahuri, R. (2003). 'Reorientasi Pembangunan Berbasis Kelautan (Reorientation of Marine Basis Development)'. Interview 29 December 2003. Available at <http://www.tokohindonesia.com/ensiklopedi/r/rokhmin-dahuri/wawancara.shtml> (consulted: 2 February 2008). Rokhmin Dahuri is former Minister of the DKP.

especially from the Philippines, Thailand, China, Japan and South Korea, even operate within Indonesia’s internal waters. This situation has raised a public outcry from traditional fishers and politicians, saying that foreign fleets have invaded Indonesia.

Dr Rokhmin Dahuri (the former Minister of the DKP) said in a press conference in October 2002 that Indonesia loses about US\$ 2 million worth of fish every year from illegal fishing. Those illegal foreign fleets are usually more sophisticated than the average Indonesian fishing fleet, because they are equipped with modern technologies, such as GPS, freezers and modern fishing gear.<sup>52</sup> Furthermore, those illegal fleets also use illegal equipment such as trawl nets, drift nets, and massive long lines to exploit pelagic and demersal fishes throughout the archipelago.<sup>53</sup>

In the past, illegal fishing was never targeted systematically because the navy and police had very limited resources. It is also important to underline that it is only recently that the navy and the police have increased their patrols. In the past they have notoriously been known to collaborate with illegal foreign fleets. It is an open secret in Indonesia that illegal foreign fleets can easily roam Indonesian waters, if they can establish ‘good connections’ within the navy.<sup>54</sup>

In order to cut down on illegal fishing, the DKP, police, navy and air force established a programme in 2002 called the Integrated Operation (*Operasi Terpadu*). Table 4, based on the DKP report of 2005, shows the number of foreign illegal fishing fleets captured, as a result of this operation.

**Table 4. Number of illegal foreign fleets captured by the Integrated Operation<sup>55</sup>**

Year	Number of fleets	Value (Rp)
2002	198	N/A
2003	144	1,056,000,000,000
2004	68	290,500,000,000
2005 (Jan–Sep)	268	501,000,000,000
<b>Total</b>	<b>678</b>	<b>1,847,500,000,000</b>

Note: US\$ 1 is equal to Rp. 9,200.

These numbers, however, are only a small proportion of the illegal fishing fleets operating within Indonesian waters because most illegal fishing fleets remain undetected by the authorities in the Indonesian EEZ.

Another effort made by the DKP to track the movements of legal foreign and domestic fishing fleets is to oblige every owner of a fishing fleet to install a vessel *monitoring system* (VMS). However, this programme has not been fully implemented because according to the DKP report, only 1,339 of the 3,055 fishing fleets have installed the VMS. The DKP also discovered that even those who have installed such

equipment may still turn the system off while they are out fishing.<sup>56</sup> As a result, there are still many undetected illegal fishing operations in Indonesia.

As mentioned above, the perceptions of traditional fishers should be differentiated from the perspective of the government and people in the fisheries industry. This distinction is essential, because the percentage of traditional fishers is much higher than modern fishers. Considering that the average level of education amongst fishers is low and they are among the poorest in the society, their perceptions are bound to differ from those in the government or modern fishers.

52 Fegan, B. (2003). ‘Plundering the Sea: Regulating trawling companies is difficult when the navy is in business with them’. Inside Indonesia 73, at <http://www.insideindonesia.org/content/view/339/29/> (consulted: 2 February 2009).

53 Erdmann, M.V. (2003). ‘Leave Indonesia’s Fisheries to Indonesians! Corrupt foreign fishing fleets are depriving locals of food’. Inside Indonesia 63, at <http://www.insideindonesia.org/content/view/547/29/> (consulted: 2 February 2009).

54 Anucha, Charoenpo. ‘Something Fishy in Sumatra’. Southeast Asia Press Alliance (SEAPA). Available online at <http://www.seapabkk.org/newdesign/fellowshipsdetail.php?No=53> (consulted: 5 February 2008).

55 This table is based on the DKP article ‘Menyimak Kinerja Pengawasan dan Penertiban IUU Fishing’ (Understanding the Performance of Control and Enforcement of IUU Fishing) (21/12/05), at <http://www.dkp.go.id/content.php?c=2366> (consulted: 2 February 2008).

56 Erdmann, supra, note 53.

**Table 5. Level of education amongst traditional fishers**

No.	Level of education	Percentage
1	Finished university or academy	0.03
2	Finished High School	1.37
3	Finished Junior High School	1.90
4	Finished Elementary School	17.59
5	Not finished Elementary School	79.05

Source: Statistics Agency of Indonesia (BPS) based on 1990 data.<sup>57</sup>

Quoted from the DKP website at <http://www.dkp.go.id/index.php> (consulted: 2 February 2008).

With the levels of education shown in Table 5, most traditional fishers are rarely involved in any decision-making processes. Most of the time, they just accept their unfortunate condition because they do not have the power and means to influence government policies. As a result, basic fisheries issues, especially fisheries policy and overfishing, are beyond their comprehension.

To them, fishing is a matter of survival and not a career. Therefore, they will engage in every possible activity in order to protect their survival, including illegal fishing methods, such as using explosives or poison. A debate on overfishing and coherent fishing policy is beyond their main concern because they are aware that they have very little power to influence or improve fishing policy or to support recovery from overfishing. Therefore, the government must take the initiative in reforming the fishing industry.

Traditional fishers perceive the presence of illegal foreign fleets in Indonesian waters as a real threat to their survival. There were some occasions where local fishers were involved in direct confrontation with illegal fishing fleets from Thailand,<sup>58</sup> China, Viet Nam and

the Philippines, because they were fishing in Indonesian internal waters.<sup>59</sup>

The main concern of traditional fishers is to have a secure livelihood. Traditional fishers have big hopes that the current government will initiate a programme which will free them from the vicious circle of poverty. For example, most traditional fishers wish to own a modest outboard-motor boat (*motor tempel*) that enables them to fish in deep waters. They also expect the government to provide uncomplicated micro-loan conditions from local banks, subsidized fuel prices, a stable market, and support for facilities such as ice factories close to fishing villages. These are the issues that occupy the minds of traditional fishers.

The government is aware that they need to have coherent and comprehensive fisheries policies in order to accommodate the above expectations. However, it is still struggling to find its way due to the multiple problems in fisheries management at the national, provincial and local levels plus the acute sectoral rivalry between government agencies. This issue will be discussed in greater detail in the next section.

<sup>57</sup> In 2003, the Minister of the DKP Dr. Rokhmin Dahuri stated that the current average educational levels within this community were only slightly improved: 70% had not finished Elementary School, 19.59% had finished Elementary School, and still only 0.03% had gone on to tertiary education. See the interview at <http://www.tokohindonesia.com/ensiklopedi/r/rokhmin-dahuri/wawancara.shtml> (consulted: 3 February 2008).

<sup>58</sup> Anucha, Charoenpo. 'Illegal Thai Fishing Robbed Indonesia off Billions of Catches and Cash'. Southeast Asia Press Alliance (SEAPA). Available online at <http://www.seapabkk.org/fellowships/2002/anucha.html> (consulted: 5 February 2008).

<sup>59</sup> Erdmann, supra, note 53 and Anucha, supra, note 58.

## II. The legal regime governing fisheries

This chapter presents the general legislation on fisheries, with a focus on coastal fisheries. It starts with a brief history of fisheries management in Indonesia influenced by the reorganization of competences between central and decentralized governments. It

proceeds with an analysis of the institutional structure of fisheries governance, instruments of fisheries management, means of promoting fisheries, and international agreements related to fisheries in Indonesia.

### 1. The evolution of fisheries governance

The history of fisheries governance in Indonesia can be divided into two periods: before and after the *1999 Local Autonomy Law*. These two periods represent two different approaches to fisheries governance in Indonesia because the *Autonomy Law* brought radical changes to natural resource management including fisheries.

#### *a) Before the 1999 Local Autonomy Law*

Before 1999, the central government paid very little attention to the development of the marine and fisheries sectors. The first government attempt to develop the marine and fisheries sectors was in 1984 with its Five-Year Development Programme (*Rencana Pembangunan Lima Tahun – REPELITA IV*). It was not until 1994, in REPELITA VI, that the central government considered the marine sector as a separate sector. Prior to 1994, the marine and fisheries sectors were regulated and managed by various governmental departments with the Directorate General of Fisheries of the Department of Agriculture being the main government agency responsible. However, other departments such as the Department of Forestry, Department of Trade, Department of Home Affairs and the State Ministry of Cooperation were also involved.

During that period, provincial and district governments had a very limited role in fisheries management. All important policies and decisions were made in Jakarta. Provincial and district governments only implemented central government policies through fisheries agencies in their respective jurisdictions. As a result, provincial and district governments did not accumulate much knowledge and experience in managing the marine and fisheries sectors in their jurisdiction.

The old policy also created an unwillingness amongst sectoral government agencies to transfer their powers to the DKP. Fisheries governance in Indonesia is still in its consolidation phase from the old management style to the new. Since the old management model needs to be changed, this section only discusses the current governance model.

#### *b) After the 1999 Local Autonomy Law*

The new era of fisheries governance in Indonesia started soon after the fall of the Suharto administration in 1998. That period was known as the beginning of *Era Reformasi* (Reform Era). The *Era Reformasi* brought new hope and demands from the society, such as a regime change, democratization, and regional autonomy.

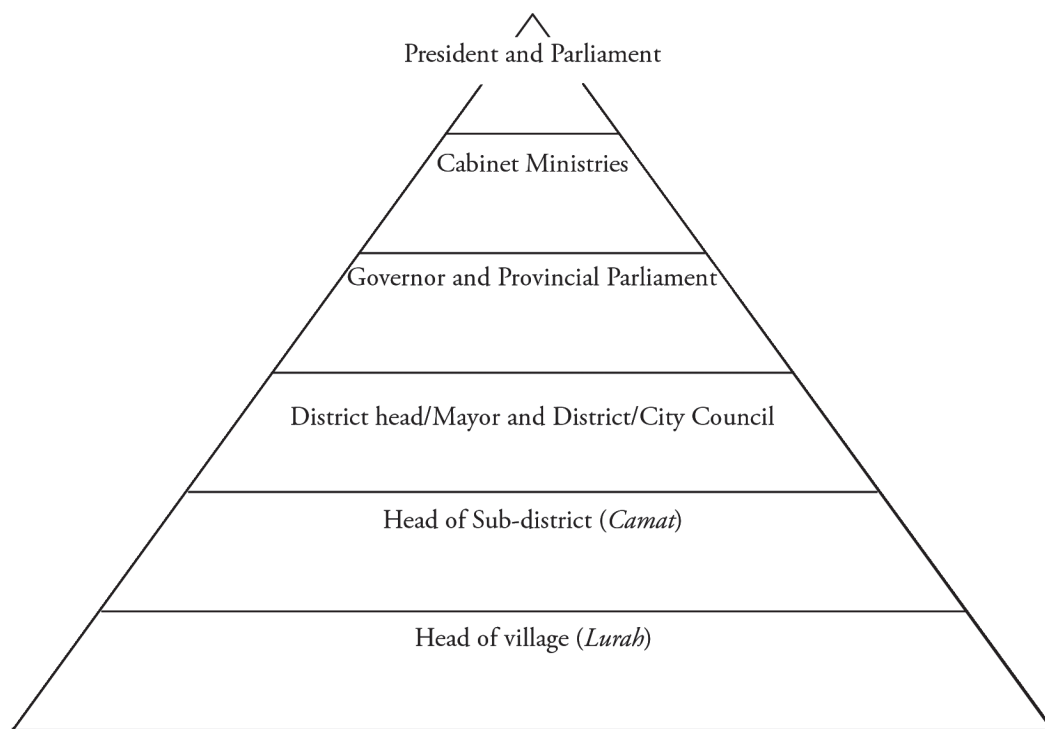
One of the main contributions of *Era Reformasi* is the promulgation of the *Undang-Undang No. 22/1999 tentang Pemerintahan Daerah* (Law No. 22/1999 on Local Government), widely known as the *Autonomy Law*. It was followed by the enactment of *Undang-Undang No. 25/1999 tentang Perimbangan Keuangan Pusat dan Daerah* (Law No 25/1999 on Financial Balance between Central and Local Government or 1999 Financial Balance Law). These two acts not only granted wider powers to local governments, but also changed the main structure of the Indonesian government system, especially in the relationship between central and local government. These two acts also brought a new dimension to fisheries governance in Indonesia. The impact of these two acts on fisheries management will be discussed in more detail later in this section.



Since fisheries governance cannot be separated from the general governance of Indonesia, this section also discusses Indonesia's main governmental structure. As a unitary state, Indonesia's governmental system has five levels:<sup>60</sup> (i) *Pemerintah Pusat* (Central Government), (ii) *Pemerintah Provinsi* (Provincial Government), (iii) *Pemerintah Kabupaten* (District Government), (iv) *Pemerintah Kecamatan* (Sub-district Government), and (v) *Desa* (Village).

The Constitution states that the power to make laws at the level of the central government belongs to the Parliament and the President,<sup>61</sup> while at the provincial level it belongs to the provincial parliament and the governor.<sup>62</sup> At the district level, the District Council and the District head/mayor (*Bupati/Walikota*) have the power to make law in their jurisdiction. The full structure of the Indonesian government is illustrated below.

**Figure 3. The structure of the Indonesian Government**



*Note:* (i) Cabinet ministries are divided into: three coordinating ministries, 20 Departments and 10 State Ministries; (ii) at the moment, Indonesia has 33 provinces, (iii) 380 districts/municipalities.

Before 1999, the regions (provinces and districts) had very limited powers to regulate natural resources within their jurisdictions. Even the model or format of provincial and district regulations (*peraturan daerah*) had to be determined by the Minister of Home

Affairs.<sup>63</sup> The power of provincial parliaments and district councils was limited to determining provincial and local budgets<sup>64</sup> and enacting regulations of national legislation. This old policy also influenced the style of marine and fisheries governance.

60 Article 18 of the Constitution. Sub-district and Village levels of government are not mentioned in the Constitution, but they exist as representatives of the Head of District Government at sub-district and village levels.

61 Ibid., Articles 5 and 20.

62 Ibid., Article 22(D)(1).

63 Article 44 (1) of the UU No. 5/1974 tentang Pokok-Pokok Pemerintahan Daerah (Law No. 5/1974 concerning Local Government). National Gazette (1999) No. 3037.

64 Ibid., Article 29(1).

When the *1999 Autonomy Law* was enacted, the relationship between the central and local governments changed radically. Article 7(1) of the *1999 Autonomy Law* provides that the power of the district government covers every governance field except for: (i) foreign affairs, (ii) defence and security, (iii) justice, (iv) finance, and (v) religion. Similarly, the *1999 Financial Balance Law* introduced a new radical formula for the distribution of revenues derived from natural resource extraction, especially from forestry, mining and fisheries. Under this new law, the local government receives 80% of natural resource revenues, while the central government gets 20%.<sup>65</sup> This is a complete reversal of the 80/20 split in favour of central government before 1999.

These two acts, however, contributed to the inconsistency of Indonesia's legal system, especially on natural resource sectoral legislation. As a result, all sectoral legislation on natural resources including fisheries had to be modified to suit the new regime. For instance, the (at least) 22 statutes and more than 100 government regulations governing about 14 sectors and addressing some aspects of coastal resources were substantially affected by these two acts.<sup>66</sup> Although the *Autonomy Law* and *Financial Balance Law* do not directly amend the sectoral legislation, they both affected the relationship between the central and local governments in managing natural resources which had been the responsibility of central government in the past. There is no constitutional basis for the competence allocation. The only legal basis for such power sharing is the *Autonomy Law* and *Financial Balance Law*.

It is important to note that these sectoral laws continued to apply until the new sectoral legislation was enacted by the parliament in line with the

*Autonomy Law*. The *Fisheries Act* is a good example of this situation, because the old fisheries law (Law No. 9/1985 on Fisheries) still applied until the enactment of the Fisheries Act in 2004. The same thing happened in other sectors such as forestry and mining. In fact, the mining sector still uses the old legislation (Law No. 11/1967 on Mining) as a legal foundation for mining operations because the new law is still being discussed in the parliament, even though that particular law contradicts some provisions of the *Autonomy Law*. This situation not only creates inconsistencies in natural resource governance, it also creates a new tension between the central and local governments.

Furthermore, due to some unclear provisions in the *1999 Autonomy Law* and the *1999 Financial Balance Law* the parliament repealed these two statutes with the enactment of the Law No 32/2004 on Local Government (*2004 Autonomy Law*)<sup>67</sup> and the Law No 33/2004 on Financial Balance between Central and Local Government (*2004 Financial Balance Law*).<sup>68</sup> The *2004 Autonomy Law* introduced a greater emphasis on the 'relationship' between central and regional (provincial and district) governments, rather than the 'autonomy' of the regional government.<sup>69</sup>

Under the two new statutes, local government power remains much the same as in the previous statutes. The *2004 Autonomy Law* still grants the same power to the local government as its predecessor. The only significant change introduced by the new statute is the extension of provincial government powers, which cover 16 fields.<sup>70</sup> However, the *2004 Financial Balance Law* introduced a slightly different formula compared to its predecessor. Article 5 of the *2004 Financial Balance Law* states that regional income for implementing decentralization (Regional Revenue and Financing) will come from (a) regional own revenue

65 Article 6(5) of the 1999 Financial Balance Law. State Gazette (1999), No 3849.

66 Patlis, J.M. (2005). 'The Role of Law and Legal Institutions in Determining the Sustainability of Integrated Coastal Management Projects in Indonesia'. *Ocean & Coastal Management* 48: 450-468, p.451.

67 See Article 10(1) of the 2004 Autonomy Law. State Gazette (2004) No. 125.

68 State Gazette (2004), No. 126.

69 Patlis, supra, note 66, p.454.

70 See Article 13 for the powers of Provincial Government. These powers include: (a) planning and management of development, (b) spatial planning, utilization and supervision, (c) public order, (d) public infrastructure, (e) health, (f) education and human resources, (g) social matters, (h) manpower, (i) cooperatives, and small & medium-sized enterprises, (j) environment, (k) land, (l) population and civil registry, (m) public administration, (n) foreign investment, (o) other services that cannot be provided by the district, (p) other services determined by other laws.



(PAD),<sup>71</sup> (b) a balancing fund, and (c) other incomes. In order to balance the finance between the central and regional governments, three types of funds were introduced through Article 10 of this Act: (a) a revenue-sharing fund (*Dana Bagi Hasil-DBH*), (b) a general allocation fund (*Dana Alokasi Umum-DAU*), and (c) a special allocation fund (*Dana Alokasi Khusus-DAK*).

Furthermore, Article 11(3) states that the DBH is derived from (a) forestry, (b) general mining, (c) fisheries, (d) oil & mining, (e) natural gas mining, and (f) geothermal mining. Finally, Article 14(d) states that: “revenue from fisheries received on a national basis shall be divided 20% for the government (central) and 80% for all districts and cities’ (italics added).

The above provision means that 80% of fisheries revenues should be shared between all districts/cities and not only go to the district/city of origin. This approach shows that fisheries are treated as truly commonly owned resources to be shared by all.<sup>72</sup> This formula was taken by the drafter of the *2004 Financial Balance Law* to ‘compensate’ those provinces and districts that do not have sufficient fish resources. It may also be caused by the fact that fish do not recognize administrative boundaries, so all revenues from fisheries collected by the central government should be shared by all provinces and districts.

According to Patlis, the above formula was developed for practical reasons (that landings come from large marine zones and thus cannot be claimed by any particular district) rather than for philosophical reasons (that fisheries are a true national resource, and therefore benefits accrue across the nation).<sup>73</sup> Nevertheless, Article 33(3) of the Constitution states that:

*Land and water, and the natural resources found therein, shall be controlled by the state and shall be exploited for the maximum benefit of the people.*

Based on that provision, fisheries can be considered as a common resource.

The last important provision of the *2004 Autonomy Law* that has a significant influence on fisheries governance is Article 18. This Article allocates the following competences to the regional (Provincial and District) governments:

1. The regions that have sea territory are given the authority to manage resources in that territory.
2. The regions are entitled to share the profits from natural resource management beneath the seabed according to the law and regulation.
3. The authority to manage resources in the sea territory as referred to in point (1) shall include: (a) exploration, exploitation, conservation and management of sea resources; (b) administrative regulation; (c) zoning regulation; (d) law enforcement of the regulation established by the regions or delegated by the Central Government; (e) participation in the maintenance of security; and (f) participation in defending the State sovereignty.
4. The authority to manage the resources in the sea territory as referred to in point (3) shall be up to *12 nautical miles from the coast line towards the open sea and/or to the archipelagic water for the Provinces and 1/3 (one third) for the district/municipality.*
5. If the sea territory between two Provinces is less than 24 (twenty four) miles, the authority to manage resources in the sea territory will be equally divided by those two Provinces [...]

71 AD is derived from: (a) regional tax, (b) regional retribution, (c) proceeds from the management of regional assets set aside for this purpose, (d) other legal PAD. For more complete information, see Articles 6(1) and 6(2).

72 Patlis, supra, note 66, p.455. See also Patlis, J.M., Dahuri, R., Knight, M. and Tulungen, J. (2001). ‘Integrated Coastal Management in a Decentralized Indonesia: How it can work’. *Jurnal Pesisir & Lautan* (Indonesian Journal of Coastal and Marine Resources) 4(1): 24-39.

73 Jason Patlis, ‘Indonesia’s New Fisheries Law: Will it Encourage Sustainable Management or Exacerbate Over-Exploitation?’ (2007) 43 *Bulletin of Indonesian Economic Studies* 201-225 at, p.207.

6. The *provisions referred to in points (4) and (5) do not apply to traditional and small-scale fishers.* (Italics added).

Based on the above provisions, the provincial and district governments have almost absolute power to manage marine resources within their allocated jurisdiction. This means that the central government has to consult regional (provincial and district) governments if it wants to initiate or conduct programmes and activities within 12 nautical miles. However, this new power sharing shall not affect traditional and small-scale fishers, so they can move and fish within and beyond their district and provincial jurisdictions. In addition, the provincial and district governments cannot impose taxes or other fees on traditional and small-scale fishers.

Based on above provisions, the *2004 Autonomy Law* and the *2004 Financial Balance Law* give regional governments (provincial and district) broad powers in fisheries governance in the coastal zone. The role of the central government in fisheries management is limited to guidance and cooperation with regional governments.

The role of the central government in fisheries management is specified in the *Undang-Undang Nomor 31 tahun 2004 tentang Perikanan (Law No. 31/2004 on Fisheries or Fisheries Act)*.<sup>74</sup> As national law, this

*Fisheries Act* binds all provinces and regencies and should be used as a guide for fisheries management in coastal areas and Indonesia's EEZ. However, the implementation of the *Fisheries Act* has to work side by side with the *2004 Autonomy Law* and the *2004 Financial Balance Law*. Unfortunately, the *Fisheries Act* does not specify any detailed power sharing between the central and regional governments. The only provision of the *Fisheries Act* that mentions power sharing is Article 65(1), which states that: 'the delegation of fisheries functions shall be done through subsequent Government Regulation'.

This situation creates uncertainty in fisheries management because the central and regional governments always interpret these laws according to their own interests. As a result, tension between the central and district and provincial governments still exists at the implementation level.

However, since the *Fisheries Act* is the main legal foundation for fisheries governance in Indonesia, this Act can be treated as *lex specialis* over other general laws. According to the *lex specialis* principle, specific law can override general law if these laws are on the same level in the legal hierarchy. As a consequence, the provincial and district governments are required to synchronize their fisheries management policies with this Act.

## 2. Institutional structures

As discussed above, the institutional and organizational structure of fisheries governance in Indonesia straddles three levels of the government: central, provincial and district. At the national level, the DKP is the main institution responsible for fisheries management. The DKP has the power to regulate the use of infrastructure and of water resources for aquaculture purposes.<sup>75</sup>

Other functions of the DKP in fisheries governance in the coastal zone are determination of

the basic planning and location of special fishing ports,<sup>76</sup> design and management of a fisheries information system including fisheries statistics,<sup>77</sup> and encouraging research and development in the fisheries sector.<sup>78</sup> The DKP is also responsible for education, training, and disseminating information on fisheries.<sup>79</sup>

With relation to the empowerment of small-scale fishers and fish farmers, the DKP is responsible for initiating programmes such as: the development of soft

74 State Gazette (2004) No. 118.

75 Article 17 and 18(1) of the Fisheries Act.

76 Ibid., Article 41.

77 Ibid., Articles 46-47.

78 Ibid., Articles 52-53.

79 Ibid., Articles 57-59.

loans and micro-credits, free education and training on fishing techniques and farming methods, and promoting the formation of mutually supportive organizations.<sup>80</sup>

Finally, the DKP ensures that all aspects of the *Fisheries Act* are well implemented at both the national and regional level. This monitoring and surveillance function is new to the DKP because such powers did not belong to the Department of Agriculture, the department previously responsible. As a consequence, the DKP has had to equip itself with sufficient patrol boats, modern communication equipment, and weapons if necessary.<sup>81</sup>

In order to undertake such tasks, the DKP has several general directorates, expert staff, a statistics bureau, quarantine, and other functional agencies. These agencies operate at the national level<sup>82</sup> but can also be transferred to the provincial and district levels. The transfer of power from the central government to regional government can be done through a government regulation.<sup>83</sup>

In addition to the power of the central government and as a consequence of the *2004 Autonomy Law*, the provincial governments also have some control over fisheries governance in their provinces. Their authority in fisheries governance extends over an area of four to twelve nautical miles out from the shore.

The main government agency responsible for fisheries management at the provincial level is the Provincial Office for Marine Affairs and Fisheries (hereinafter POMAF). However, the POMAF is not a branch of the DKP at the provincial level. The POMAF is part of the provincial government and accountable to the Governor. To some extent, the POMAFs are independent from the DKP, although most of their programmes are developed based on national fisheries policies and strategies.

The provincial government may also cooperate with other provinces to manage their fish resources. For example, the provinces of Riau, Bangka Belitung, Jambi and West Kalimantan have established joint cooperation to manage the Karimata strait because it is very rich in fish resources.<sup>84</sup> Similar forms of cooperation exist in the eastern part of Indonesia. Such cooperation is mainly triggered by economic reasons but it has positive impacts on the protection of marine ecosystems because it also involves conservation measures.

This cooperation may be conducive to setting national standards and practices because most individual POMAFs have very limited capacities to develop good strategies and programmes for fisheries management. This lack of capacity has been caused by more than 40 years of centralized government during the Suharto administration. As a result, the main function of the POMAF is acting as a 'partner' of the DKP at the provincial level rather than as an independent provincial agency.

Apart from the above role, the POMAF also manages and assists districts/municipalities within its province, including settling any cross-border issues between them. The POMAF is also responsible for promoting and developing fishing industries within their jurisdiction. In short, the function of the POMAF is similar to that of the DKP.

The last government agency that has responsibilities for fisheries management is the District Office for Marine Affairs and Fisheries (DOMAF) at the district/municipality government level. Similar to POMAF, the DOMAF is part of the district government and accountable to the district head/mayor. Although the DOMAF cannot be described as a branch of the DKP and POMAF at district/municipality level, most DOMAF programmes are dedicated to the implementation of national policies and strategies at the district level.

80 Ibid., Articles 60-64.

81 Ibid., Articles 66-70.

82 For full structure of the DKP, see <http://www.dkp.go.id/index.php> (consulted: 10 October 2006).

83 Article 65 of the Fisheries Act.

84 Four Governors have agreed on joint management of the Karimata strait. Available at <http://www.dkp.go.id/content.php?c=2392> (consulted: 4 February 2008).

Under the *2004 Autonomy Law*, the DOMAFs have the ultimate power over fisheries management up to four nautical miles from the shoreline. Since most fishing fleets use district/municipal ports to conduct their day-to-day operations, the DOMAF ought to play a very important role within the fisheries industry. Unfortunately, the structure and human resources of DOMAF are not as developed as they should be.

The district/municipality in fact plays potentially the most important role in fisheries management because they are at the frontline in serving and developing the capacity of Indonesian fishers. However, most government agencies concerned with fishing management at district/municipality level have very limited capacities to deal with fisheries issues. They not only lack qualified personnel but also have less knowledge and skills to deal with the multiple problems of the fishing industry.

Apart from the above government agencies, there are some private organizations and NGOs that play a limited role in fisheries management in the coastal zone. According to the DKP, there are at least 47 organizations at the national level that are related to fisheries management. However, only the following organizations have a significant influence on the fishing industry and small-scale fishers:<sup>85</sup>

1) *Himpunan Nelayan Seluruh Indonesia*-Fishers Association of Indonesia (HNSI); 2) *Masyarakat Perikanan Nusantara*-Fisheries Society of Nusantara (MPN); 3) *Gabungan Pengusaha Perikanan Indonesia*-Association of Fisheries Business of Indonesia (GAPPINDO); 4) *Asosiasi Tuna Indonesia*-Indonesian Tuna Association (ASTUIN); 5) *Himpunan Pengusaha Penangkapan Udang Indonesia*-Association of Shrimp Catchment Business of Indonesia (HPPI); 6) *Serikat Nelayan Nusantara* – Nusantara Fishers Union (SENASA); 7) *Asosiasi Tuna Long Line Indonesia*-Association of Long-Line Tuna Fishers of Indonesia (ATLI); 8) *Asosiasi Pengusaha Pengalengan Ikan Indonesia*-Association of Cane-Fish Business of Indonesia (APIKI); 9) *Asosiasi Pengusaha Non Tuna dan Non Udang Indonesia*-Association of Non-Tuna and

Non-Shrimp Business of Indonesia (ASPINTU); 10) *Asosiasi Pengusaha Pengelola Hasil Perikanan Indonesia*-Association of Fish Processing Business of Indonesia (APEHAPI); 11) *Asosiasi Koral Kerang dan Ikan Hias Indonesia* – Association of Coral-Shell and Ornament Fish of Indonesia (AKKI); 12) *Asosiasi Budidaya Mutiara Indonesia*-Association of Pearl Farming of Indonesia (ASBUMI); 13) *Asosiasi Pengusaha Pakan Udang Indonesia*-Association of Shrimp-Feed Business of Indonesia (APPUI); 14) *Asosiasi Pengusaha Pembenihan Udang*-Association of Shrimp Hatchery Business (APPU); 15) *Asosiasi Pengusaha Ikan Sidat Indonesia*-Association of *Sidat (Anguilla spp.)* Fish Business of Indonesia (APISI); 16) *Himpunan Ikan Hias Indonesia* – Association of Ornamental Fish of Indonesia (HIPI); and 17) *Perum Prasarana Perikanan Samudera*-Public Corporation for Fisheries Facility.

Although these associations have no power to regulate fishing management in the coastal zone, they play an important role in determining fishing policies in Indonesia. They also have significant bargaining power with the government because some of them have representatives in provincial and district governments. They can also influence the fish market since most fish harvested in Indonesia is sold to members of these organizations. Therefore, it is important for the government to work closely with these organizations.

Small-scale traditional fishers usually have no adequate representation in these organizations because they are too shy to join such organizations. There is also a tendency for business people in fisheries to exploit small-scale fishers for their own gain. Therefore, the government, and especially the DKP, should make sure that the programmes and activities of the above organizations do not harm the interests of the whole fishing community, including the small-scale traditional fishers.

There are other organizations called *Kelompok Nelayan* (Fishers Groups) operating at the village level. Most *Kelompok Nelayans* are informal, and only a few of them have a proper organizational structure. *Kelompok Nelayans* are usually established by traditional

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85 See the complete list of organizations at the DKP website: <http://www.dkp.go.id/content.php?c=2355> (consulted: 4 February 2008).



fishers to protect their common interest. Some *Kelompok Nelayans*, however, are well developed and play a significant role in their community. They even establish profitable *Koperasi Nelayan* (fishing cooperatives) and initiate programmes and activities to protect their coastal areas. The *Kelompok Nelayan*

*Mina Bakti Soansari* in Les Village in Bali, for instance, has initiated a programme to stop the use of cyanide and potassium in catching ornamental fish in their coastal areas. Consequently, this *Kelompok Nelayan* successfully declared their village free of cyanide and potassium.<sup>86</sup>

### 3. Instruments for promoting fisheries

As mentioned earlier, the fisheries sector is less developed compared to other sectors such as agriculture, industry and trade. A serious debate on the importance of the fisheries sector and the development of the modern fishing industry only started six years ago. Prior to the establishment of the DKP, only a few government initiatives were concerned with the development of the fisheries sector. The current government's policy instruments promoting the fisheries sector as the backbone of Indonesia's economy are only in their infancy.

#### a) *Structural policies*

The basic structural policy promoting fisheries was implemented by the new Department of Marine Exploration in 1999, which was then taken over by the DKP.<sup>87</sup> Since its establishment, the DKP has developed policies and programmes to promote the fisheries sector, such as: enacting the *Fisheries Act*, simplifying the administrative process for fishing licences, providing technical assistance for fishers, initiating cross-departmental cooperation, promoting the availability of soft loans and providing subsidized fuel to traditional and small-scale fishers.

Licence application procedures have been made much simpler compared to the old regime which used to involve up to five government agencies. In order to

establish a more reliable system, the DKP is developing an online licence application system. This system will not only expedite the application process but is also expected to prevent illegal payments to corrupt government officials.<sup>88</sup> Hopefully, the simplified licence application system will also encourage illegal and unregulated fishing companies to apply for a licence. More details on the system will be provided in the 'Instruments of fisheries management' section.

The DKP and related government agencies try to support fishers communities through formal and informal education and technical assistance. The DKP, for instance, manages three levels of specialized fisheries education: (i) Special Fisheries High School, (ii) Fisheries Academy, and (iii) Fisheries Institute. So far, there are only eight high schools, three academies and one institute which is not enough to serve the whole country.<sup>89</sup> Due to limited resources, the quality of these schools is still relatively poor.

Furthermore, the DKP also provides various training programmes: (i) Technical programme for fishers on fish breeding, (ii) Technical programme for government officials, (iii) Technical programme for trainers, (iv) Technical programme for counsellors<sup>90</sup>, and (v) Technical programme for fishers and others.<sup>91</sup> The DKP also provides a program called "*penyuluhan*"

86 'Nelayan Desa Les Melestarikan Alam Bawah Laut' (Les Village Fishers Preserves Under Water Environment). KOMPAS, 11 October 2005.

87 This Department has changed its name three times, from Department of Marine Exploration to Department of Marine Exploration and Fisheries, and Department of Marine Affairs and Fisheries. See Presidential Decree No. 165 of 2000 concerning the Status, Jobs, Functions, Powers, Organizational Structure and Working Mechanism of the Department (Keputusan Presiden Nomor 165 Tahun 2000 tentang Kedudukan, Tugas, Fungsi, Wewenang, Susunan Organisasi, dan Tata Kerja Departemen).

88 'Sistem Online Pengurusan Izin Penangkapan Mulai Dirintis' (Online System for Fishing Licence has been Developed). DKP website at <http://www.dkp.go.id/content.php?c=2365> (consulted: 4 February 2008).

89 For more information on special fisheries schools, see the Centre of Human Resources Development of the DKP at <http://pusdiklatkan.dkp.go.id/dkp/dkp.php?utk=sekt> (consulted: 4 February 2008).

90 People who provide technical advice to the fishers. They usually come every 4-8 weeks, or when they are requested by the fishers or government officials.

91 For more information, see <http://pusdiklatkan.dkp.go.id/dkp/dkp1.php?utk=jeni> (consulted: 11 May 2006).

(dissemination of information) for traditional fishers. *Penyuluhan* usually covers the following topics: technology, management, economy, ecology, society and culture, and law.<sup>92</sup>

While the availability of formal education is limited to the cities, informal education such as training and *penyuluhan* usually reaches a wide range of fishing communities. As a means of communication, *penyuluhan* is very beneficial for traditional fishers because most of them are not able to visit city centres to acquire knowledge and new techniques.

In the last 10 years, *penyuluhan* has not only been carried out by relevant government officials but also by NGOs<sup>93</sup> and the private sector. In fact, there are a lot of NGOs, including foreign NGOs, that focus their programs on *penyuluhan* because it directly reaches and involve traditional fishers. Some private companies, which rely on traditional fishers, also have their *penyuluhan* programmes because such activities bring mutual benefits to fishers and the companies.<sup>94</sup> It is important to note that some NGOs and private organizations support government programmes, but some of them have their own *penyuluhan* programme. Many environmental NGOs focus their *penyuluhan* on the issue of sustainability and marine environmental protection, while the private sector concentrates on creating partnerships between small-scale fishers and the fishing industry. The government usually concentrates on subsidies for small-scale fishers and law enforcement issues.

In order to narrow the gap and to reduce sectoral rivalry between certain government agencies and regional governments, the DKP has established cooperation with relevant institutions, such as: the cooperation between the Department of Trade and the

DKP on Temporary Banning of Shrimp Imports,<sup>95</sup> the cooperation between the DKP with four Governors to develop Karimata Strait, and the cooperation between the DKP and the Ministry of Transmigration and Labour on the relocation of fishers to other islands.<sup>96</sup>

Apart from that, the government has established inter-departmental collaboration between six ministries (Agriculture, Forestry, Marine Affairs and Fisheries, Manpower and Transmigration, State Ministry for the Acceleration of Less-Developed Regions, and State Ministry for Cooperatives and Small and Medium-sized Enterprises) through a programme called the Integrated Economic Development Programme for Villages. This programme is based on agrobusiness in order to assist potential local players in establishing businesses in fishing, agriculture, and forestry-related industries.<sup>97</sup> It promotes the availability of micro-credits for small-scale fishers, technical assistance on post-harvest techniques, and relocation of fishers to more suitable areas. In theory, it promises to develop the livelihoods of small-scale fishers, but it does not always work in practice.

Since the DKP is a relatively new full governmental department, some of its programmes have to be supported by other governmental institutions. For example, for promoting soft loans or micro-credits for small-scale traditional fishers, the DKP cooperates with the Ministry of Finance and the banking sector. Without sufficient support from these institutions, the DKP would have difficulty implementing its programmes. In order to provide micro-credits, the DKP (through its *Pemberdayaan Ekonomi Masyarakat Pesisir (PEMP)* – Economic Empowerment for Coastal Communities programme) worked together with a bank to establish the *Bank Perkreditan Rakyat Pesisir (BPRP)* (the Credit Bank for

92 For information, see <http://pusdiklatkan.dkp.go.id/dkp/dkp.php?utk=jepe> (consulted: 11 May 2006).

93 See, for instance, The Nature Conservancy (TNC). May 2000. Progress report on the pelagic fisheries project. TNC, Coastal and Marine Program Indonesia.

94 PT Unilever in collaboration with the WWF launched a campaign on 'Healthy Seas, Healthy Food', to promote sustainable fisheries in Indonesia. See <http://www.wwf.or.id/index.php?fuseaction=news.detail&id=NWS1146712267&language=e> (consulted: 4 February 2008).

95 See Ministerial Decision of the DKP and Ministry of Trade No. Nomor:37/M-DAG/PER/12/2005, Nomor:SKB.05/MEN/2005 on Temporary Banning of Shrimp Imports (Tentang Larangan Sementara Impor Udang ke Wilayah R.I.).

96 For more information, see <http://www.dkp.go.id/index.php> (consulted: 25 January 2008).

97 Department of Marine Affairs and Fisheries. (2006). 'Percepatan Pembangunan Ekonomi Masyarakat Pedesaan Berbasis Agribisnis Industri Perikanan Terpadu Menjadi Pilihan' (Acceleration of People Economic Development through Integrated Agribusiness and Fisheries Industry for Villagers). Info Actual. Jakarta. Available at <http://www.dkp.go.id/content.php?c=2435> (consulted: 5 February 2008).

98 Saad, Sudirman. (2004). 'Masa Depan Nelayan Pasca UU Perikanan Baru' (The Future of Fishers Post the New Fisheries Act). INOVASI 24(2): 25-26.



Coastal Communities).<sup>98</sup> This programme has yielded some success after being supported by financial institutions and other government agencies. For example, it has been implemented in 247 districts/municipalities with more than 300 credit banks.<sup>99</sup>

In addition to the above programmes, the government in cooperation with the DKP, Coordinating Ministry for Economy, Ministry of Energy and Mineral Resources, and Director of National Oil Company (PERTAMINA) have agreed to subsidize fuel because current prices are too high for most traditional fishers.<sup>100</sup> However, this programme faces difficulties in its implementation because middlemen and black marketeers are interfering with the distribution. The DKP and PERTAMINA are also partially to blame for the failure of this programme because they only have a very limited number of fuel stations near fishing communities.<sup>101</sup>

Although these programmes have great potential and are well structured, they still face a lot of barriers at the implementation level. To date, there are still many complaints from traditional and modern fishers on fisheries governance at all levels. The licensing system, micro-credit scheme, and inter-departmental cooperation still require serious efforts in order to be fully implemented. Many of the promises made by the DKP and other government agencies to improve the livelihoods of fisher communities may take a long time to be fulfilled.

### ***b) Market organization***

The process of marketing fish involves several links in the chain, including: (i) fishers, (ii) small-scale middlemen, (iii) retailers, (iv) fish brokers, (v) wholesalers, and (vi) fish export and processing companies. Most small and traditional fisher villages usually sell their catches directly to consumers in the

local market. However, if their catch is relatively large, it is sold to an intermediary, and the intermediary will sell the fish to consumers. This practice is common throughout Indonesia. In that process, the fishers act independently because there is no organization to assist small-scale fishers with marketing, management, or distribution of information.<sup>102</sup> Their position in the market is weak and they have no control over the price they receive for their catch. This condition is also worsened by the lack of access to cold storage or ice, so they have to sell their fish below market price.

On the other hand, commercial fishers usually sell their catch to a broker or retailer in the cities where the demand for fish is high. Since they usually have cold-storage facilities or ice, they also buy fish from small-scale fishers. Commercial fishers usually have many options for selling their fish, depending on the species they catch. Certain species, such as skipjack, tuna, grouper (especially live ones), snapper and other valuable species are sold for export, while less valuable species are sold on the domestic market or to a processing company.

There is no government market intervention on price stabilization.<sup>103</sup> Government involvement is limited to establishing standards and mechanisms in the fish market. The government, for instance, encourages fishers to sell their catch at designated ports to enable quality control of the fish. In addition, the DKP ensures that all fish processing methods and the end products comply with sanitation and processing standards.<sup>104</sup>

The government also provides special fishing ports. These are divided into four categories: (i) *Pelabuhan Perikanan Samudra* (PPS), (ii) *Pelabuhan Perikanan Nusantara* (PPN), (iii) *Pelabuhan Perikanan Pantai* (PPP), and (iv) *Pangkalan Pendaratan Ikan*

99 DKP. 'Kiprah Pemberdayaan Masyarakat Pesisir' (Efforts for the Empowerment of Coastal Communities). DKP website at <http://www.dkp.go.id/content.php?c=1794> (consulted: 13 January 2008); see also Fauzi, *supra*, note 36, pp.81-83.

100 'BBM untuk Nelayan Disubsidi' (Fuel for Fishers Subsidized). KOMPAS Daily. 18 April 2006.

101 'Cukup Sudah Derita Ini' (Enough of this Suffering). KOMPAS Daily. 13 January 2003.

102 Compare with Novaczek, I., Harkes, I., Sopacua, J. and Tatuhey, M. (2001). *An Institutional Analysis of Sasi Laut in Maluku, Indonesia*, p.54. ICLARM-The WorldFish Center.

103 Interview with Dr M. Hawin (senior lecturer at the Faculty of Law, Gajah Mada University, Yogyakarta-Indonesia) 20 May 2006. The same views are also held by Dr Arif Satria in an email communication with the author, 21 May 2006. Dr Satria is a senior lecturer from Bogor Institute of Agriculture (IPB). See also Satria, Arif and Matsuda, Yoshiaki. (2004). 'Decentralization of Fisheries Management in Indonesia'. *Marine Policy* 28(5): 437.

104 Article 20, Fisheries Act.

(PPI). PPS are designated for fishing fleets with a capacity of more than 60 gross tonnage (GT), while PPN are for boats with a capacity of 15-60 GT, PPP for smaller vessels (5-15 GT), and the PPI are for those with less than five GT. So far, Indonesia has only six PPS, 13 PPN, 50 PPP and 598 PPI.<sup>105</sup> This is not enough because ideally every province should have at least one PPS.

These ports are all trading centres for fish, but only the PPS has complete facilities such as cold storage and fish processing units. The DKP in cooperation with the national radio and the Department of Trade regularly updates the public on the price of fish commodities in these ports through the radio and the DKP website.

The government sometimes takes the radical step of banning imports of certain commodities to protect local fishers, fish farmers and domestic prices. For instance, in 2004, the Department of Trade and the DKP issued the Ministerial Decree *No 05/M/Kep/XII/2004 tentang Larangan Impor Udang ke Wilayah RI* (Prohibition of Shrimp Imports).<sup>106</sup> This regulation, however, has been criticized by many parties who believe that it overprotects Indonesia's shrimp farmers and will eventually diminish their competitiveness on the global market. Internationally, this regulation has also triggered complaints from other exporting countries such as Thailand, Viet Nam and China.<sup>107</sup>

The DKP has helped several commercial fishing communities e.g., a number of fish processing units in Bali, East Java, North Sumatra and Makassar, to enhance their capacity to sell their fish on foreign markets, especially on the EU market, known for its strict requirements. As a result of this programme, the DKP has recommended 14 companies for exporting

to the EU market. At the same time, the DKP has cancelled the export licences of two companies because they did not comply with Indonesian regulations, especially concerning hygiene. The government also tries to assist Indonesian companies to achieve good quality control as specified by the ISO 17025. The DKP hopes that these initiatives will help Indonesian companies to access the EU and other foreign markets.

Another instrument promoting marketing is a government programme called the '*Gerakan Memasyarakatkan Makan Ikan* (GEMARIKAN)'. In this programme, the DKP encourages Indonesian people (especially those who live in Java) to eat more fish as a source of protein. This was triggered by the fact that most Javanese rarely include sea fish in their diet. The national average fish intake is only 23 kg *per capita* per year. This figure is low compared to other nations such as Japan with 100 kg and South Korea with 80 kg (*per capita* per year). The government hopes that with an increased demand for fish, the fishermen (especially traditional fishers) will have more opportunities to increase their income.<sup>108</sup>

The government also plans to establish several *Pasar Ikan Higienis* (Hygienic Fish Markets). This initiative aims to change the association in people's minds of fish markets with dirt and bad smells. The proposed markets will have three levels and a modern design. The first level will sell fresh and frozen fish while the second level will sell processed fish products. Level three will house fine seafood restaurants, targeting the more affluent part of society. The government hopes that these *pasar ikan higienis* will tempt people to come and buy fish.<sup>109</sup> Unfortunately, the only one so far is still under construction, in Jakarta. The drawback is that the slightly higher prices in such markets might make them too expensive for the general public.

105 See DKP website at [http://www.pipp.dkp.go.id/pipp2/pelabuhan\\_index.html](http://www.pipp.dkp.go.id/pipp2/pelabuhan_index.html) (consulted: 12 May 2006).

106 'Pengusaha Dalam Negeri Setuju Larangan Impor Udang' (Domestic Companies Agree on Shrimp Import Restriction). Koran TEMPO. 2 January 2006.

107 See 'SK Larangan Import Segera Dicabut' (Import Ban will be lifted). KOMPAS Daily. 28 January 2005).

108 Speech of the Minister of Fisheries and Marine Affairs on the Launching of GEMARIKAN Program, Jakarta, April 2004.

109 Ibid.

#### 4. Instruments of fisheries management

After the enactment of the *Fisheries Act* in 2004, this Act has become the main fisheries instrument in Indonesia. This Act repealed the *Undang-Undang No. 9/1985 tentang Perikanan* (the 1985 Fisheries Act) and the criminal sanction provisions of the *Undang-Undang No 3/1983 tentang Zona Ekonomi Eksklusif Indonesia* (the 1983 Indonesian Economic Exclusive Zone Act). The *Fisheries Act* consists of 17 chapters and 111 articles that cover: (i) fisheries management zones,<sup>110</sup> (ii) fisheries management,<sup>111</sup> (iii) fisheries industries,<sup>112</sup> (iv) an information system and fisheries statistics,<sup>113</sup> (v) taxes,<sup>114</sup> (vi) research and development,<sup>115</sup> (vii) education, training and dissemination of fisheries information,<sup>116</sup> (viii) enabling small-scale fish culture,<sup>117</sup> (ix) distribution of power from central to regional government,<sup>118</sup> (x) supervision,<sup>119</sup> (xi) a special court,<sup>120</sup> (xii) rules of procedures in the special court,<sup>121</sup> (xiii) criminal sanctions,<sup>122</sup> and (xiv) transitional provisions.<sup>123</sup>

This Act is unique compared to other Indonesian acts, because it not only contains a wide range of measures in fisheries management but it also has its own rules of procedure for implementation. The Act has even established a special court.

##### **a) Access and catch restrictions, technical measures**

The *Fisheries Act* introduced several mechanisms to control access, catch and technical measures. While other countries introduced catch quota schemes for fishers and even made those schemes tradable, a similar scheme does not apply in Indonesia. In relation to access, the *Fisheries Act* established several measures such as: licensing, catch limitations in certain zones, and protection of fish species in national marine parks.

However, due to a lack of scientific data, the DKP has not yet determined TACs in a systematic way, covering priority species and fishing areas. However, the government is planning to improve its policies in that direction.

According to Articles 26, 27 and 28 of the Fisheries Act, every commercial entity involved in fishing must have three kinds of licences: *Surat Izin Usaha Perikanan* (SIUP) or fishing business licence, *Surat Izin Penangkapan Ikan* (SIPI) or catching licence, and *Surat Izin Kapal Pengangkut Ikan* (SIKPI) or vessel licence. A business licence is given to an individual or legal entity whose activities involve both catching and processing. A catching licence is given to an individual or legal entity whose activity is limited to catching.

Artisanal fishermen do not need a fishing business licence but must have licences for catching and for operating a vessel.

Foreign fishing vessels need to have a catch and a vessel licence but not a business licence.

More detailed provisions on fishing licences can be found in the *Government Regulation No 54/2002 on Fisheries Business* (GR No 54/2002). This government regulation was established based on the old *Fisheries Act*, but is still valid.

Catching licences specify the allowed catching area, types of fishing gear, and vessel equipment. The licensee can only operate in pre-determined areas as specified in the licence. Unlike in other countries, a fishing licence in Indonesia is not based on the fish

110 Chapter III (Article 5) of the Fisheries Act.

111 Ibid., Chapter IV (Articles 6-24).

112 Ibid., Chapter V (Articles 25-45).

113 Ibid., Chapter VI (Article 46-47).

114 Ibid., Chapter VII (Articles 48-51).

115 Ibid., Chapter VIII (Articles 52-56).

116 Ibid., Chapter IX (Articles 57-59).

117 Ibid., Chapter X (Articles 60-64).

118 Ibid., Chapter XI (Article 65).

119 Ibid., Chapter XII (Articles 66-70).

120 Ibid., Chapter XIII (Article 71).

121 Ibid., Chapter XIV (Articles 72-83).

122 Ibid., Chapter XV (Articles 84-105).

123 Ibid., Chapter XVI (Articles 106-109).

species to be caught. This may be one of the weaknesses of the existing regime. However, since the law places several conditions on the type of fishing gear, the DKP assumes that this is sufficient to control the exploitation of particular species in particular zones. The licence is not transferable. A catching licence is given for a three-year period and can be renewed if the licensee has complied with the licence conditions.<sup>124</sup>

Under Article 15(1) of the GR No. 54/2002, the licensee has an obligation to comply with the licence conditions. The licensee is also required to produce biannual reports describing their activities to the DKP. In cases of failure to comply with such conditions, the catching licence can be revoked by the relevant authorities.

In the case of a catching licence operating beyond 12 nautical miles or involving a fishing fleet of more than 30 GT, the DKP has the power to grant and revoke the licence. For fishers operating between 4 to 12 nautical miles from the shore, the provincial governor has the power to grant and cancel their licences. District heads/mayors can grant and revoke licences for fishing within four miles from the shore.

There is no special appellate body to challenge the decision if the licensee does not agree with the decision of the regulator. However, the licensee can appeal to the general administrative courts to challenge the decision if they think that the decision of the regulator has no valid legal ground.

The catching licence can only be granted if the applicant has obtained a letter of approval for his/her fishing boat stating that the boat fulfils all the technical requirements determined by the DKP. The *Fisheries Act* even goes further by requiring a licence for persons intending to build, import or modify a fishing boat.<sup>125</sup> This strict condition might have been driven by the fact that most Indonesian fishing fleets are in very poor

condition. Although the intention of this provision is good, it is scarcely implemented because the DKP has no power to supervise the vessel industry and the import of fishing vessels into Indonesia.

Another important aspect of the GR No. 54/2002 is the possibility to reduce the number of granted licences and revoke licences if the government thinks that the fishing fleets are depleting fish stocks to unsustainable levels.<sup>126</sup> However, the implementation of this provision has never been seriously enforced by the DKP.

The process of obtaining a fishing licence requires at least 10 steps from the lodging of the application to final approval. The whole process is conducted and assessed by the *Ditjen Perikanan Tangkap* (Directorate General of Capture Fisheries).

The *Fisheries Act* prohibits foreign fleets from fishing within Indonesia's territorial sea.<sup>127</sup> However, foreign fleets are allowed to fish in the EEZ, provided they have a valid Indonesian licence for catching and for their vessels.<sup>128</sup> If they are operating as a business from Indonesian territory, they also need a fishing business licence. The licence conditions for foreign businesses have to be negotiated by the government of Indonesia and the government of the flag state of the ship.<sup>129</sup>

In addition to access regulations, the *Fisheries Act* also prohibits certain activities and the use of certain equipment that are considered not environmentally sound. Article 8, for instance, prohibits catching methods that use chemicals, explosives or other equipment that could endanger the sustainability of fisheries resources or the environment. Furthermore, it is forbidden to own, carry or use fishing gear that does not comply with the size or standards determined by legislation.<sup>130</sup> The *Fisheries Act*, however, does not specify the size or standard of vessel and fishing gear

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124 GR No. 54/2002, Article 8(2)a.

125 Article 35(1) of the Fisheries Act.

126 GR No. 54/2002, Article 12.

127 Article 29 of the Fisheries Act.

128 Ibid., Articles 27 sec. 2 and 28.

129 Ibid., Article 30.

130 Ibid., Article 9.

to be prohibited. This is to be elaborated in government regulations or ministerial decrees. Unfortunately, such subsidiary legislation has not yet been promulgated by the government.

The *Fisheries Act* requires the government to undertake activities and programmes aimed at the conservation of fisheries resources on a regular basis. The Act also requires the government to participate in international and regional cooperation on fisheries management.<sup>131</sup>

The *Fisheries Act* also imposes standards on the fish processing industry. The processing industries have to obtain a Quality Control Certificate from the government before they commence operation.<sup>132</sup> The Act also requires every person involved in the export and import of fish products to obtain a health certificate, before export or import is carried out.<sup>133</sup>

Furthermore, the *Fisheries Act* restricts the breeding, the use of genetically modified fish, and the use of medicines if they endanger native fish resources or the environment.<sup>134</sup> In addition, this Act restricts the use of fish feed that could harm human health and the environment.<sup>135</sup> Once more, while the law refers to specifications in governmental regulation, these are still widely lacking.

Apart from the *Fisheries Act*, the Parliament recently enacted another act that has a serious impact on coastal fisheries management. This act is called *Undang-Undang No. 27/2007 tentang Pengelolaan Wilayah Pesisir dan Pulau-Pulau Kecil* (Law No.27/2007 regarding Coastal Zone and Small Island Management).<sup>136</sup> The main objective of this law is to create synergy between central, provincial and district governments for the establishment of strategic plans on coastal and small island management and development.<sup>137</sup>

Article 7 of this Act introduces four planning categories for the development of coastal zones and small islands: (i) strategic plans, (ii) zoning plans, (iii) management plans, and (iv) action plans. The Act clearly states that the government should cooperate in establishing these planning categories and should integrated them into their long-term development policy.

These articles seem to be in line with the *Fisheries Act*, but some of the Act's provisions create a new dimension for coastal fisheries because it recognizes the rights of individuals or Indonesian companies to have *hak pengusahaan perairan pesisir* (management rights over coastal waters and the seabed). This has created tension among coastal people because they are afraid of losing their privileges over the use of their coastal zones. In addition, since this right can be granted to the beneficiary for 20 years, this law may create injustices toward coastal communities as they may not be able to compete with wealthy individuals or companies. Therefore, the author submits that the government should consider these implications before promulgating Regulations implementing the new Act.

While the Act has several weaknesses, it has several good provisions on environmental management. For example, Articles 21 and 22 clearly state that environmental considerations must be taken into account when the government establishes coastal zone strategic plans. In addition, government should take into account the results of public consultation before granting management rights to a particular individual or company.

#### ***b) Traditional rules and modern regulation***

Apart from the *Fisheries Act*, the *hukum adat* (customary law) or traditional wisdom in certain islands still plays an important role in fisheries management and access to fish resources. One of the most important

131 Ibid., Article 10.

132 Ibid., Article 20.

133 Ibid., Article 21.

134 Ibid., Article 12(2)-(4).

135 Ibid., Article 23(1)

136 State Gazette, 2007 No. 64.

137 See Law No.27/2007 regarding Coastal Zone and Small Island Management, Articles 4, 5 and 6.



*hukum adat* on fisheries management is called *sasi laut*. *Sasi laut* is a broad set of rules and regulations that govern resource use.<sup>138</sup> *Sasi laut* can also be referred to as a traditional resource management institution, even though it has other functions and its focus has changed through time.<sup>139</sup> *Sasi laut* is only practiced in Maluku in the eastern part of Indonesia.

With regard to access, *sasi laut* introduces certain regulations on *sasi* governed areas, activities that are permitted in those areas, and seasonal rules of entry and harvest. It also regulates the use of poisonous plants, destructive nets and gears such as *bagan* (lift net) and other aspects of fisheries. In the past, *sasi laut* was strictly followed by the community, since it was enforced by a traditional institution called *kewang* (traditional police). Members of *kewang* are elected by the community based on *adat* law. However, the role of *sasi laut* in fisheries management has become less significant nowadays<sup>140</sup> because the *Fisheries Act* does not specifically recognize the existence of such laws. As a result, the significance of *sasi laut* as a management tool has been reduced by the *Fisheries Act*.

A similar practice can also be found in other islands such as in Sumatra<sup>141</sup> and in Sulawesi, especially in relation to freshwater fish. Their role has also been marginalized by formal legislation. *Hukum adat*, however, can still be used to manage fisheries resources at the rural and village level because the sense of 'community' in these areas is still strong.

As a management tool, *sasi laut* has very limited rules as it only regulates the fishing season, protected areas, species protection and gear used. Traditionally, *sasi laut* does not address issues of marketing fish or micro-credits for the empowerment of small-scale fishers.

In the past, breach of *sasi laut* could bring traditional sanctions to the offender, such as exclusion

from the community and participation in village affairs. However, such sanctions these days have a very limited deterrent effect on people, as the *kewang* has no full authority to enforce the *sasi laut* anymore. The authority of the *kewang* has been gradually diminished by the formal government apparatus.

However, *sasi laut* can still be used to complement formal legislation because many villages in Maluku still regard *sasi laut* as the main regulation of fish resources. The government can also use various *hukum adat* institutions to convey the 'message of development' because they are close to the heart of the society. Since the core objective of *sasi laut* and the *Fisheries Act* is similar, they can be used as complementary measures to protect stocks.

### c) *Control and enforcement measures*

One of the main weaknesses of fisheries management in Indonesia is the lack of implementation and enforcement. Similar problems are found in offshore fisheries because the same authorities are also responsible for the control and enforcement of offshore fisheries policies and regulations. Since EEZ fisheries involve a more sophisticated administrative process, larger vessels and more advanced fishing gear and cover a wider range of fishing zones, enforcement measures need special efforts in the EEZ.

Government institutions that have the power to enforce the *Fisheries Act* and its subsidiary legislation are the DKP, provincial and district governments, the police and the navy.

In order to enhance the level of enforceability and coordination among government agencies, the *Fisheries Act* introduced its own specific rules of procedure and a special court to deal with fisheries cases. In its rules of procedure, the Act states that the powers to investigate fisheries-related cases lie with: (i) DKP civil service investigators, (ii) naval officers, and (iii) the

138 Harkes, I. (1999). 'An Institutional Analysis of Sasi Laut: A Fisheries Management System in Indonesia'. Paper presented at the International Workshop on Fisheries Co-management, 23-28 August, Penang, Malaysia.

139 Zerner, C. (1994). 'Through a Green Lens: The Construction of Customary Environmental Law and Community in Indonesia's Maluku Island'. *Law and Society Review* 28(5): 1079.

140 For a more comprehensive account of *sasi laut*, see Harkes, *supra*, note 138.

141 See Indah, Susilowati. (1999). 'An Analysis of Co-Management Fisheries in West Sumatra Province, Indonesia: A Case Study of Ikan Larangan'. Proceedings of the International Workshop on Fisheries Co-Management, 23-28 August 1999, Penang, Malaysia.



general police.<sup>142</sup> In the past, criminal cases were only investigated by the police and the navy. The introduction of the civil service investigator under the *Fisheries Act* was designed to remedy the lack of knowledge within the police and the navy on fisheries management matters.

In relation to the enforcement of the Act, especially on the infringement of criminal provisions, such as the use of illegal fishing methods and gear, arrest of foreign illegal fishers, the above government bodies have the full power for investigations. However, due to the limited capacity of the DKP to patrol the Indonesian sea, most enforcement measures are conducted by the navy and the police. The power of the DKP, the police, and the navy to investigate and to make an arrest is specified under Article 73 of the *Fisheries Act*. The Minister of the DKP can also coordinate the enforcement of the Act with the police and the navy.

Under Article 73(4), the DKP investigator, the police, and the navy have the power to investigate, to arrest, and to confiscate documents and vessels as evidence. For the purposes of investigation they can take a person into custody for up to 20 days. Once the investigation is completed, a report is provided to the public prosecutor for formal prosecution. Formal prosecution is conducted as in any other criminal case and brought to the general court.

The DKP has developed a strategic plan to improve the level of enforcement, which includes: (i) intensifying coordinated patrols between the DKP, navy, air force and police in nine vulnerable areas; (ii) building international cooperation, especially with ASEAN countries to conduct coordinated patrols; (iii) developing fisheries supervision agencies in Bitung, Tual, Pontianak, Belawan and Jakarta; (iv) establishing five special fisheries courts in Belawan, Jakarta, Pontianak, Bitung and Tual; (v) prosecuting government officials involved in illegal fishing; (vi)

capacity building amongst those involved in fisheries management; and (vii) developing networks of people to oversee the enforcement of fisheries legislation.<sup>143</sup>

It is also important to recognize that in the last five years, the Indonesian government has developed certain mechanisms to supervise the implementation of offshore fisheries legislation. The DKP in cooperation with the police and the navy has regularly conducted coordinated patrols in targeted fishing zones. The main objective of these patrols is to catch illegal foreign fishers within Indonesian waters and at the same time to try to detect any Indonesian fishers that may be using illegal gear or fishing outside their designated fishing zones. For example, in May 2007 a DKP patrol boat successfully caught four Vietnamese boats fishing in Indonesian fishing zones with 135 crew members. In total, from January-June 2007, DKP patrol boats caught 618 fishing boats and successfully brought 69 boats to justice. Among those 69 boats were 36 foreign fishing boats. Unfortunately, the DKP only has 20 patrol boats to guard the entire coastline and EEZ of Indonesia.<sup>144</sup> This makes coordinated patrols with the police and the navy essential.

Another instrument used by the Indonesian government is the application of transmitters and Vessel Monitoring Systems (VMS) in order to intensify control and enforcement measures on commercial fishers. For example, since 2003 the DKP has donated and installed VMS on 1,500 vessels with a capacity of more than 100 GT. The VMS is a tool to monitor the movement of vessels in the ocean. If the equipment is activated, the DKP can track the movement of the vessel so as to determine whether a particular vessel is fishing within its licence zone or not. However, only 50% of these vessels activate their VMS. Most fishing operators are reluctant to buy and activate VMS because it will cost them extra money. One VMS costs around US\$ 1,200 to US\$ 1,600. This additional cost makes most fishing operators reluctant to install it on their fishing fleets.

142 Article 73 of the Fisheries Act.

143 DKP. (2005). 'Langkah Strategis Penanggulangan Illegal Fishing' (Strategic Planning for the Prevention of Illegal Fishing). DKP National Workshop. Available at <http://www.dkp.go.id/content.php?c=1985> (consulted: 5 February 2008).

144 'DKP Tangkap 4 Kapal Vietnam' (DKP Catches 4 Vietnamese Boats). KOMPAS. 7 June 2007.

According to the latest DKP report, 729 VMS have been installed and activated by commercial fishing vessels at their own initiative. The DKP hoped that by the end of 2007, about 70-80% of fishing vessels with 100 GT would have VMS equipment, and by the end of 2008, all fishing vessels with 100 GT and more would have installed their own VMS, so that the DKP could remove their donated VMS and reinstall them on smaller vessels.<sup>145</sup>

In order to make VMS compulsory for all foreign vessels operating in the EEZ and for Indonesian vessels with a capacity of more than 60 GT, the DKP established a regulation called *Peraturan DKP Nomor PER 05/MEN/2007 tentang Penyelenggaraan Sistem Pemantauan Kapal Perikanan (DKP Regulation Number PER 05/MEN/2007 on the Vessel Monitoring System)*. This regulation explicitly states that every fishing vessel

with a capacity of more than 60 GT shall install and activate VMS on their vessel. The contravention of this rule is sanctioned under Article 100 of the *Fisheries Act*.<sup>146</sup>

These control measures should be sufficient to deter illegal and unregulated fishing, but the level of enforcement is still far from perfect. According to some analysts, there are at least five factors that hinder the enforcement of fisheries legislation: (i) the lack of personnel to supervise the implementation of the legislation, (ii) the lack of supporting facilities for civil service investigators, the police, and the navy to patrol and investigate illegal, unreported and unregulated (IUU) fishing, (iii) the lack of knowledge and skill of law enforcers to carry out their jobs, (iv) acute corrupt practices among law enforcers, and (v) sectoral rivalry among government departments at the national level.

### III. The impact of and coherence with international agreements and organizations

#### 1. Fisheries management

As a member of the international community, Indonesia is bound by several international treaties on fisheries and marine resources. However, Indonesia is only a party to 'general conventions' such as the *United Nations Convention on the Law of the Sea* (UNCLOS).<sup>147</sup> Indonesia has not ratified the following 'specific conventions': (i) *Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas*;<sup>148</sup> (ii) *Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks*.<sup>149</sup>

##### a) UNCLOS

###### i) Coastal zone and archipelagic waters

Since Indonesia is only bound by UNCLOS which has very limited provisions on fisheries management in coastal zones and archipelagic waters, Indonesia's responsibility is limited to general responsibilities. Several provisions that may have important implications for fisheries management are stated in Part XII, which calls upon member states to: (i) protect and preserve its marine environment;<sup>150</sup> (ii) prevent, reduce and control pollution of the marine environment from any source, in accordance to its capabilities;<sup>151</sup> (iii) not to transfer, directly or indirectly, damage or hazards from one area to another or

145 'DKP Laksanakan Pemasangan Alat VMS bagi Kapal Ikan' (DKP Installing VMS Equipment in Fishing Boats). ANTARA News Agency. 7 August 2007.

146 DKP Regulation Number PER 05/MEN/2007 on the System of Fishing Vessel Observation, Article 24(1).

147 (1982) 21 International Legal Materials 1261. Indonesia ratifies UNCLOS on 3 February 1986.

148 (1994) 33 International Legal Materials 968.

149 (1995) 34 International Legal Materials 1542.

150 UNCLOS, Article 192.

151 Ibid., Article 194.

transform one type of pollution into another;<sup>152</sup> and (iv) cooperate on a global and regional basis to formulate international rules and standards.<sup>153</sup>

Apart from the above general responsibilities, Indonesia, being a sovereign nation, has full sovereignty to engage in fishing activities within the territorial sea or coastal zone.<sup>154</sup> The above obligations can be used to hold Indonesia responsible if fishing methods used in its territorial sea cause marine pollution or environmental damage to other countries. However, the core problem of fisheries – overfishing – is not tackled by UNCLOS.

#### ii) EEZ

Part V of UNCLOS establishes several important rules that have implications for off-shore fisheries. The coastal state has sovereign rights of exploitation but is also bound to ensure sustainability. The state is required to determine the TAC. If the state does not have the capacity to harvest the entire allowable catch, it shall, through agreements, give other states access to the surplus.<sup>155</sup> UNCLOS also provides basic rules on highly migratory species,<sup>156</sup> marine mammals,<sup>157</sup> restriction on transfer of rights,<sup>158</sup> and enforcement of laws and regulations of the coastal states.<sup>159</sup>

It is justifiable to say that UNCLOS has significantly influenced fisheries management regimes in Indonesia. One obvious example of the impact of UNCLOS on Indonesia is the enactment of the *Law No. 5/1983 on Indonesian Exclusive Economic Zone*. This Act declares an Indonesian EEZ and fixes its geographical limits. It goes on to specify the rights and duties of the Indonesian government concerning the EEZ with Part V of UNCLOS in mind.

#### b) CBD

As a party to the *United Nations Convention on Biological Diversity* (CBD),<sup>160</sup> Indonesia is also responsible for preserving its marine environment. Since the CBD is not directed specifically towards fishing activities, Indonesia's responsibility under the Convention follows the general requirements of the Convention such as to:<sup>161</sup>

- (a) Integrate consideration of the conservation and sustainable use of biological resources into national decision-making;
- (b) Adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biological diversity;
- (c) Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements;
- (d) Support local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced; and
- (e) Encourage cooperation between its governmental authorities and its private sector in developing methods for sustainable use of biological resources.

On the whole the obligations imposed by UNCLOS and the CBD are too general to be used as a precise standard by the Indonesian government for developing national policies and legislation on fisheries.

152 Ibid., Article 195.

153 Ibid., Article 197.

154 For more explanation, see de Yturriaga, J.A. (1997). *The International Regime of Fisheries: From UNCLOS to the Presential Sea*, pp.99-103. The Hague: Martinus Nijhoff.

155 UNCLOS, Article 62(1) and (2).

156 Ibid., Article 64.

157 Ibid., Article 65.

158 Ibid., Article 72.

159 Ibid., Article 73.

160 (1992) 31 *International Legal Materials* 818.

161 CBD, Article 10.

### c) *FAO Code of Conduct*

The 1995 *FAO Code of Conduct on Responsible Fisheries* is more specific than UNCLOS and CBD. It employs a voluntary approach but incorporates some elements of binding international agreements such as UNCLOS, the *Compliance Agreement* and the *Straddling Stock Agreement*. The *FAO Code* covers all fisheries activities including those within a coastal state's territorial waters or EEZ as well as those on the high seas.<sup>162</sup> The *FAO Code*, however, suffers from being too broad and too vague, as can be seen in the following provision.

*States should prevent overfishing and excess fishing capacity and should implement management measures to ensure that fishing effort is commensurate with the productive capacity of the fisheries resources and their sustainable utilization. States should take measures to rehabilitate populations as far as possible and when appropriate.*<sup>163</sup>

That particular provision is left undefined and difficult to understand as there is no exact explanation on how states may implement these measures, by what means states should prevent overfishing, and what in fact constitutes overfishing. These loose provisions may create problems at the implementation level because every state can interpret it differently based on their national interests and needs.

In spite of its vagueness, the *FAO Code* has a major impact on Indonesian national policies and legislation on coastal and off-shore fisheries. As demonstrated in several provisions of the *Fisheries Act* discussed in coastal fisheries, Indonesia has incorporated several management instruments derived from the *FAO Code* in its national legislation and policy. In fact, the *FAO Code* has become the jargon of the Indonesian government in disseminating the message of responsible fisheries since the establishment of the DKP.

### d) *CCSBT*

An important international organization for the region is the *Commission for the Conservation of Southern Bluefin Tuna* (CCSBT). The establishment of this organization was triggered by the fact that Southern Bluefin Tuna (SBT) was being heavily exploited. In the early 1960s, the annual catch of SBT was about 80,000 tonnes and continued to decline due to the significant decline of mature fish. In the 1980s, several countries that were heavily involved in SBT fishing realized that without proper management, the SBT would be in danger.<sup>164</sup> As a result, Japan, Australia and New Zealand initiated the establishment of a special convention for the conservation of SBT called the 1993 *Convention for the Conservation of Southern Bluefin Tuna* (hereinafter SBT Convention).<sup>165</sup>

The main objective of the *SBT Convention* is “to ensure, through appropriate management, the conservation and optimum utilization of southern blue fin tuna”.<sup>166</sup> The Convention also provides several measures to ensure sufficient protection of SBT by asking its member states to exchange scientific information and other relevant data that are considered important for conservation purposes.<sup>167</sup>

While the objectives of the *SBT Convention* are important for the conservation of SBT, the convention may not be sufficient to protect SBT in general because several principal nations that are involved in SBT fishing such as Indonesia, Philippines and Taiwan are not Parties to the *SBT Convention*. The Republic of Korea, one of the main fishing nations, only joined the Commission on 17 October 2001. As a result, the effectiveness of the Convention is limited.

In order to maximize its effectiveness, the *SBT Convention* opens up the possibility for non-member states to be actively involved in the management of

162 For a general discussion of the *FAO Code*, see Edeson, W.R. (1996). ‘The Code of Conduct for Responsible Fisheries: An Introduction’. *International Journal of Marine and Coastal Law* 11: 233.

163 *FAO Code of Conduct for Responsible Fisheries*, Article 6(2).

164 See official website of CCSBT at <http://www.ccsbt.org/docs/about.html> (consulted: 4 February 2008).

165 Full text of the SBT Convention available online at [http://www.ccsbt.org/docs/pdf/about\\_the\\_commission/convention.pdf](http://www.ccsbt.org/docs/pdf/about_the_commission/convention.pdf). This Convention entered into force on 20 May 1994 (consulted: 5 February 2008).

166 *Ibid.*, Article 3.

167 *Ibid.*, Article 5.

SBT, although without voting rights. In its 2003 meeting, for instance, the Commission of the Convention invited cooperating non-members like South Africa, the Philippines and the EU to participate in the business of the *SBT Convention*. Indonesia, however, has never formally lodged its application as cooperative non-member of the *SBT Convention*.<sup>168</sup>

Since Indonesia is not a member to the *SBT Convention*, the influence of the Convention on policy formulation in Indonesia is limited. However, being one of the main producers of SBT, Indonesia should seriously consider its involvement in the Convention as it will benefit Indonesia in the long run.

## 2. International trade agreements

As a member of the World Trade Organization (WTO), Indonesia is bound by WTO rules.

Certain practices relating to shrimp products, such as an import ban on shrimp, except for shrimp seeds, from Thailand and Viet Nam have been criticized as contradicting WTO rules. In defending its position, the government argues that the Indonesian import ban of shrimp is based on health considerations because heavy doses of antibiotics are applied during shrimp raising.

Indonesian policy and legislation on promoting fisheries and fisheries-related products can also be considered consistent with international trade agreements. Indonesia has never been involved in a dispute with other countries over fish or fish-related

In conclusion, Indonesia's *Fisheries Act* and other national policies on fisheries have, to some extent, followed a modern approach as required by some of the international treaties and standards. As discussed above, certain requirements in catch and access restrictions and other technical measures are adopted from widely accepted international practices. It is fair to say that at the legislation and policy level, Indonesia has complied with pertinent international conventions. However, serious deficits remain at the level of setting specific standards and enforcement.

products. Nonetheless, policies on subsidies for artisanal fishers and coastal communities may be challenged as not being in line with WTO rules.

To avoid possible criticism from WTO members, in the WTO Negotiation Group on Rules held in Geneva in July 2007, the Indonesian delegation proposed several exemptions from fisheries subsidies, especially for artisanal and small-scale fishermen. According to this proposal, artisanal and small-scale fishing should receive special and differential treatment. These exemptions should be made conditional on there being no present or future detrimental effect on fisheries resources. Financial assistance to improve food safety and food security should also be allowed. Assistance that would encourage IUU fishing and market distortions, however, should not be allowed.<sup>169</sup>

## 3. Fisheries organizations promoting fisheries

Apart from global fisheries instruments, several regional fisheries organizations play a role in shaping regional and national offshore fisheries regimes. Indonesia, as one of the global players on fisheries, is also affected by regional fisheries organizations. In fact, under the

*Fisheries Act*, the government has an obligation to play an active role in regional and international fisheries organizations.<sup>170</sup> Among others, the following organizations have a significant impact on Indonesian fisheries policies.

168 Supra, note 164.

169 WTO. 'Fisheries Subsidies: Proposed New Discipline-Proposal from the Republic of Indonesia#'. Available online at [http://www.oceana.org/fileadmin/oceana/uploads/WTO\\_Documents/TN.RL.GEN.150\\_INDONESIA\\_2\\_JULY\\_2007.doc](http://www.oceana.org/fileadmin/oceana/uploads/WTO_Documents/TN.RL.GEN.150_INDONESIA_2_JULY_2007.doc) (consulted: 5 February 2008).

170 Fisheries Act, Article 10(2).



Indonesia is a member of the *1985 Agreement for the Establishment of the Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fisheries Products in the Asia and Pacific Region* (INFOFISH).<sup>171</sup> The main objectives of this agreement are to help member states in the region to develop their fisheries resources in accordance with market demand, to modernize and to contribute to a more balanced supply and demand of fish products, and to maximize export opportunities within and outside the region.<sup>172</sup>

The Southeast Asian Fisheries Development Center (SEAFDEC) is an autonomous inter-governmental body established as a regional treaty organization in 1967 for the promotion of fisheries development in Southeast Asia. The main objective of this organization is:

*to contribute to the promotion of the fisheries development in Southeast Asia by mutual cooperation among the member governments of the Centre ... and through collaboration with international organizations and governments external to the Centre.*<sup>173</sup>

In order to achieve these objectives, the SEAFDEC is actively involved in training staff from member states on fisheries technology, marine engineering, post-harvest technology, and aquaculture. The Center also conducts research on fishing gear technologies and fishing ground surveys. Another important function of the Center is facilitating the transfer of technology to member states in the region.<sup>174</sup>

Another important regional organization that contributes to the development of fisheries policies is the Asia-Pacific Fishery Commission (APFIC). This

organization was established by the FAO in 1948 under Article XIV of its constitution. APFIC is one of the oldest regional fisheries bodies.<sup>175</sup> This organization also represents the biggest producers of fisheries and aquaculture in the world because it has 20 member states, including Indonesia.<sup>176</sup>

As a consultative forum, APFIC works in partnership with other regional organizations, arrangements and members. It provides advice, coordinates activities, and acts as a clearing house to increase knowledge on fisheries and aquaculture in the Asian-Pacific region. APFIC aims 'to promote the full and proper utilization of living aquatic resources by the development and management of fishing and culture operations by the development of related processing and marketing activities in conformity with the objectives of its members'.<sup>177</sup>

In relation to the development of fisheries policies in the Asian-Pacific region, APFIC has successfully initiated several programmes which can be divided into four stages:<sup>178</sup>

- (i) Early development (1948-1962). During this period, it concentrated on the promotion of fisheries research development in its member States.
- (ii) Action-oriented period (1962-1980). In this period, the Commission concentrated on practical features of fishing industries and fisheries planning issues;
- (iii) EEZ programme period (1980-1990). During this period, the Commission's major efforts were directed towards developing regional and inter-regional programmes aimed at assisting

171 Full text of the INFOFISH Agreement available at <http://www.fao.org/legal/TREATIES/020t-e.htm> (consulted: 5 February 2008).

172 Ibid., Article 3.

173 Full text of the 1967 Agreement Establishing the Southeast Asian Fisheries Development Center (SEAFDEC Agreement) available at <http://iea.uoregon.edu/texts/1967-SoutheastAsianFisheriesDevelopmentCenter.EN.htm> (consulted: 9 February 2009). See Article 1.

174 Ibid., Article 2.

175 For more information, see APFIC official website at <http://www.apfic.org/> (consulted: 15 February 2008).

176 Member States of APFIC are: Australia, Bangladesh, Cambodia, PR China, France, India, Indonesia, Japan, RO Korea, Malaysia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Socialist Republic of Viet Nam, Sri Lanka, Thailand, United Kingdom, United States of America.

177 Supra, note 175.

178 Deb, Menasveta. (2000). APFIC: Its Changing Role, pp.75-77. Bangkok: APFIC Secretariat.



its member States to achieve self-reliance in the development and management of fisheries in their EEZ; and

- (iv) In the last decade, efforts have been directed towards assisting member States in achieving sustainable fisheries development by promoting responsible fisheries and aquaculture practices.

Apart from the above activities, APFIC also focuses its efforts on the following activities: (i) policy documentation of its member States; (ii) code of

conduct of responsible fisheries; (iii) trade, certification and food safety; (iv) statistics, trend, and information; (iv) regional issues on fisheries and aquaculture; and (vi) maintaining a close relationship with the FAO Department of Fisheries and Aquaculture.

A positive contributions of APFIC to Indonesia is the development of the *Strategic Planning for Development of Marine and Fisheries Affairs From 2005-2009*,<sup>179</sup> assisting the Indonesian government in rebuilding the fisheries sector after the tsunami disaster in Aceh in 2004.<sup>180</sup>

## IV. Special provisions of fisheries governance for the Exclusive Economic Zone

### 1. Management tools

The *Fisheries Act* serves as an umbrella act covering all Indonesian seas, including the EEZ.<sup>181</sup> As already noted, the EEZ boundary is specifically regulated under the *Law No. 5/1983 on Indonesian Economic Exclusive Zone* (hereinafter *IEEZ Act*). The *IEEZ Act* contains nine chapters and 21 articles. The provisions that have relevance for fisheries management are Articles 4-8. Article 4 lays down the sovereign rights and duties of the Indonesian government in the IEEZ. For example, the Indonesian government has the right to explore and exploit natural resources within its EEZ, but at the same time has duties to protect and conserve its environment.<sup>182</sup> In addition, other states may explore and exploit the IEEZ, but they have to obtain the permission from the Indonesian government and make sure that their operation will not harm the environment of the EEZ.<sup>183</sup>

In relation to fisheries operations in the EEZ, the Act states that:

*...exploration and exploitation of natural resources of the Indonesian EEZ ... by any person or legal entity or government of other States are allowed if*

*the utilization of such resources is beyond the capacity of the Indonesian people and government.*<sup>184</sup>

The *Fisheries Act* states that foreign fishing boats with no proper licence should store their fishing gear inside their ship if they are within Indonesian fishing zones. Similarly, foreign fishing fleets with a proper licence should only use one type of fishing gear and refrain from using others. They should also operate only in the particular fishing zone specified in their licence.<sup>185</sup> Detailed requirements for fishing fleets operating in the IEEZ are regulated under specific ministerial regulations and will be discussed in detail below.

Although there is no specific act governing EEZ fisheries, detailed requirements for fishing fleets operating in the EEZ are regulated under the *Peraturan Menteri Kelautan dan Perikanan No. PER.17/MEN/2006 tentang Usaha Perikanan Tangkap (Regulation of Minister of Marine Affairs and Fisheries No. PER. 17/ Men/2006 on Capture Fish Business* (hereinafter *CFB Regulation*).<sup>186</sup> This regulation aims to specify fisheries management (coastal and offshore) in general but has specific impacts on EEZ fisheries because industrial

179 The summary of the Strategy is available at <http://www.apfic.org/modules/xfsection/article.php?articleid=29> (consulted: 5 February 2008).

180 For more information, see <http://www.apfic.org/modules/mylinks/viewcat.php?cid=9> (consulted: 5 February 2008).

181 Fisheries Act, Article 5(1).

182 IEEZ Act, Article 4(1).

183 Ibid., Article 5(1) and (2).

184 Ibid., Article 5(3).

185 Fisheries Act, Article 38 (1) and (2).

186 Full text of CFB Regulation can be obtained from the Office of the Ministry of Marine Affairs and Fisheries, Jakarta.

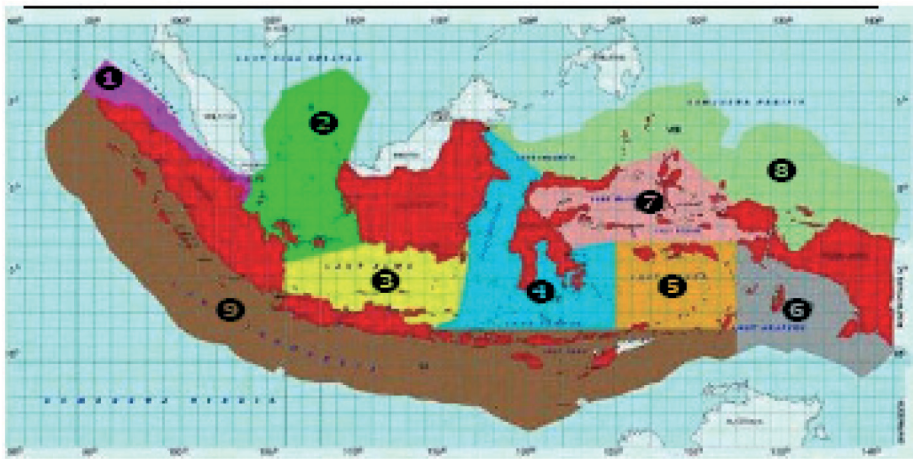
fishing companies mostly operate in the EEZ and because the regulation introduces special conditions for foreign fishing fleets operating in the EEZ. Since all requirements for Indonesian fishing fleets are still the same and have been discussed earlier, the following section will only discuss the offshore fisheries aspect of the regulation.

The main objectives of this regulation are to explain the provisions and to give full effect to the *Fisheries Act*. Another important feature of this regulation is its explicit statement that fisheries management in Indonesia has to consider the *Straddling Fish Stock Agreement* and the *Code of Conduct for Responsible Fisheries*.<sup>187</sup> This is also evidence of the positive influence of global fisheries agreements on Indonesian fisheries laws and policies.

The *CFB Regulation* is quite detailed by Indonesian standards as it has 83 Articles and 19 chapters. This regulation specifies nine fishing zones that can be used by domestic and foreign fishing fleets (see Figure 4). These zones are:<sup>188</sup>

- a. Malaka Strait (Fishing Zone 1);
- b. South China Sea, Karimata Strait and Natuna Sea (Fishing Zone 2);
- c. Java Sea and Sunda Strait (Fishing Zone 3);
- d. Flores Sea and Makassar Strait (Fishing Zone 4);
- e. Banda Sea (Fishing Zone 5);
- f. Arafura Sea, Aru Sea and Eastern Part of Timor Sea (Fishing Zone 6);
- g. Maluku Sea, Teluk Tomini Water and Seram Sea (Fishing Zone 7);
- h. Sulawesi Sea and Pacific Ocean (Fishing Zone 8); and
- i. Indian Ocean, Western part of Timor Sea, Bali Strait and Sewu Sea (Fishing Zone 9).

**Figure 4. Fishing zones**



*Source:* DKP, National Plan of Action (NPOA) for the Management of Fishing Capacity, Directorate of Fisheries Resources Directorate General of Capture Fisheries, 2006.

187 See the Consideration in the Preamble of the CFB Regulation.  
 188 CFB Regulation, Article 3(3).

These fishing zones are mostly located in the eastern part of Indonesia which is believed to be underexploited, compared to the western part. The establishment of these zones is also considered as a conservation measure as big fishing fleets can only operate in these predetermined locations. Article 5 of the *CFB Regulation*, for instance, states that for the purpose of fish conservation, a particular fishing zone can be closed by the government with a specific ministerial decree.<sup>189</sup>

In order to improve the efficiency of fishing management, this regulation obliges the Directorate General to give the applicant the Instruction to Pay (*Surat Perintah Pembayaran*) within 11 working days. Once the applicant pays the licence fee, the Directorate General shall grant the licence within five working days.<sup>190</sup> Another effort by the government to maximize efficiency when processing fishing licences is the introduction of 'bulk applications'. Under this scheme, a fishing company that owns fish transportation vessels can include the vessel licence in one fishing licence application.<sup>191</sup> It is important to note that all fishing licence applications require a physical examination before the government can grant the licence. In a physical examination, the applicant has to submit the ship's registration, seaworthiness certificate, a copy of the ship's design, fishing gear, and other physical evidence.<sup>192</sup>

As regards conservation measures, this regulation has no detailed provisions as it has been incorporated into the *Fisheries Act*. The *CFB Regulation* only concentrates on the management aspect of coastal and offshore fisheries. However, a few provisions indirectly touch on conservation measures. For example, the designation of nine fishing zones can be considered as a conservation measure because it prohibits commercial fishing in already overfished zones. Similarly, the

prohibition of several types of fishing gear such as trawl nets, and fishing methods such as use of explosives and poison, can also be considered a conservation measure. Lastly, the provision on the use of a VMS on every foreign vessel and Indonesian fishing vessels with more than 100 GT capacity can also be considered a conservation measure.<sup>193</sup>

It is also important to note that there is no rights-based management system in the EEZ fisheries. However, there are some fisher communities in the eastern part of Indonesia such as Timor, Buton and other islands that can fish in the EEZ and even travel into Australian waters.<sup>194</sup> Such practice is still recognized by the Australian government as documented under the *MoU regarding the Operations of Indonesian Traditional Fishers in Areas of the Australian Fishing Zone and Continental Shelf* in 1974.<sup>195</sup> This MoU recognizes the rights of access for traditional Indonesian fishers in the shared waters to the north of Australia. This access was granted in recognition of the long history of traditional Indonesian fishers that had been fishing the area.<sup>196</sup> This MoU also enables Indonesian traditional fishers to fish their target species such as *trepan*, *trochus*, Abalone and sponges.<sup>197</sup>

Such practice is not recognized by Indonesian law as rights-based management. In fact the Indonesian government has discouraged Indonesian fishers from fishing in Australian waters since it creates political tensions between the two countries due to shark finning. Under the 1989 interpretation of the Australian government of the MoU, not all traditional fishers can be classified as such because some of them use non-traditional boats and gear. Some of the boats even have inboard engines. This new interpretation has made some Indonesian traditional fishers lose their privileges under the 1974 MoU.<sup>198</sup>

189 Ibid., Article 5(1).

190 Ibid., Article 21.

191 Ibid., Article 23(2).

192 Ibid., Articles 35-37.

193 Ibid., Article 78(1) and (2).

194 See 'Authorities Swoop on Indonesian Fishers', Media Release of the Office of Senator Ian Macdonald, 6 July 2004.

195 Full text of the MoU available at <http://epress.anu.edu.au/apem/boats/html/frames.php> (consulted: 3 February 2008).

196 For more comprehensive information, see Stacey, N. (2007). *Boats to Burn: Bajo Fishing Activity in the Australian Fishing Zone*. Canberra: ANU E Press.

197 For more information and the development of this MoU, see the Department of Agriculture, Fisheries and Forestry of Australia at <http://www.daff.gov.au/fisheries/international/regional/indonesia> (consulted: 5 February 2008).

198 Stacey, *supra*, note 196, Chapter 5.

It is also important to understand that apart from licence fees, every commercial fishing company has to pay certain fees if they use services provided by the government. The amount is determined by the government based on the size of fishing fleets. These fees are considered as non-tax revenues and are specifically regulated under the *Government Regulation No. 62/2002 on Tariff and Types of Non-Tax Revenue of the Department of Fisheries and Marine Affairs* (hereinafter *GR. No. 62/2002*).<sup>199</sup> Under this regulation, a commercial fisher has to pay the following fees: fish levy, port services, fish quality control, quarantine, and rent of port facilities. An Indonesian fisher with more than 30 GT or more than a 90 horse power engine and operating outside 12 nautical miles is required to pay such fees. Similarly, every foreign fisher operating in the EEZ is subject to such fees. However, foreign fleets have to pay more than to Indonesian fishing fleets.<sup>200</sup>

Another restriction imposed by the Indonesian government on EEZ fisheries is similar to the one imposed on coastal fisheries. The use of the following types of fishing gear and methods is prohibited: trawl, shrimp and fishing nets operated by two boats; chemicals, explosives, poison and electricity.<sup>201</sup> In addition, the Indonesian government has also established several guidelines for commercial fishing boats. For example, every fishing boat operating in the EEZ must have a seaworthiness certificate, and its size, engine, fishing gear and supporting gear, crew, etc. should fulfil all the administrative requirements established by the government.<sup>202</sup>

Another management instrument that is recognized by the *Fisheries Act* is the establishment of TACs. Unfortunately, up to now the DKP has not set TACs for coastal and EEZ fisheries. This instrument

has not been fully utilized for managing the fisheries industry in Indonesia. For instance, Indonesia has no national TAC for SBT and other important species. The Indonesian TAC for SBT is determined by the CCSBT because Indonesia is classified as a cooperating non-member and observer of the CCSBT. Under this mechanism, the CCSBT allocates a 750-tonne TAC for Indonesia per year for the period of 2009-2011.<sup>203</sup>

The main reason for this is that the Indonesian government does not have sufficient scientific data and information on the state of its fish resources, especially in the EEZ. It is unfortunate that this important instrument is not used as the main management tool to develop and manage Indonesian fisheries. Therefore, it is important for the DKP to maximize their efforts in order to enhance their capacity to develop an acceptable model and technical capacity to determine TAC in every Indonesian fishing zone.

The *CFB Regulation* imposes several restrictions on foreign fishing industries that plan to invest in the EEZ fisheries.<sup>204</sup> Foreign individuals or companies, for instance, must establish a processing unit before they apply for a fishing licence in the IEEZ. That processing unit has to be registered and located in Indonesia.<sup>205</sup> This regulation also requires a foreign company to have an Indonesian partner with at least a 20% share in such an investment.<sup>206</sup> The main reason behind this regulation is to provide and create new jobs for coastal communities and the Indonesian people in general. Such a policy also aims at integrating coastal communities with foreign fishing companies, which usually sell their harvest to foreign markets or foreign fishing processing industries. As a result, the Indonesian government loses some potential benefits from foreign fishing companies.

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199 'Peraturan Pemerintah No. 62/2002 tentang Tarif atas Jenis Penerimaan Negara Bukan Pajak yang Berlaku pada Departement Kelautan dan perikanan' (Government Regulation No. 62/2002 on Tariff and Types of Non-Tax State Revenue of the Department of Fisheries and Marine Affairs). State Gazette, 2002, No. 118.

200 GR No. 62/2002, Article 7. For more detail of the fee structure for foreign fleets, see Appendix of this Regulation.

201 Fisheries Act, Article 8(1). See also DKP. 'Identifikasi Beberapa Alat Penangkapan Ikan yang Diperbolehkan dan yang Di larang oleh Pemerintah' (Identification of Allowable and Prohibited Fishing Gears by the Government). DKP News. 14 February 2006.

202 DKP. 'Juklak Prosedur Pengukuran dan Pengujian Kelayakan Kapal Perikanan' (Implementing Guidelines on Measuring and Testing Procedures of Fishing Boat Seaworthiness). DKP. 1 February 2006.

203 See CCSBT website at <http://www.ccsbt.org/docs/management.html> (consulted: 5 February 2008).

204 CFB Regulation, Article 46(1).

205 Ibid., Article 47(1).

206 Ibid., Article 48(1).



This regulation has been criticized by several scholars and practitioners for being too rigid and preventing licence applications from foreign fishers. This policy may contradict the main objective of fisheries development, in which the Indonesian government actively promotes Indonesia as a profitable place to invest in fish industries. Other critics, such as most Indonesian fishers, think that it is necessary to have such policies, if the government wants to empower the local fishing industry. According to them this policy not only protects domestic fishers from the flow of foreign fishers, but also protects Indonesia's fish stocks from overexploitation.

Apart from the conditions mentioned above, this regulation also provides administrative and criminal sanctions for non-compliance. Article 68 clearly states that the government can impose administrative and criminal sanctions for non-compliance. These

administrative sanctions can be in the form of a warning letter, freezing of a licence, and licence revocation.<sup>207</sup> In addition, criminal enforcement can be imposed on more serious infringements, such as the use of explosives, chemicals and other prohibited gear such as trawl nets, or fishing in Indonesian waters without a proper licence.<sup>208</sup>

We can conclude that basic fisheries management instruments are in place, but they need to be developed into more detailed regulations. For example, Indonesia needs to establish TACs in every fishing zone. Indonesia also needs to develop its licence system because up to now, it has no species-based licence, even though the *Fisheries Act* recognizes such a management tool. Without such implementing regulations, these instruments have very limited potential for the management of EEZ fisheries in Indonesia.

## 2. Institutional/organizational structures

The institutional structure of EEZ fisheries management is dominated by a top-down instead of a bottom-up approach. The use of the top-down approach is reflected by legal instruments where international law and formal national legislation dominate the management of EEZ fisheries. Such legislation grants significant powers to the central government in managing the EEZ. As has been briefly discussed in coastal fisheries, district governments have the power to manage their coastal areas up to four miles out from the shore, while provincial governments have the power to manage sea areas beyond four miles up to 12 miles.<sup>209</sup> Thus, all aspects of fisheries management in the EEZ belong to the central government, i.e., the DKP.

The role of the DKP in EEZ management is specified under the *Fisheries Act* and *CFB Regulation*. The *Fisheries Act*, for instance, explicitly states that all commercial fishing operations taking place within Indonesian fishing zones or the EEZ, including catch,

transport, processing and marketing, have to obtain a licence from the Minister.<sup>210</sup> Similarly, foreign companies that intend to fish in the EEZ also have to obtain a fishing agreement and access agreement from the government of Indonesia,<sup>211</sup> before they can apply for a fishing licence in the EEZ. In such an agreement, the foreign government must guarantee that fishing fleets flying their flag will comply with their agreement or licence conditions.<sup>212</sup>

Detailed provisions on power distribution between the central, provincial and district governments in managing commercial fishing within Indonesian fishing zones and the EEZ are specified by the *CFB Regulation*. As mentioned in previous sections, the main government institution in fisheries management is still part of the central government. This also reflects the dominant top-down approach in offshore fisheries management.

207 For detailed information on administrative sanctions, see *ibid.*, Articles 68-70.

208 See *Fisheries Act*, Articles 84-105.

209 See Law No 32/2004 on Local Government, Article 18(4).

210 *Fisheries Act*, Article 26.

211 *Ibid.*, Article 30(1).

212 *Ibid.*, Article 30(2).

It is also important to note that unlike with coastal fisheries, the role of informal institutions or community-based organizations in offshore fisheries management is very limited. This may be because most traditional fishers don't have the capacity to fish in deeper waters.

With regard to transparency in offshore fishing management, the DKP, according to the *Fisheries Act*, should provide information such as: fisheries management plans, TACs, fishing zones and seasons, areas affected by disease, and other relevant information such as pollution prevention and the minimum size and weight for allowable catch.<sup>213</sup> In addition, the government has an obligation to provide a fisheries information system and statistical data on fisheries infrastructures, fish processing and marketing, and

socio-economic aspects of fisheries management.<sup>214</sup>

Unfortunately, some important information that should be provided by the DKP, such as TACs and the minimum size and weight of allowable catch, has not yet been determined by the DKP. Similarly, the decision-making process on fisheries-related policies is less transparent because the DKP has the final say in fisheries policies.

It is also important to note that unlike enforcement issues, the influence of corruption in the institutional structure of fisheries management has no direct correlation. Such influence may only exist in the preparation process of particular government regulations, but it can safely be said that such influence is minor.

## V. Empirical case study on coastal and offshore fisheries management

The main objective of this case study is to demonstrate the importance of marine protected areas (MPA) as a management tool in fisheries management. This case study covers coastal and offshore fisheries because MPAs in Indonesia are regulated under the same law.

### 1. Legal basis

The legal basis for the establishment of MPAs in Indonesia can be found in the following legislation:

- (i) *Law No 5/1990 on Natural Resources and Ecosystem Conservation*;
- (ii) *Law No. 31/2004 on Fisheries*;
- (iii) *Law No 41/1999 on Forestry (Forestry Act)*;
- (iv) *Government Regulation No. 60/2007 on Fish Conservation (GR on Fish Conservation)*; and
- (v) Several ministerial decrees and provincial and local government decrees.

However, several national parks in Indonesia were established before the enactment of these laws so their establishment was based on old laws and ministerial decrees.

Since the Bali Barat National Park is connected to the Java Sea and Indian Ocean and is considered one of the most important MPAs in Indonesia, it represents well the actual condition of MPAs in Indonesia.

Some articles of these laws emphasize the importance of MPAs as a management tool to protect sensitive and important marine sites. For example, Article 30 of *Law No. 5/1990* states that a conservation zone has the function to protect ecosystems and the sustainable use of natural resources. Similarly, Article 7 (1) a of the *Fisheries Act* states that the Minister can establish fish sanctuaries. Article 6(1) of the *Forestry Act* states that the forest has three functions, namely: conservation, protection and production.

More detailed provisions on MPAs are found in the *GR on Fish Conservation*. As an implementing regulation of the *Fisheries Act*, this regulation states that fish conservation is the responsibility of the central, provincial and district governments.<sup>215</sup> It also states that

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213 Ibid., Article 7.

214 Ibid., Articles 46-47.

215 GR on Fish Conservation, Article 3.



fish conservation includes: ecosystem conservation, fish species conservation, and fish genetic resources conservation.<sup>216</sup> This regulation also states that ecosystem conservation is done for all types of ecosystems that are related to fish conservation.<sup>217</sup> Furthermore, Article 12 states that individuals, research and educational institutions, community organizations, government institutions and NGOs can propose conservation areas.

Although the GR provides a firm basis for MPAs, most MPAs are part of national parks established by the Ministry of Forestry. This is so because MPAs usually have some forest component as a supporting system of the marine park. Since there was no DKP in the past, the power to establish a MPA belonged to the Ministry of Forestry.

Several important and large MPAs were established by the Ministry of Forestry. For example, Bunaken National Park in North Sulawesi was designated in 1991 by the *Decree of Minister of Forestry No. SK/730/Kpts-II/9*. This park is arguably one of the most beautiful diving sites in the world. Similarly, Taka Bone Rate National Park in South Sulawesi was also established in 1992 by the *Decree of the Minister of Forestry No. 280/Kpts-II/1992*. This park covers about 530,765 hectares and has attracted many tourists from all around the world.<sup>218</sup> The Bali Barat National Park was established by *Decree of the Minister of Forestry No 493/Kpts-II/95*.

The Indonesian government has been aware of the fact that MPAs are one of the management tools

to protect and conserve Indonesian fish and their ecosystems. So far the Indonesian government has established several MPAs which fall into the following categories: (i) KKLD (*Kawasan Konservasi Laut Daerah* or Regional Marine Conservation Area), (ii) TNL (*Taman Nasional Laut* or National Marine Park), (iii) TWAL (*Taman Wisata Alam Laut* or Marine Nature Tourism Park), (iv) CAL (*Cagar Alam Laut* or Marine Nature Reserve), (v) SML (*Suaka Margasatwa Laut* or Marine Animal Reserve), (vi) DPL (*Daerah Perlindungan Laut* or Marine Sanctuary), (vii) DPM (*Daerah Perlindungan Mangrove* or Mangrove Protection Area), and (viii) SP (*Suaka Perikanan* or Fisheries Reserve).

These classifications are made based upon the size, the importance, and the objectives of any particular MPA. KKLDs, for instance, are established by provincial or district governments. A KKLD is usually smaller than a national park and is usually less important than a national park. The legal form for the establishment of KKLD is a governor's decree or the decree of the head of district government whilst TWAL and DPL are usually established by district or provincial governments.

This section, however, will not discuss the whole system of MPAs in Indonesia, but will concentrate on one particular national marine park called *Taman Nasional Laut Bali Barat* (Bali Barat National Park). This park is regarded as one of the most successful in Indonesia.

## 2. Geographical conditions

Bali Barat National Park is located in Bali Province with the geographical position of 114°25' - 114°34' E; 8°05' - 8°15' S. 219 The Province of Bali consists of the main island of Bali and some small islands around Bali. Bali is unique compared to other provinces in

Indonesia because most of its population embrace Hinduism. Bali is also one of the most populous islands in Indonesia and its most important tourist destination. The tourism industry is the backbone of Bali economy besides agriculture.

216 Ibid., Article 4.

217 Ibid., Article 5.

218 Brochure of the Takabonerate National Park, Proyek Pengembangan Kawasan Konservasi Prop. Sulsel, SBKSDA Dep. Kehutanan Sulsel, Makassar, 1998.

Figure 5. The island of Bali and Bali Barat National Park



Source: WWF Indonesia.

The Bali Barat National Park consists of primary monsoon forests, mangrove forests, lowland rain forests, savannah, sea-grass type vegetation, coral reefs, sandy beaches, and both shallow and deep-sea waters. It was established by the Dutch in 1941 with the main objective of protecting the Bali starling. The park was then designated by the Indonesian government in 1995

with the *Forestry Ministerial Decree No 493/Kpts-II/95*. The total area of the park is 19,002.89 hectares including the marine part. The park is located in the Buleleng and Jembrana districts of the Province of Bali, and is surrounded by six villages with various ethnic populations (Balinese, Javanese, Madurese and Bugis).<sup>220</sup>

219 For more detailed information on the Bali Barat National Park, see <http://www.wonderfulbali.com/westbali/balibarat.htm> (consulted: 5 February 2008).

220 See official website of the Bali Barat National Park at [http://www.tnbalibarat.com/tentang\\_kami.html](http://www.tnbalibarat.com/tentang_kami.html) (consulted: 5 February 2008).

The Bali Barat National Park possesses a high species richness considering its small area. According to a 1998 report, the park has 110 species of coral belonging to 18 families, of which 22 species belong to the mushroom coral family (there are just 29 species of mushroom coral recorded worldwide!). Researchers also found at least 27 species of *Acropora* coral in its two-hectare seabed area. The park is also home to at least 226 reef-related fish species.<sup>221</sup> For such a small park, these are impressive figures in terms of species richness.

Since the marine part was only included later, the coral reef was severely damaged in the meantime, by: (i) blast and cyanide fishing, (ii) habitat destruction through land clearance around the park, (iii) uncontrolled tourism development, (iv) lack of environmental awareness of the people and government, (v) uncontrolled dumping of waste, (vi)

differing and conflicting stakeholder interests, and other destructive activities. In addition, El Niño in 1997-1998 contributed to serious coral bleaching within the park. About 70-100% of the coral cover was affected by El Niño and it has only started to recover in the last six years. However, human activities are the main cause of all the problems of the park.<sup>222</sup>

In order to mitigate further damage, in 2000 the provincial government and other stakeholders such as the park authority, district governments of Buleleng and Djembrana, local people, the private sector (hotels and diving operators), traditional fishers, community leaders from various villages, and national and local NGOs initiated an informal forum to discuss the problems of the park and to find some meaningful solutions to save the park from further destruction. This endeavour was initiated by WWF and other NGOs.

### 3. Co-management

After long discussions and several attempts to persuade other stakeholders, especially the government, the park authority, tourism industry and people around the park, in February 2001, all stakeholders agreed to establish a vision and mission of the co-management of the park. Even before this initiative, the government had developed a management plan for the Bali Barat National Park but this was never fully implemented by the government and the people around the park. When WWF approached the government to contribute to the development of the park, the provincial and two district governments that had the authority to manage the park welcomed the idea.

The implementation of co-management was carried out through the establishment of a stakeholder's forum called Coastal Care Community Communication Forum of Bali Barat National Park or FKMPP-TNBB. This forum was then used as a vehicle to discuss all the park's problems and to find better and workable solutions to save the park from further damage. Only a few months after the first

meeting all stakeholders agreed to establish a work plan that was considered as a priority. This and further work plans reached by mutual agreement undertook to implement co-management of the park with clear tasks and responsibilities including regular patrols and sustainable financing.

The FKMPP-TNBB alleged that most government regulations on park conservation were never implemented as most stakeholders felt that all government regulations were top-down and they were treated as 'objects' instead of 'subjects'. The government never consulted local stakeholders on how to manage the park. As a result, the local community, dive operators, and tourism industry, did not cooperate with the government and tended to oppose all regulation of the park. This condition made all legislation useless because it remained unenforced.

To avoid a similar situation, in April 2002, the FKMPP-TNBB successfully established the 'new law' of the park which they called the *Code of Conduct of*

221 Supra, note 219.

222 See WWF programme at: [http://www.panda.org/about\\_wwf/where\\_we\\_work/asia\\_pacific/where/indonesia/wwf\\_indonesia\\_conservation/bali\\_barat/the\\_background/climate\\_change\\_peril/index.cfm](http://www.panda.org/about_wwf/where_we_work/asia_pacific/where/indonesia/wwf_indonesia_conservation/bali_barat/the_background/climate_change_peril/index.cfm) (consulted: 5 February 2008).

*the Park*. This Code of Conduct consists of the following seven simple rules:<sup>223</sup>

- (i) do not throw litter, waste or pollute the park;
- (ii) do not touch the reefs or walk on them;
- (iii) do not destroy or take living or dead animals/plants;
- (iv) do not feed the fish;
- (v) remind the boatman not to anchor but to use mooring or free floating boat only;
- (vi) make sure that diving equipment is securely attached to your body; and
- (vii) respect these rules whenever and wherever you go diving.

These simple rules were then communicated to the community, dive operators, and the tourism industry. It is also important to note that these simple rules are similar to the government regulation, so there is no contradiction between formal legislation with the code of conduct of the park. The only principal distinction between the Code of Conduct and the formal government regulation is the drafting process. The government regulation never involved local communities and other stakeholders in its drafting process, while the code of conduct was the result of all stakeholders contributing. Therefore, local communities and other stakeholders have a sense of

ownership toward the code compared to the formal regulation produced by the parliament and the central government. The Park Code of Conduct has strengthened the government regulation.

Once all stakeholders had enough information on the new code of conduct, they decided to conduct joint patrols with the park authority. At the same time, all stakeholders were also involved in capacity building and environmental education to enhance the environmental awareness of the people around the park. They developed suitable infrastructure in the park in order to carry out tasks effectively.

Another key issue is the willingness of stakeholders, especially the government and the private sector, to contribute financially to the implementation of the conservation programmes in the park. Financial support from the government and private sectors is managed by FKMPP-TNBB in a transparent way, so all parties involved in the management of the park know how the money received from the government, private sector and international donors, is used.

Strong and continuous support from the provincial and district governments has also played an important role in the success of this programme, creating a conducive environment for the work of other stakeholders who are strongly committed to saving the park from further destruction.

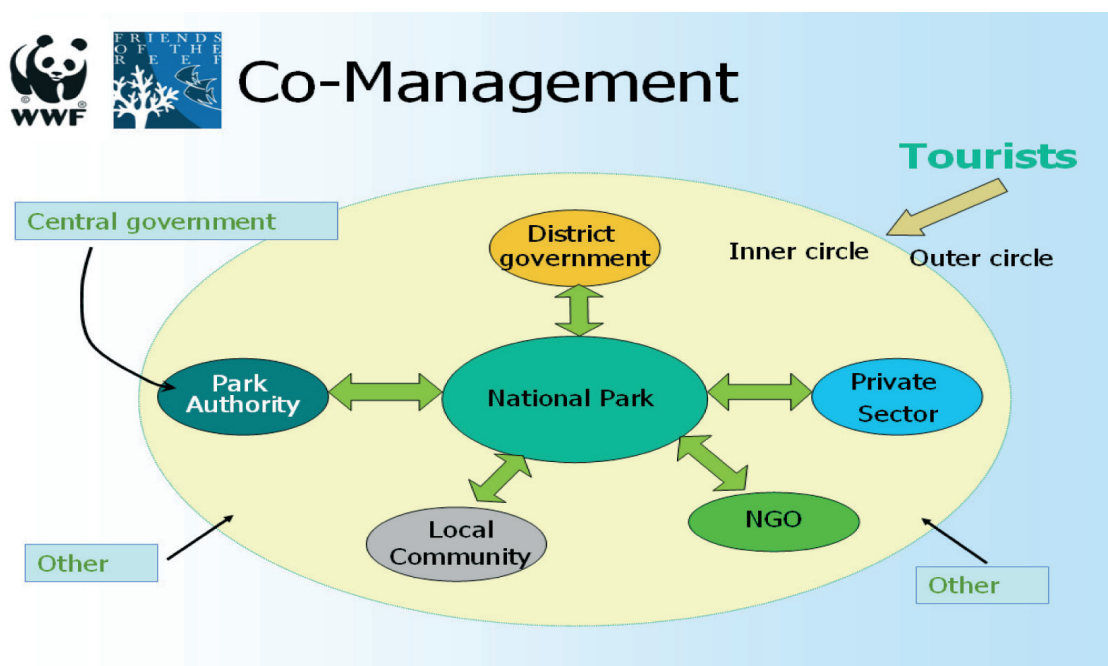
The model of co-management of the park can be seen in the following chart.

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223 Neneng, Setiasih. (2003). Co-Management Approach for Marine Protected Area at Bali Barat National Park. WWF.



Figure 6. Co-management model



Source: Neneng Setiasih, *Co-Management Approach for Marine Protected Area at Bali Barat National Park*, WWF, 2003.

This figure shows that all stakeholders have a direct interest in the park. At first, there was strong disagreement between local people, the government, the private sector and NGOs because each party had its own interest. Local people, for instance, lived around the park and had depended on fish and forest-related products of the park for generations. Unfortunately, the way they interacted with the sea and the forest was very destructive as some of them used explosives and poison to fish. Similarly, they also took wood and other non-timber forest products from the park. Most NGOs wanted to see any destructive activities banned in the

park. By contrast, tourist operators wanted to seize as much land as possible to develop hotels and other tourist attractions. The government claimed to accommodate all of these interests but most of the time they favoured the private sector since it provided local jobs.

However, all parties have become aware that they have a common interest towards the park. Aware of such common ground, the FKMPP-TNBB found it easy to convince all parties involved that they would have to work together to achieve their common goal.

#### 4. Challenges

Even though the management of Bali Barat National Park can be classified as one of the success stories of Indonesia's MPAs, it still has some flaws that need to be fixed. One of the main challenges is that at least two separate agencies are involved in the management of the park. This is caused by the fact that the park was established by the Decree of the Minister of Forestry. Since the establishment of the DKP, in theory at least, the marine component should be managed by the DKP. However, since the promulgation of the *Autonomy Law*,

the provincial and district governments also have powers to manage the park. This situation not only creates legal uncertainty, but also problems in the management of the park. For example, the government found it difficult to decide which government institution should fund the management of the park. So far, the Ministry of Forestry is responsible for providing funds, but they have very little knowledge of the marine component of the park.

This has to be solved at national, provincial and district government levels because it cannot be solved by the local community, NGOs or diving operators. The Minister of Forestry and the Minister of DKP must develop programmes or propose policy changes at the national level to avoid dualism in park management. Such a policy change is urgently needed so that provincial and district governments will have clear guidance to develop and manage the park. However, the drafting of new policies must involve other stakeholders enabling them to contribute to the policy change.

Another significant challenge faced by the park is artisanal fishers from the eastern part of Java. They have become regular visitors to the park because fish stocks in their coastal area have significantly declined over the last 10 years. Since they are outsiders, they were not included in the process of establishing the code of conduct, so they feel they can fish within the park. This situation has created tensions between the local people of Bali Barat and the visitors and requires

regular patrols to guard the park from them. Unfortunately, regular patrols require a lot of resources and are ineffective in protecting the park from 'illegal visitors'. Therefore, it may be necessary to include and educate traditional fishers from neighbouring villages in the community meetings. Since the patrol is conducted by 'civilians' (i.e., representatives of local stakeholders) they have no formal powers to detain people. Only the park authority, police, navy and DKP inspectors have such powers.

The park has also suffered from overcrowded tourism during the high season because the park is the only good diving site in Bali. So far there are no rules to limit the number of tourists entering the park. In fact, dive operators and hotels are competing to attract holiday makers. This situation is delicate because dive operators help protect the park but at the same time they are also the reason for the overcrowding. So far, there is no formal agreement among stakeholders to solve this problem.

## 5. Expanding MPAs

It is fair to say that the establishment of the DKP in 1999 is a significant step towards fisheries management reform. The establishment of the DKP not only changed the old assumption that fisheries resources is a 'second-class' sector, it also lifted the status of fisheries and other marine resources to the same position as other sectors such as agriculture, mining and industry. However, the DKP is still struggling to deal with MPAs such as the Bali Barat National Park because the DKP does not have a clear mandate on how to deal with already established parks. Since the Department of Forestry is no longer the main government institution responsible for the management of MPAs, most MPAs are neglected with the exception of several parks that have a co-management system such as Bali Barat National Park. This needs to be fixed as soon as possible because it has created uncertainty in the management of all marine parks.

While the government has put many efforts into the reformation of fisheries management which culminated in the *Fisheries Act* in 2004, the law itself

still needs to be further developed as it only addresses some general aspects of fisheries management. Several aspects of fisheries management are not sufficiently addressed by existing laws and regulations such as: licence systems, MPAs, and the issue of co-management of MPAs which were established before the birth of the DKP and the *Fisheries Act*.

In order to address the above problems, the Indonesian government must develop a strategic plan on MPAs at a national, provincial and district level because the existing mechanisms have several weaknesses. For example, formal legislation on MPAs has very limited provisions for co-management and on how to involve local people around the park to participate in the marine park management. Since most legislation is drafted without involving local people, its enforcement is difficult to implement at the local level.

Learning from the experience of Bali Barat National Park and other MPAs such as Bunaken



National Park<sup>224</sup> and Komodo National Park,<sup>225</sup> it is important for the government to pursue the idea of co-management and to involve all stakeholders around the park.

Due to the political instability after the fall of Suharto in 1998, the real reform of fisheries governance and MPAs has only started in the last five years and is gradually being developed by the current government. However, only a small proportion of the envisaged reforms introduced by the DKP, the *Fisheries Act*, and its regulations have been realized. For example, the government planned to establish 85 MPAs covering 10 million hectares by 1990 and they were to be expanded up to 50 million hectares by the year 2000. However, these targets have not been fulfilled, as by the year 2000, the Indonesian government had only established 51 MPAs, covering only about 6.2 million hectares.<sup>226</sup>

## VI. Conclusions

Indonesia is one of the main fish producers in the world but its supporting ecosystems such as mangrove forests and coral reefs are heavily damaged due to population pressures, blast fishing, the use of poison, illegal fishing gear and other illegal fishing methods. The quality of Indonesian waters is also affected by land-based pollution and land reclamation in many major cities.

Indonesia has a relatively adequate basic legislation for coastal and offshore fisheries management and has successfully incorporated several management tools derived from international and regional agreements. However, some provisions of the existing legislation, especially the licensing system and TACs are too general and require implementing regulations to be effective.

Aware of this, the Indonesian government needs to expand the size of its MPAs, enhance the quality of existing MPAs, and create mutual collaboration with all stakeholders that are affected by the establishment of an MPA. In addition, the government needs to strengthen its commitment by providing an adequate budget for the development of existing and future MPAs across the archipelago. The government, especially the DKP, should take the lead in proposing policy changes for MPAs because the existing legislation and policy has created difficulties in management.

It is hoped that the above recommendations will improve the quality of marine ecosystems in general and enhance the quality of coral reefs in MPAs in Indonesia. The government must act quickly because the quality of Indonesian marine ecosystems is gradually declining.

The enforcement of existing legislation is still problematic because of the following factors: (i) lack of personnel to supervise implementation of the legislation, (ii) lack of support for civil service investigators, the police, the park authority, and the navy to patrol, (iii) lack of knowledge and skill of law enforcers to carry out their jobs, (iv) acute corruption among government officials and law enforcers, and (v) sectoral rivalry among government departments at the national level.

Indonesia has the potential to become one of the major players in the fisheries industry if the government of Indonesia seriously commits itself to fixing all the problems of fisheries governance identified in this report.

224 For more information about this park, please visit <http://www.north-sulawesi.org/bunaken.html> (consulted: 3 January 2008).

225 For more information about this park, please visit <http://www.komodonationalpark.org> (consulted: 3 January 2008).

226 Burke, L. Selig, E. and Spalding, M. (2002). *Reefs at Risk in Southeast Asia*, p.38. Washington, DC: World Resources Institute.

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# 2 Promotion and Management of Marine Fisheries in Kenya

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## Summary

With a coastline of 500-650 km and a variety of marine and wetland habitats, the marine sub-sector is host to 5,000-12,000 fishers, of which 95% are artisanal. Fishing is carried out in the near-shore areas using simple boats, and is heavily dependent on the monsoon wind patterns. The annual catch has fluctuated between 4,000-10,000 tonnes for the last 20 years with some areas reporting overfishing. While sport fishing and aquaculture are also important economic activities on the Kenyan coast, the offshore fisheries zone, which is believed to contain vast and valuable stocks of fisheries resources, is exploited by vessels from Distant Water Fishing Nations.

Apart from fishing, the Kenyan coastal zone hosts a multiplicity of other demands ranging from agriculture to tourism, shipping and ports, marine dredging, offshore oil exploration, curio trade, mining and fossil coral extraction and mangrove harvesting. All these demands on the coastal zone have led to, *inter alia*, declining fishery production, habitat destruction, resource use conflicts and a decline in biodiversity. Resource-overuse, tourism, prawn trawling and salt production firms have been blamed for the decline in fish catches.

The decline in the marine fishery is generally attributed to overfishing brought about by increased human population. The increased fisher population has seen traditionally non-fisher tribes joining the fish trade in addition to migrant fishers, and has witnessed an upsurge of destructive fishing practices. The overuse of the reef area is particularly evident through the

declining numbers of finfish and the increased numbers of sea urchins. Fish habitats have also been negatively affected by the activities of the salt recovery industries, tourism and prawn trawling.

Domestic legal instruments are thorough enough and are theoretically sufficient to deal with problems of unsustainable use of marine resources. The Fisheries Act of 1989, for instance, empowers the Director of Fisheries, with the approval of the Minister, to issue regulations to promote the development of fisheries and aquaculture and to ensure the proper management of specific fisheries. This includes the possibility of declaring closed seasons and/or areas, access limitations, and restrictions on fishing methods, gear, and the characteristics of fish that may be caught. The Act further establishes the basis for the registration and licensing of local and foreign fishermen and fishing vessels, enforcement in terms of prohibited methods of fishing, including the use of chemicals and trade in fish illegally caught, as well as prohibition on fishing for marine mammals in Kenya waters. The Wildlife (Conservation and Management) Act, on the other hand, enforces regulation although only within marine protected areas (MPAs).

However, effective implementation of these laws has suffered several setbacks, *inter alia* the lack of enforcement capacity/personnel especially in the EEZ, and overlapping administrative responsibilities between the administrative authorities for fisheries, wildlife protection and forestry.

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Against this backdrop, the encouragement of responsible fishing practices and co-management structures, curtailment of destructive fishing methods, and the development of MPAs have been suggested. Nonetheless, the incorporation of traditional fisheries management with a formal regime through the Beach Management Unit (BMU) is seen as a lasting solution.

In recognition of the fundamental prerequisite for fisheries development, the Fisheries Department’s draft

policy provides for better coordination between fisheries management and research. The policy too has an important reform agenda, although the cost of implementation is colossal. Nevertheless, better collaboration between stakeholders is expected to strengthen the synergies and make management more effective.

# I. Environmental and socio-economic background

The Kenyan coast is located between latitudes 1°41’S and 5°40’S. The coast has a narrow continental shelf with an estimated area of 19,120 km<sup>2</sup> that stretches

from its border with Tanzania to the south and Somalia to the north (see Figure1).

Figure 1. Map showing the Kenyan Coast province with districts marked in green<sup>1</sup>



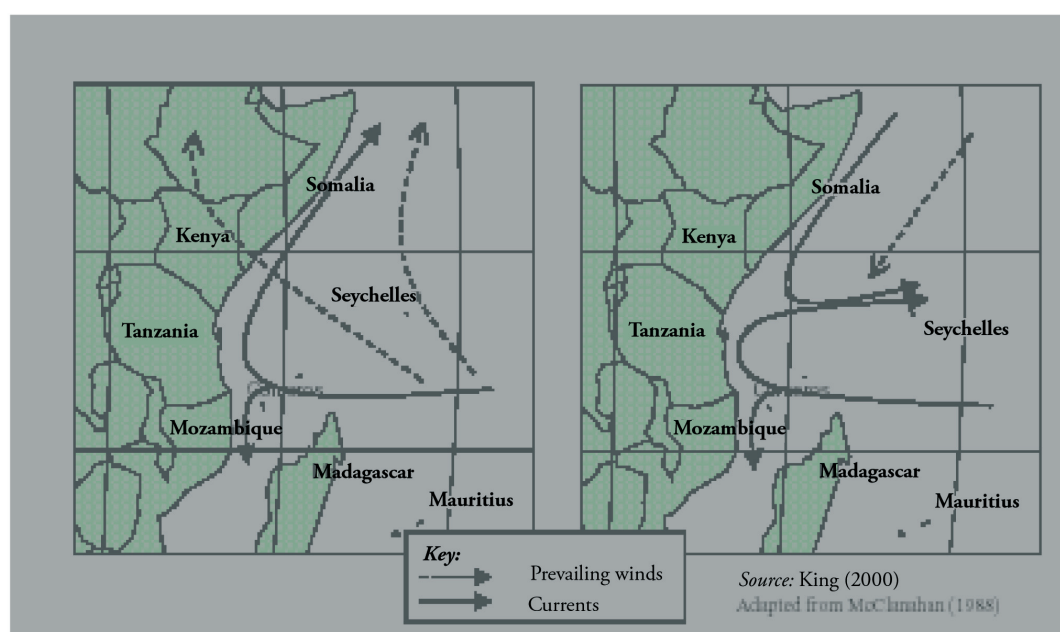
The width of the continental shelf is less than 5 km, but extends to almost 60 km out to sea near the mouth of the Tana River and near Lamu. The total area of the Kenyan EEZ is about 230,000 km<sup>2</sup>.<sup>2</sup> A variety of marine and wetland habitats occur along the Kenyan coast including coral reefs, sea-grass beds, mangroves

and salt marshes.<sup>3</sup>

The Inter-Tropical Convergence Zone (ITCZ) (Figure 2) influences the weather conditions on the Kenyan coast.

1 Source: <http://en.wikipedia.org/wiki/File:Kenya-relief-map-towns.jpg>  
 2 Gitonga, N.K. and Achoki, R. (2003). ‘Fiscal Reforms for Kenya Fisheries’. Paper prepared for FAO Workshop on Fiscal Reforms for Fisheries (Rome, Italy, 13-15 October 2003).  
 3 UNEP. (1998). *Eastern Africa Atlas of Coastal Resources*. Nairobi: United Nation Environment Programme.



**Figure 2. Seasonal wind and current patterns.**

This is a zone of low pressure, which moves north and south of the equator according to the movement of the sun and the influences of the monsoon. The south-east monsoon winds (*kusi*) and north-east monsoon winds (*kaskazi*) alter sea temperatures, rainfall, wind and sea conditions. The south-east monsoon winds occur from April to October and are characterized by cool temperatures (mean = 26.4°C, max = 30°C), long heavy rains (55-272 mm/month), rough seas and strong winds (0.5-0.75 m/s); while the north-east monsoon occurring from November to March is characterized by warm temperatures (mean = 28.4°C, max = 31-32°C), light rains (8-84 mm/month), calm seas and steady light winds (<0.25 m/s).<sup>4</sup>

Marine fishing in Kenya is mostly artisanal and is carried out in the near-shore areas. The artisanal fish

catch is reduced during the south-east monsoon winds,<sup>5</sup> as access to fishing grounds is restrained by strong winds and general rough sea conditions.

During the north-east monsoon winds, fishing conditions are enhanced by favourable climatic conditions. In addition, the southerly flow of the upwelling nutrient-rich waters along the Somali coast results in high productivity in the water column and a subsequent increase in fisheries yields.<sup>6</sup> During this period, fish are generally more abundant and large in size especially in the Lamu Archipelago. The southern coast has low productivity due to the fact that the East African coast is a downwelling area, which is characterized by low nutrient contents.<sup>7</sup>

4 UNEP, *ibid.*; Obura, D.O. (2001). 'Kenya'. *Marine Pollution Bulletin* 42(12): 1264-1278.

5 McClanahan, T.R. (1988). 'Seasonality in East Africa's coastal waters'. *Marine Ecology Progress Series* 44: 191-199; Rubens, J. (1996). An Analysis of the Benefits and Costs of Marine Reserves Regulations at Diani, Kenya. MSc Dissertation, Department of Marine Science and Coastal Management, University of Newcastle, UK; Malleret-King, D. (2000). A food security approach to marine protected areas. Impacts on surrounding fish communities. PhD Thesis, University of Warwick, UK. Malleret-King, D. et al., (2003). 'Review of marine fisheries for Kenya: Understanding fisheries associated livelihoods and constraints to their development in Kenya and Tanzania'. FMSP project R8196.

6 Kemp, J. (2000). 'East Africa Marine Ecoregion Biological Reconnaissance', p.90. Annex 1. Report to WWF Eastern Africa Programme.

7 Bell, B.E. (1972). 'Marine Fisheries'. In: Morgan, W.T. (Ed.). *East Africa: Its people and resources*, pp.243-244. London: Oxford University Press; McClanahan, *supra*, note 5.

## 1. State of the relevant fisheries resources

Kenya's fisheries resources comprise of freshwater (lakes, rivers and dams) and marine sub-sectors. However, Lake Victoria is the main source of fish production in the country as it contributes over 90% of the total fish landings. The rest is shared among other freshwater sources and the marine sub-sector.

The fisheries contribution to the country's economy is through employment creation, generation of income and foreign exchange earnings. The fisheries sector also promotes other auxiliary industries such as net making, packaging material industries and boat building among others. The sector makes a small but increasing contribution to Kenya's GDP. Between 1971 and 1981, the sector accounted for an average 0.2% of the country's annual GDP. This increased so that by 1989/90 fishing accounted for about 2% of the GDP from the non-monetary economy and 4.4% from the monetary sector's GDP. In 2004, the sub-sector accounted for 5% of the GDP. It is estimated that the

country earns about 4 billion Kenya shillings (KShs) (approx. US\$ 50 million) in foreign exchange and the fishers over 7 billion KShs.

The relatively small but increasing contribution to the national GDP notwithstanding, fishing industry is the lifeline for the Kenyan riparian and coastal communities. In 1995, for instance, the fisheries department estimated that 798,000 Kenyans were, directly or indirectly, supported by the sector in comparison to 720,000 in 1993. In the same year (1995), there were 34,000 fishermen with an estimated 238,000 dependants and about 526,000 other people engaged in the provision of support and ancillary services such as trade in fish inputs, fish handling, processing and marketing.

Fish landings increased from 22,810 tonnes in 1975 to 214,709 tonnes in 1999 but decreased to 128,276 tonnes in 2002 (see Table 1).

**Table 1. Total fish production and value in Kenya: 1996-2002<sup>8</sup>**

	Quantity (in tonnes)	Value ('000 KShs)
1996	180.984	6,667,945
1997	164.044	4,714,093
1998	179.413	6,813,867
1999	214.709	7,753,584
2000	202.651	7,964,301
2001	164.276	7,918,179
2002	128.276	7,668,371

Kenya's known marine inshore fishing grounds include the rich inshore grounds around the Lamu Archipelago, Ungwana Bay, the North Kenya Bank and the Malindi Bank. The bulk of the marine catch is taken in shallow inshore waters mainly by artisanal fishers using simple boats and gear including gillnets, shark nets, hook-and-line and traps. The main species caught along the Kenyan coast are reef/seagrass/sand-

associated demersal fish species constituting 38% of the catch.<sup>9</sup> These include Parrot fish (Scaridae), scavengers (including Lethrinidae, Lutjanidae and Haemulidae) and Rabbit fish (Siganidae).<sup>10</sup> Pelagic species including King fish, Jacks and tuna are also landed, though less than demersals.<sup>11</sup> Other fish landed include sharks and rays. Apart from these, crustaceans especially crabs, prawns and spiny rock lobsters,

8 Gitonga and Achoki, supra, note 2.

9 UNEP, supra, note 3.

10 Ibid.; Malleret-King, supra, note 5; McClanahan, T.R. and Mangi, S. (2004). 'Gear-based management of a tropical artisanal fishery based on species selectivity and capture size'. *Fisheries Management and Ecology* 11: 51-60.

11 Ibid.

octopus and squids are exploited.<sup>12</sup> A few freezer trawlers fish the shallow waters of Ungwana Bay for shrimp, but trawling opportunities are limited because coral outcroppings cover most of the nearshore floor. Additionally, the shelf slopes steeply to depths of a hundred fathoms or more within a few kilometres of the reef.

In spite of varying figures about Kenya's marine fish potential, research done so far<sup>13</sup> in the Kenyan south coast indicates that the fisheries resources are overexploited and that they are declining. Diani is quoted as one of the most overfished areas.<sup>14</sup> This is evident from the high numbers of sea urchins (*Echinometra mathaei*) indicating a decline in sea urchin predators, the Orange striped triggerfish (*Balistsapus undulates*) and the Tripletail wrasse (*Cheilinus trilobatus*).<sup>15</sup> The overfishing of triggerfish from Kenya's coral reefs has been estimated to lead to a 500% increase in sea urchins.<sup>16</sup>

Catch data from eight landing sites from Kenyatta Beach to Kinondo between 1995 and 1999 showed a decline in fish catch in spite of constant effort.<sup>17</sup> In Diani, the catch per day per fisherman is 4-6 kg at the most productive site during the most productive season, while it is less than 1 kg during the least productive season.<sup>18</sup>

The offshore fisheries zone is exploited by vessels from Distant Water Fishing Nations (DWFNs). There is little information concerning the status of the Kenyan EEZ in spite of an increase in offshore fisheries in the region beginning in the early 1990s.

### Vessels and gear

Estimates of the number of fishers for the whole coast vary from 5,000 to 12,000 fishers.<sup>19</sup> More recent data from the Fisheries Department (FiD) indicate that there are currently 10,154 fishermen on the Kenyan coast, over 95% of them artisanal.<sup>20</sup> The number of people depending directly on fishing varies between 25,000-56,000, excluding fish traders and processors who are estimated at 1,000.<sup>21</sup>

Only 10% of the fishing vessels are motorized; most fishing vessels are non-motorized dugout canoes, outrigger canoes and dhows. While information on the total number of powered boats is not collected by the Fisheries Department, anecdotal information indicates that there are 32 purse seiners and 75 longliners, operating under fishing licences issued by the FiD, with no obligations to land, tranship or declare catches in the country. This arrangement limits the country's benefits from its EEZ fisheries especially from value-added activities associated with transshipment, landings for processing or even trade in bycatch. Currently there is only one Kenyan long-line vessel, which started operating in the middle of 2005. According to the Seychelles Fishing Authorities tuna bulletin for the year 2004, 100 purse seiners transhipped 51,404 tonnes of tuna through the port of Mombasa.

The gear used ranged from traps, hand lines, fence traps, spears, sticks, nets and spear guns. There is no information at the national level about gear distribution or catch per gear. However, at Diani, spear guns and

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- 12 Malleret-King, D. (1996). *Les systèmes de production de l'agriculture et pêcheurs de biga, petite communauté de pêcheurs*. DESS Development Agricole-Memoire. Paris 1 : Panthéon-Sorbonne, Institut d'Etude du Développement Economique et Sociale; *ibid*.
  - 13 McClanahan and Mangi, *supra*, note 10; McClanahan, T.R. (1995). 'Fish predators and scavengers of the sea urchin *Echinometra mathaei* in Kenyan coral-reef marine parks'. *Environmental Biology of Fishes* 43: 187-193; Rubens, *supra*, note 5; Malleret-King, *ibid*.; Malleret-King, *supra*, note 5; Glaesel, H. (1997). *Fishers, Parks and Power: The Socio-environmental Dimensions of Marine Resource Decline and Protection on the Kenyan Coast*. PhD Thesis, University of Wisconsin – Madison; King, A. (2000). *Managing without institutions: The role of communication networks in governing resource access and control*. PhD Thesis, University of Warwick, UK.
  - 14 McClanahan, T.R. and Kaunda-Arara, B. (1996). 'Fishery recovery in a coral-reef marine park and its effects on the adjacent fishery'. *Cons. Biol.* 10(4): 1187-1199.
  - 15 T.R. McClanahan, *supra*, note 13.
  - 16 McClanahan, T.R. and Muthiga, N.A. (1988). 'Changes in Kenyan coral reef community structure and functioning due to exploitation'. *Hydrobiologia* 166: 269-276.
  - 17 McClanahan and Mangi, *supra*, note 10.
  - 18 Obura, *supra*, note 4; King, *supra*, note 13; Rubens, *supra*, note 5.
  - 19 UNEP, *supra*, note 3.
  - 20 Ndegwa. Personal communication.
  - 21 Obura, D.O. (1999). 'Status Report Kenya'. In: *Coral Reef Degradation in the Indian Ocean: Status report and project presentations*, pp.33-36. Stockholm: CORDIO/SAREC.

beach seines constituting 39.3% and 25.9% respectively were most widely used.<sup>22</sup>

Certain fishing methods are of great concern due to their destructive and indiscriminate nature.<sup>23</sup> Beach seine is known to damage coral reefs because its small mesh size collects fish indiscriminately and it involves walking and overturning corals.<sup>24</sup> Apart from beach seines, the use of dynamite has been reported in some areas. The use of destructive gear together with poaching (meat, eggs and oil) and beach development have reduced sea turtle populations to critical levels.<sup>25</sup> Trawling, long-line fishing and drift netting result in many other fish species being caught besides the target species. The bycatch, which is not usually utilized, comprises 70% of the marine catch.<sup>26</sup>

**Fish and fish products export**

Kenya has a long history of fishing. Nonetheless, until 20 years ago nearly all the fish caught in Kenya were consumed within the country. Kenya only started exporting fish in the early 1980s when fish processing factories were established around Lake Victoria.

About 92% of harvested fish comes from Lake Victoria, and the rest from the Indian Ocean (4%), inland lakes and rivers (3%) and aquaculture (1%). Nile perch, which constitutes about 50% of the fish caught in Kenya, is the main export earning about US\$ 50 million annually. Other commercially important species in the domestic market are the small sardine fish called *dagaa* (30%) and tilapia (10%). Of the 18 fish processing and export firms now in Kenya, 10 specialize in Nile perch products while seven handle marine products such as shrimp, other crustaceans and tuna.<sup>27</sup>

There is enormous fishing potential in the Kenyan Exclusive Economic Zone (EEZ) whose resources, as already mentioned, are currently being exploited by DWFNs without commensurate returns from the resource.<sup>28</sup> Kenya has not entered into any access agreements with DWFNs. Currently, marketing of fish to the EU, the main importer of Kenyan fish, is carried out through bilateral agreements with individual EU Member States. Fish exports for 2004 are shown in Table 2.

**Table 2. Kenyan fish exports for the year 2004**

Product	Weight (tonnes)	Value (million KShs)	Destinations
Tuna	10.596	475	Italy and Spain
Lobsters	131	61	India, Japan, Greece, U.K., Hong Kong, Seychelles and Italy
Prawns	234	176	U.K., Netherlands, Spain and Italy
Octopus	504	102	Netherlands, Italy, Portugal and France
Cuttlefish	17	33	Greece and India
Live lobsters	5	19	Hong Kong, U.A.E. and S. Africa
Live crabs	12	1.3	Singapore, U.A.E., Lebanon and S.Africa

Source: Provincial Statistics office, Mombasa.

22 McClanahan and Kaunda-Arara, supra, note 14.  
23 Shumway, A. Caroly, (1999). *Forgotten waters: Freshwater and marine ecosystems in Africa. Strategies for biodiversity conservation and sustainable development*. The Biodiversity Support Program, Boston University, New England Aquarium and USAID.  
24 Ibid.  
25 Okemwa, G.M, Nzuki, S. and Mueni, E.M. (2004). ‘The Status and Conservation of Sea Turtles in Kenya’. *Marine Turtle Newsletter* 105.  
26 Mueni, E. and Mwangi, J. (2001). *A survey of the use of the Turtle Excluder Device (TED) in trawlers along the Kenyan Coast*. KWS Technical Series.  
27 Abila, R.O. (2003). *Food Safety in Food Security and Food Trade. Case Study: Kenyan Fish Exports*. Washington, DC: IFPRI. Also Focus 10, Brief 8 of 17, September 2003, [http://www.ifpri.org/2020/focus/focus10/focus10\\_08.pdf](http://www.ifpri.org/2020/focus/focus10/focus10_08.pdf).  
28 Gitonga and Achoki, supra, note 2.

The fish trade is hampered by poor road networks and a lack of chilling facilities for preservation. Since there are no auction systems for fish in Kenya, this has contributed to high price differentials between locations. These factors translate into significant post-harvest losses, which in turn limit market expansion efforts.

Sport fishing as a recreational activity has been taking place all along the Kenyan coast within the confines of various registered clubs and at times on an individual basis. The FiD aim at streamlining it to improve professionalism, create employment, generate income through tourist attraction, increase revenue and above all, exploit the resource on a sustainable basis. Fishing takes place up to 15 nautical miles out along the entire coastline. Different species are caught at different seasons of the year. Sailfish are present in sufficient numbers from October through March while Blue marlin and Striped marlin from 25 kg upwards in weight are present from January through March.

There are about 400 sport fishermen along the coastline. However, the number is known to be higher as a number of them register as ordinary fishermen. The most popular species are Big-eye tuna, Long tail tuna, Skipjack tuna, Yellowfin tuna, Wahoo, Barracuda, Cobia, Dolphin, Kingfish, Blue marlin, Striped marlin, Sailfish, Hammerhead shark, Mako shark, Silvertip shark, Tiger shark, Broadbill swordfish, Bluefin trevally, Giant trevally and Rainbow runner. Catching

ornamental fish is currently at a low level though with a high potential. Some of the most popular species exported include Surgeonfish, angelfish, blennies, Butterfly fish and wrasses. The earnings from aquarium fish range from US\$ 3 to US\$ 50 per fish depending on the species. In 2004, Kenya exported over 102,000 live aquarium fish worth slightly over KShs 16 million to Europe, Asia and North America.<sup>29</sup>

### **Aquaculture**

Aquaculture in Kenya includes freshwater fish farming and mariculture. Kenya's ministry of Livestock and Fisheries Development recognizes that fisheries play an important role in sustaining rural and urban livelihoods in Kenya.<sup>30</sup> During the preparation of the Poverty Reduction Strategy Paper for the Agriculture sector, aquaculture was targeted as one of the core activities that could contribute to poverty alleviation in rural Kenya.

In order to realize this objective, the ministry is currently encouraging and facilitating the sharing of information among fish farmers, researchers and extension officers through field days and farmer training sessions. The Ministry is focusing on commercial fish farming through the application of research results in the field with the use of contact farmers. The ministry has taken these steps in order to reduce fishing pressure in the light of declining fish stocks against the backdrop of an increasing population and multiple demands on other natural resources.<sup>31</sup>

## **2. Overview of multiple demands on the coastal zone**

Demands on coastal resources range from fishing, agriculture, tourism, shipping and ports, marine dredging, offshore oil exploration, curio trade, mining and fossil coral extraction amongst others. While the economy in urban centres is characterized by maritime and harbour activities, commerce and tourism; in rural areas, demand for coastal resources arises from the need for agricultural land, small-scale enterprises, retail services and fisheries.

The nine mangrove species found in Kenya (*Ceriops taga*, *Rhizophora mucronata*, *Sonneratia alba*, *Avicennia marina*, *Bruguiera gymnorhiza*, *Lumnitzera racemosa*, *Heritiera littoralis*, *Xylocarpus granatum* and *X. mollucensis*) are exposed to various threats.<sup>32</sup> Mangroves are exploited for firewood, poles for building, dye, floaters and timber among other uses. However, overexploitation led to the banning of mangrove exports in 1982 and later for domestic use

29 Provincial statistics, 2005.

30 Gitonga and Achoki, supra, note 2.

31 Ibid.

32 Kairo, J.G. and Bosire, J. (2005). 'Planting and Management of Mangroves'. In: Wamukota, A.W. (Ed.). *Proceedings of the Exposure & Exchange Workshop on Marine Life Management*, Plaza Beach Hotel, Mombasa, 10-15 April 2005.



in 1997. In spite of the bans, mangrove forests continue to be overexploited through logging and by being turned into saltpans and fish pans<sup>33</sup> despite their important ecological role.

The destruction of mangroves has far-reaching consequences. Environmentally, mangroves serve as fish spawning grounds. They reduce soil erosion, as well as reducing the effects of wave action. Apart from these, mangroves act as habitats for birds, crabs and crocodiles as well as other fauna. Economically, mangroves are used for construction, firewood, as dye and for fish farming. Sedimentation arising from the erosion caused by clearing mangroves also kills coral colonies, prevents settlement and affects sexual reproduction.<sup>34</sup> The degradation of coral reefs and mangrove forests leads to reduced fishery productivity, coastal erosion, reduced income from tourism and a loss of employment for workers in the tourism, fishing and wood industries. It is argued that if one cuts a mangrove, one loses five times in terms of fish.

Tourism has been growing steadily both in terms of numbers and generated revenue since independence and continues to be one of the most important economic sectors in the country.<sup>35</sup> In 2003, the tourism sector recorded a marginal improvement despite the adverse travel advice issued by the United Kingdom and the United States of America. Tourism earnings increased from KShs 21,734 million in 2002 to KShs 25,768 million in 2003. International visitor arrivals increased by 14.5% from 1,001,300 in 2002 to 1,146,100 in 2003.<sup>36</sup> The coastal region is the main tourist destination accounting for 60% of all the occupancy in hotels.

In Mombasa alone, tourism accounts for 45% of all the economic activities and employs 40,000 workers.

Tourism has led to extensive privatization of land along the coastline and this in turn has led to beach access problems. Tourists trample on corals and also collect marine trophies leading to the destruction of coral reefs and hence loss of the rich reef biodiversity, which attracts tourists to the coast. Some hotel construction interferes with the delicate marine ecosystems (lagoons, fragile sandy beaches and coral reefs) due to a lack of consideration of the environmental impacts (e.g., loss of habitats and aesthetic value of the tourism facilities) before construction. Sea walls pose a major threat to the coastal and marine ecosystems by impairing physical oceanic processes and coastal erosions.

Agricultural practices along the coast of Kenya are predominantly small-scale with the exception of a few coconut and sisal plantations. Important food crops include cassava, sweet potatoes, maize, coconut, cowpeas and rice. Bananas, mangoes and pineapples are grown for domestic consumption and export while cashew nuts and sisal are grown for export. Other crops grown include cotton, rice and sugarcane. Nearly 50% of the arable land is under tree crops, which consist mostly of cashew nuts, coconuts, citrus and mangoes.<sup>37</sup>

Pollution from agricultural chemicals e.g., through pesticide and fertilizer runoff is a major concern for fisheries. Chemicals in pesticide runoff become more concentrated and toxic as they work their way up the food chain. They accumulate in the bodies of fish and other higher-level organisms. Agricultural pollution is also considered a threat to coastal fisheries as more than 90% of all chemicals, refuse and other material entering the coastal waters remain in the sediments, wetlands, fringing reefs and other coastal ecosystems.<sup>38</sup> Municipal pollution is also known to increase eutrophication, leading to an increase in nitrate concentrations.<sup>39</sup> Eutrophication has also been shown to interfere with

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33 Ibid.

34 Samoilys, M. (1988). 'Abundance and Species Richness of Coral Reef Fish on the Kenyan Coast: The Effects of Protective Management and Fishing'. *Proc. In. Coral Reef Symp.* 6(2): 261-266.

35 UNEP, *supra*, note 3.

36 Economic survey, 2005.

37 UNEP, *supra*, note 3.

38 Munyao, T.M. (1998). 'Environmental Effects of Coastal Sedimentation. A Case Study of Shirazi-Funzi Lagoon'. In: Hoorweg, J. (Ed.). *Dunes, groundwater, mangroves and birdlife in coastal Kenya*. Nairobi, Acts Press.

39 Cole, J.J., Peierls, B.L., Caraco, N.F. and Pace, M.L. (1993). 'Nitrogen loading of rivers as a human-driven process'. In: McDonnell, M. and Pickett, S. (Eds). *Humans as components of ecosystems*, pp.141-157. New York: Springer-Verlag.



the sensory ability of visually guided aquatic organisms in Lake Victoria, raising concerns about its impact on reproduction.<sup>40</sup>

Maritime commercial activities, including transportation and the handling of goods and passengers, represent 15% of the economy of the coast. While the main centres of maritime commerce are the ports of Mombasa and Lamu, secondary commercial activities are shared by the ports of Funzi, Kilifi, Kiunga, Malindi Mtwapa, Kilindini, Port Reitz Harbours, the 'Old Port', Port Tudor and the water fronts of Mombasa Island, Shimonini and Vanga. The Port of Mombasa serves the commercial, agricultural and industrial hinterland of Kenya and the great lake region of Eastern Africa. Exploration activities for the development of offshore oil fields are in progress in the northern coastal zone. These activities are supervised by the National Oil Corporation (NOC).

Various types of minerals are found along the Kenyan coast. Some of these are of economic significance and a few are currently being exploited. The mineral content of Mrima hill in Kwale is comprised of an association of pyrochlore, apatite, galena, iron ore and manganese. Of these, pyrochlore appears to have the highest potential.

The Vitengeni deposits in Kilifi District are being exploited for Barytes, with galena as a by-product. However, at Kinangoni, Galena is the dominant mineral with barytes and silver forming the subsidiary minerals. Gypsum is mined from sedimentary deposits at Roka in Kilifi District. Other gypsum deposits of possible economic significance have been discovered in the Tana River District (Assa, Hirimma, Bangale areas). At Jaribuni in Kilifi District, iron ore is being mined to supply the cement factories at Bamburi and Athi River in Kaloleni.

Sand for building is mined in many places along the coastal zone. Among the most important sites are Tiwi in Kwale District and Mazeras, which supply

Mombasa and Ngomeni for the Malindi area. Silica sands for glass manufacture are obtained from deposits in Arabuko-Sokoke (Kilifi) and Msambweni (Kwale). Clay is mined for brick works in the Port Reitz area of Mombasa.

Mining has the potential for being one of the most important activities along the Kenyan coast with the advent of the Titanium Mining Project, which is expected to push the contribution of the mining sector GDP from 1% to 3%. Tiomin is planning to mine heavy mineral sands in Kwale starting from 2007. Other titanium mining companies have taken an interest in exploring the heavy mineral deposits at Malindi and Kilifi while plans for port construction at Dongo Kundu are underway. There is already increasing interest in the other mineral occurrences like lead, copper and zinc around Mkangombe in Kwale District.<sup>41</sup>

Salt is recovered from seawater at Ngomeni northwards to the Lamu area where extensive salt works have been established at the Gongoni-Fundisa area and Kurawa. The total area dedicated to salt production is over 5,000 hectares which yield an average of over 170,000 tonnes of salt annually.

Other minerals mined include limestone-weathered shale, iron ore, pozzolana and gypsum. Coal and heavy fuel oil are imported. The consequences for fisheries of the different mining phases (exploration, mining/refining and mine closure) include impacts from waste, fluid and sewage disposal, water pollution, risk of oil spills, and socio-cultural and economic changes arising from the increase in micro-economic trade related to mining activities. In addition, chemical pollutants including halogenated hydrocarbons, heavy metals and petroleum products<sup>42</sup> can cause tumours and diseases in coastal fish thus negatively impacting on the fishery. Plastic and other debris that may arise from these activities are known to kill a variety of marine animals including sea turtles and dugongs.<sup>43</sup>

40 Seehausen, O., van Alphen, J. and Witte, F. (1997). 'Cichlid fish diversity threatened by eutrophication that curbs sexual selection'. *Science* 277: 1808-1810.

41 Wachenje. Personal communication.

42 NRC. (1995). *Understanding Marine Biodiversity: a research agenda for the nation*. Washington, DC: National Academy of Science.

43 Wamukoya, G.M. et al. (1997). *Sea Turtle Recovery Action Plan for Kenya-STRAP*. KCCT Technical Report TR-1; WWF Eastern Africa Marine Ecoregion. (2004). *Towards a Western Indian Ocean Dugong Conservation Strategy: The status of dugongs in the Western Indian Ocean region and priority conservation actions*. Dar es Salaam: WWF.

The most important issues arising from these multiple demands on the coastal zone are declining

fisheries productivity, habitat destruction, resource-use conflicts and a decline in biodiversity.<sup>44</sup>

### 3. Public perceptions of basic fisheries issues

The decline in the marine fishery is generally attributed to overfishing<sup>45</sup> and oceanic climatic variations.<sup>46</sup> While growth overfishing reduces the size and yield of target species,<sup>47</sup> recruitment overfishing reduces the recruitment success of populations.<sup>48</sup> Ecosystem overfishing alters species interactions and habitat quality.<sup>49</sup>

An increase in human population and the use of destructive fishing gear are seen to be responsible for the decline in fish landings.<sup>50</sup> Traditionally non-fisher tribes are joining the fisheries and there has been an upsurge of destructive fishing practices. The fishery has further attracted migrant fishermen whom local fishermen accuse of using small meshed beach seine nets and sometimes dynamite.<sup>51</sup> Local fishermen have estimated a 90% drop in trap catch since the arrival of beach seines.<sup>52</sup> In areas where the gear was excluded, catches were observed to be higher.<sup>53</sup> However, according to a study carried out in Mombasa, Malindi and Diani with regard to gear management,<sup>54</sup> traditional leaders were not viewed as discouraging the use of small-meshed nets.

Reef area degradation brought about by overuse is evident through the lower abundance of finfish and coral and the increased numbers of sea urchins,

increased turf algae cover, and lowered coral cover. Management initiatives suggested include the following: a) the general encouragement of responsible fishing practices and co-management structures; b) the curtailment of destructive fishing methods including the use of poisons, beach seines and spear guns; c) further development of Marine Protected Areas (MPAs) with both park (non-fishing) and reserve (fishing restrictions) sectors; and d) a resolution of conflicts arising from the migration of foreign nationals from Pemba Island and the northern Tanzanian coast into Kenya's south coast fishing areas where the foreign nationals are accused of using destructive fishing gear.

Although according to fishermen, catch per unit effort has declined significantly over the last 30 years,<sup>55</sup> there is a low degree of awareness that land-based activities, political and economic conditions could affect the condition of the resource. Instead, some fishermen associate a reduction in marine fish to the fish moving towards other locations, hiding or altering their behaviour apart from attributing it to traditional beliefs.

According to the local community, the introduction of the salt recovery industries at Malindi were seen not only to have taken farming land from

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- 44 Kimani, E. and Mwatha, G.K. (2005). 'Research and Management of Fish and Marine Resources'. In: Wamukota, A.W. (Ed.). *Proceedings of the Exposure & Exchange Workshop on Marine Life Management*, Plaza Beach Hotel, Mombasa, 10-15 April 2005.
- 45 Rose, G.A., de Young, B., Kulka, D.W., Goddard, S.V. and Fletcher, G.L. (2000). 'Distribution shifts and overfishing the northern cod (*Gadus morhua*): a view from the ocean'. *Can. J. Fish. Aquat. Sci.* 57: 644-664.
- 46 Lauck, T., Clark, C.W., Mangel, M. and Munro, G.R. (1998). 'Implementing the precautionary principle in fisheries management through marine reserves'. *Ecol. Appl.* 8: 72-78; Drinkwater, K.F. and Mountain, D.G. (2002). 'Climate and oceanography'. In: Boreman, J., Nakashima, B.S., Wilson, J.A. and Kendall, R.L. (Eds). *Northwest Atlantic groundfish: perspectives on a fishery collapse*, pp.3-25. Bethesda, MD: Amer. Fish Soc.
- 47 Koslow, J.A., Hanley, F. and Wicklund, R. (1988). 'Effects of fishing on reef fish communities at Pedro Bank and Port Royal Cays, Jamaica'. *Mar. Ecol. Prog. Ser.* 43: 201-212.
- 48 Jennings, S. and Lock, J.M. (1996). 'Population and Ecosystem Effects of fishing'. In: Polunin, N.V.C. and Roberts, C.M. (Eds). *Reef Fisheries*, pp.193-218. (London: Chapman and Hall.
- 49 McClanahan, supra, note 13.
- 50 McClanahan, T.R., Glaesel, H., Rubens, J. and Kiambo, R. (1997). 'The effects of traditional fisheries management on fisheries yields and the coral-reef ecosystems of southern Kenya'. *Env. Conservation* 24(2): 105-120.
- 51 KESCOM. (2005). *Enhancing Community Participation in the Conservation and Management of Sea Turtles in Kenya*. UNDP GEF/SGP Project Report.
- 52 McClanahan and Kaunda-Arara, supra, note 14.
- 53 McClanahan and Mangi, supra, note 10.
- 54 McClanahan, T.R., Maina, J. and Davies, J. (2005). 'Perceptions of resource users and managers towards fisheries management options in Kenyan coral reefs'. *Fisheries Management and Ecology* 12: 105-112.
- 55 Malleret-King, supra, note 5.

the locals and rendered the few remaining farms unproductive due to salt water intrusion, but contributed to the decline in fish catches in adjacent areas due to changes in the marine environment arising from increased salinity.<sup>56</sup> Tourism development is also cited as contributing to coral deaths since its activities

sometimes involve stepping on live corals, thereby interfering with reef fishery habitat. Inshore prawn trawling in Ungwana bay is also perceived to have depleted local fisheries through habitat destruction, leading to a decline in fish landings.<sup>57</sup>

## II. The legal regimes governing fisheries

### 1. Global and regional international legal instruments affecting Kenya

**Table 3. Global legal instruments**

Agreements	Date of signature	Date of ratification/ accession	Date of entry into force
United Nations Convention on the Law of the Sea (Montego Bay)	10. December 1982	02. March 1989	16. November 1994
Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (New York 1995)	04. December 1995	13. July 2004	
FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Rome 1993)	29. November 1993		
Ramsar Convention on Wetlands (Iran 1971)	02. February 1971	05. October 1990	21. December 1975
Rome Declaration on the Implementation of the (FAO) Code of Conduct for Responsible Fisheries (Rome 1999)	10./11. March 1999		
Convention on Biological Diversity (Rio de Janeiro 1992)	11. June 1992	26. July 1994	24. October 1994
Agreement for the Establishment of the Indian Ocean Tuna Commission (Rome 1993)	25. November 1993		27. March 1996
Convention on the High Seas (Geneva 1958)	29. April 1958	20. June 1969	30. September 1962
Convention on Fishing and Conservation of the Living Resources of the High Seas (Geneva 1958)	29. April 1958	20. June 1969	20. March 1966
Convention on the Continental Shelf (Geneva 1958)	29. April 1958	20. June 1969	10. June 1964

<sup>56</sup> Omar Mshamu. Personal communication.

<sup>57</sup> Fulanda, B. and Moton'gwa, H. (2001). 'Bottom shrimp trawling in Malindi: A preliminary survey of its impacts on the artisanal fishery'. Paper presented at the WIOMSA symposium, Dar es Salaam, 22-25 October 2001.

**Table 4. Regional international legal instruments/regional fisheries bodies**

Organization/body	Date of signature	Date of ratification/ accession	Date of entry into force
Indian Ocean Tuna Commission (IOTC) (Rome 1993) – drawn up (at Rome) under Article XV of the FAO Constitution and approved by the FAO Conference at its 27th Session	25. November 1993	9. January 2004	27 March 1996
South West Indian Ocean Fish Commission (SWIOFC) – established by the FAO Council at its 127th Session under Article VI(1) of the FAO Constitution	November 2004		
Southern Indian Ocean Fisheries Agreement (SIOFA) (Rome 2006)	12. July 2006		
Western Indian Ocean Marine Science Association (WIOMSA)			
Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region of 1985 and its protocols (Nairobi Convention)	21. June 1985		

## 2. Overview of domestic legislation

The main laws governing fisheries activities are the Fisheries Act Cap 378 (hereinafter Fisheries Act or FA) and the Wildlife (Conservation and Management) Act Cap 376 (hereinafter Wildlife Act or WA).

### *a) Fisheries Act*

The Fisheries Act is implemented by the Ministry of Livestock and Fisheries in conjunction with other State organizations, such as the Fisheries Department. It aims at controlling fishing activities and subsequent processing.

The Fisheries Act 1989 (Act No. 5 of 1989; revised 1991) applies to both marine and inland fisheries. It is set out in six parts and 26 sections. In addition to the Act, there are the Fisheries (General) Regulations (Legal Notice 34) of 1991; and the Fisheries (Foreign Fishing Craft) Regulations (Legal Notice 35) of 1991; which concretize the provisions of the Act. Like the Act, they are structured in parts and sections known as

regulations. Unless otherwise indicated, in this chapter FA will refer to the provisions of the Fisheries Act, FGR to the provisions of the Fisheries General Regulations and FFFCR to the provisions of the Fisheries (Foreign Fishing Craft) Regulations.

The Act establishes bases for the following:

- a) Registration of fishing vessels (obligation to register fishing vessels and definitions of governing conditions);
- b) Licensing provisions;
- c) Offences and enforcement;
- d) General provisions
  - i) Ban on fishing for marine mammals in Kenyan waters.
  - ii) Specification of Minister's powers to make regulations (e.g., to organize and regulate marketing and distribution of fish; establish credit schemes, etc.).

***Fisheries (General) Regulations***

The Fisheries (General) Regulations (FGR) address more issues pertinent to local fishing vessels, fishermen, fish traders and processors of fish and fish products.

The FGR are divided into 12 parts containing 69 regulations. These provisions deal with:

- a) Registering local fishing vessels;
- b) Licensing fishermen;
- c) Administering licences, permits and certificates of registration;
- d) Format for publishing notices in the gazette;
- e) General management measures;
- f) Regulating trout fishing and trout fishing activities;
- g) Importing live fish;
- h) Restricting purchase of fish;
- i) Preventing pollution, and protecting and conserving fisheries waters;
- j) Issuing private property marks for fishing gear;
- k) Enforcement.

In Schedules 1-4, the FGR also contain samples of general (fishing) application forms, lists of fees for registration and specific licences and permits, lists of designated landing stations, diagrams of fish measurements, etc.

***Fisheries (Foreign Fishing Craft) Regulations***

The FFFCR are made up of five parts with 47 regulations. The provisions deal with the following:

- a) Licensing foreign fishing vessels (FFVs);
- b) Controlling FFV in Kenya's waters;
- c) Fisheries scientific research;
- d) Miscellaneous (powers of authorized officers, observers, security, penalties).

The FFFCR also contain samples of application forms, foreign fishing craft licences, a list of fees and calculations for royalties.

***b) Wildlife Act***

The Wildlife Act of 1976 (amended 1989) is implemented by the Ministry of Environment and Natural Resources (MENR) and other relevant government agencies such as the Kenya Wildlife Service (KWS). It aims at preservation and control of wild fauna and flora by ensuring that they flourish naturally in their habitats. However, most of its provisions relate to animal wildlife issues and dryland parks and reserves, with little mention of fisheries. Therefore, the KWS is in the process of developing marine-park and reserve-specific regulations.<sup>58</sup>

The WA is structured in nine parts with 68 sections. Its prime objective is to ensure that wildlife is managed and conserved in such a manner as to yield benefits for the nation and individual areas (in particular) without prejudicing proper management and conservation. It has provisions on the following:

- a) Administrative structures (director, officers, game wardens, delegation of powers);
- b) National parks, reserves and sanctuaries (power of Minister to declare any area a specially protected area, management of parks, etc.);
- c) Control of hunting;
- d) Trophies and live animals;
- e) Enforcement;
- f) Wildlife fund;
- g) General provisions.

Regulation concerning parks and reserves was originally described in the Kenyan government Sessional Paper No.3 of 1975 and later in the WA. Protected areas are divided into parks and reserves. Previous subsidiary legislation to the Act only referred to Kisite Marine National Park,<sup>59</sup> and the Mpunguti and Kiunga Marine National Reserves<sup>60</sup> under parks and reserves, respectively. The new Wildlife (Conservation and Management) (National Parks) (Amendment) Regulations 2005 which entered into force on 1 July,

58 McClanahan, T.R., Mwangi, S. and Muthiga, N.A. (2005). 'Management of the Kenyan coast'. *Ocean and Coastal Management* 48: 901-931.

59 Legal Notice 92/1978, 13/1983, 18/1983, 100/1983, 13/1984.

60 Legal Notice 75/1976, 91/1978, 186/1979, 187/1979, 261/1979, 290/1979, 291/1979, 300/1979, 13/1983, 101/1983.



2006<sup>61</sup> divided the parks into five groups, 'A-D' and 'Special'. All marine parks and reserves are grouped under category 'C' without specifically naming them.

Within national parks, there are restrictions on extractive activities, but visitation, education and research activities are allowed. In the national reserves, controlled extraction of resources in addition to visitation, education and research activities is allowed.

Apart from the above legislation, the Forest Act and the Environmental Management and Coordination Act (EMCA) play a vital role in marine fisheries.

### c) *Forest Act*

The Forest Act was first enacted in 1962 (Cap 385) and was subsequently revised in 1982 and 1992. It was implemented by the Forest Department of the MENR and addressed preservation, protection management, enforcement and utilization of forest resources in forest areas. According to the Act, 'a forest area means an area of land declared under section 4 to be a forest area'. It covered, among other things:

- a) The power of the Minister to gazette, alter boundaries, and de-gazette forest reserves (Section 4).
- b) The declaration of nature reserves (an area deemed to require extra protection for the purpose of preserving its natural amenities and wherein the exploitation of forest products is prohibited, except with the permission of the Director of Forestry in consultation with the chief game warden) within forest reserves, and regulation of activities within nature reserves (Section 5).

- c) Licences for activities within forest reserves (Section 7).
- d) The prohibition of activities in forest reserves (Section 8).
- e) The enforcement of provisions of the Act, penalties and powers (Sections 9-14).
- f) The power of the Minister to make rules with respect to sale and disposal of forest products, use and occupation of land, licensing and entry into forests (Section 15).
- g) Miscellaneous:
  - a. Community use of forests for fuel wood, medicinal plants etc.
  - b. Power of local forester to license community use.

The Forest Act is important to fisheries as it regulates all activities pertaining to forests, including mangrove forests,<sup>62</sup> which act as breeding ('nurseries') and feeding areas for fish<sup>63</sup> and other invertebrates,<sup>64</sup> enrich coastal waters,<sup>65</sup> stabilize the shoreline<sup>66</sup> and help in trapping silt and waste from upland run-off.<sup>67</sup> It had a number of shortcomings which left the way open for potential negative impacts on fisheries. These included:

- i) A lack of clear definition of 'forest', which left room for speculation as to whether non-closed canopy forests such as mangroves are forests *per se*.
- ii) The de-gazettement power it bestowed on the Minister which the Minister could use, for example, to allow excision of forests for other purposes.
- iii) Limited involvement of communities in forest management.

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61 See The Wildlife (Conservation and Management) (Amendment) Regulations, 2006, <http://www.kws.org/images/new-tariffs-2006.pdf>.

62 Mangrove forests are the only woody halophytes (plants adapted to living in a saline environment or growing naturally in very salty soil) living at the confluence of land and sea.

63 Marshall, N. (1994). 'Mangrove conservation in relation to overall environmental considerations'. *Hydrobiologia* 285(1-3): 303-309; Beck, M.W., Heck, K.L. Jr, Able, K.W., Childers, D.L., Eggleston, D.B., Gillanders, B.M., Halpern, B.S., Hays, C.G., Hoshino, K., Minello, T.J., Orth, R.J., Sheridan, P.F. and Weinstein, M.P. 'The role of nearshore ecosystems as fish and shellfish nurseries'. Available at: <http://www.epa.gov/watertrain/issue11abstr.html>; Alongi, D.M. (2002). 'Present state and future of the world's mangrove forests'. *Environmental Conservation* 29: 331-349; cf. Sasekumar, A., Chong, V.C., Leh, M.U. and D'Cruz, R. (1992). 'Mangroves as a habitat for fish and prawns'. *Hydrobiologia* 247(1-3): 195-207; Mangrove inlets and creeks in Selangor, Malaysia are the habitat for 119 species of fish and nine species of prawns. The majority of fish and all prawns sampled in the inlets were juveniles.

64 Beck et al., *ibid*.

65 Marshall, *supra*, note 63; Beck et al., *ibid*.

66 *Ibid*.

67 Marshall, *supra*, note 63.

As a result of these and other shortcomings, a draft bill was tabled in parliament, which aimed at, *inter alia*, broadening the definition of 'forest', limiting the power of the Minister and ensuring closer involvement of the local communities in the management of forests. The bill, which was initially rejected, was finally passed in July 2005, giving way to a new Act, the Forest Act 2005.

The Forest Act 2005 gives a broad definition of 'forest', which embraces all types of woody vegetation<sup>68</sup> and specifically categorizes mangrove forests under indigenous forests (Part I, Preliminary). It also states that '[A]ll indigenous forests (...) shall be managed on a sustainable basis for purposes of', among others, '(...) fisheries in mangrove forests' (Section 40(1)h)). The Act slashes the power of the Minister to allow arbitrary removal of forests.<sup>69</sup> From now on, the Minister will have to give notice of intention to de-gazette forestland after which Kenyans will be consulted on the matter.<sup>70</sup> In addition, an environmental impact assessment (EIA) will have to be carried out by an independent organization.<sup>71</sup> Finally, the parliament will still have to approve any decision of excision.<sup>72</sup>

#### ***d) The Environmental Management and Coordination Act***

The state of the environment is vital to the existence of marine life and its ability to flourish. To ensure a well-managed environment, the State must have environmental laws that are capable of counteracting activities which lead to degradation, such as pollution and overexploitation. Kenya lacked such laws prior to the EMCA of 1999, which entered into force in 2000.<sup>73</sup> The Act is implemented by the MENR through various

government agencies, the principal one being the National Environment Management Authority (NEMA) (NEMA is a government parastatal and hosts the focal point office of the Ministry of Environment and Natural Resources.<sup>74</sup> It is in charge of environmental policy implementation in Kenya).<sup>75</sup> The EMCA is divided into 14 parts containing 148 sections.

The Act synchronized and widened the spectrum of environmental concerns, which were initially haphazardly scattered throughout various laws.<sup>76</sup> It made way for the integration and implementation of new ideas in line with international conventions and treaties to which Kenya was party (Section 124) such as the CBD,<sup>77</sup> and for the establishment of environmental quality criteria and standards,<sup>78</sup> e.g., for water for fisheries (Section 71(b)(v)). It also introduced EIAs (Sections 58-67) prior to commencement of any project (Section 58(1)) including fish processing (Schedule 2, 9(o)), as well as environmental audits and monitoring (Sections 68-69).

Other provisions of importance to fisheries deal with:

- a) The conservation of biological diversity. Section 50 gives NEMA authority, in consultation with relevant lead agencies, to, *inter alia*:
  - a. Identify, prepare and maintain an inventory of biological diversity of Kenya;
  - b. Determine which components of biological diversity are endangered, rare or threatened with extinction;

68 It defines a forest as 'any land containing a vegetation association dominated by trees of any size, exploitable or not, capable of producing wood or other products, potentially capable of ameliorating climate, exercising an influence on the soil, water regime, and providing habitat for wildlife'. Swallow, B., Onyango, L. and Meinzen-Dick, R. (2003). 'Catchment Property Rights and the Case of Kenya's Nyando Basin'. Available at: <http://www.iwmi.cgiar.org/assessment/FILES/pdf/publications/WorkshopPapers/CatchmentPropertyRights.pdf>; Matiru, V. 'Forest cover and forest reserves in Kenya: policy and practice'. Available at: <http://www.iucn.org/places/euro/pubs/forest/forestcover.pdf>.

69 Swallow et al., *ibid*; Matiru, *ibid*; Ojanji, W. (2005). 'What you might not know about the Forest Act'. *The Standard*, 2 December. Available online at: [http://www.eastandard.net/archives/cl/hm\\_news/news.php?articleid=33031](http://www.eastandard.net/archives/cl/hm_news/news.php?articleid=33031), accessed on 17 July, 2006.

70 Ojanji, *ibid*.

71 *Ibid*.

72 *Ibid*.

73 For details see Kamau, E.C. (2005). 'Environmental law and self-management by industries in Kenya'. *Journal of Environmental Law* 17(2): 229-244, at 229-231.

74 See East African Region, [http://www.unep.org/regionalseas/Publications/parts\\_data/Convention.doc](http://www.unep.org/regionalseas/Publications/parts_data/Convention.doc).

75 *Ibid*.

76 Kamau, *supra*, note 73.

77 E.g., the question of access to genetic resources, EMCA, Section 53.

78 Kamau, *supra*, note 73, 241.

- c. Identify potential threats to biological diversity and devise measures to remove or arrest their effects;
- d. Undertake measures so as to integrate conservation and the sustainable use ethic in government or private activities affecting biological diversity;
- e. Protect indigenous property rights of local communities in respect of biological diversity.
- b) The conservation of biological resources *in situ* (Section 51). NEMA has the mandate to issue guidelines, in consultation with relevant lead agencies, for:
  - a. Land-use methods that are compatible with conservation of biological diversity;
  - b. The selection and management of protected areas so as to promote the conservation of the various terrestrial and aquatic ecosystems under the jurisdiction of Kenya;
  - c. The selection and management of buffer zones near protected areas;
  - d. Special arrangements for the protection of species, ecosystems and habitats threatened with extinction;
  - e. Prohibiting and controlling the introduction of alien species into natural habitats; and
  - f. Integrating traditional knowledge for the conservation of biological diversity with mainstream scientific knowledge.
- c) The protection of the coastal zone (Section 55):

- a. The power of the Minister (by notice in the Gazette) to declare an area a protected coastal zone and to issue, in consultation with relevant lead agencies, appropriate regulations to prevent, reduce and control pollution or other forms of environmental damage.
- b. The power of the Authority (NEMA), in consultation with relevant lead agencies, to prepare a survey of the coastal zone containing, e.g., an inventory of the state of the coral reefs, mangroves and marshes found within the coastal zone, areas within the coastal zone of special value for research in respect of fisheries, erosion and its impact on the coastal zone, an estimate of the extent, nature, cause and sources of coastal pollution and degradation etc.
- c. The prohibition against and penalty for pollution.

Probably one of the greatest steps the Act makes is to acknowledge the importance of leading international legal principles through statutory recognition of what has in the recent past evolved as generally accepted international principles in the field of environment as a whole.<sup>79</sup> The Act outlines a number of principles of sustainable development<sup>80</sup> – as defined in the Brundtland Report of 1987.<sup>81</sup> These are anchored in part II of the EMCA (Section 3) and include:

- h) The principle of public participation in the development of policies, plans and processes for the management of the environment;<sup>82</sup>

79 Several principles and concepts of environmental law have emerged in the more than two decades since the Stockholm Conference in 1972. Some of these, which first appeared as 'soft law' in such documents as the Stockholm Declaration on the Human Environment, 1972 (UN Doc. A/Conf. 48/14/Rev. 1, United Nations, New York, 1973); the World Charter for Nature, 1982 (GA Res. 37/7, 37 UNGAOR. Supp. No. 51, UN Doc. A/37/51, United Nations, New York, 1982); and the Rio Declaration, 1992 (Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-4 June 1992, Vol. 1, United Nations, New York, 1992) have subsequently been incorporated into treaty law and national legislation of a number of pioneering States.

80 Section 3(5); for further reading see Ogolla, B.D. and Ojwang, J.B. (1999). Kenya Section. In: *International Encyclopaedia of Environmental Law*, p.24 ff. Kluwer Law International.

81 See World Commission on Environment and Development. (1987). *Our Common Future*, p.43. Oxford University Press ('Brundtland Report'). The Brundtland Report defines sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their needs'. The inspiration for this concept appears to have crystallized after the Stockholm Conference on the environment in the 1970s. However, its clear legitimacy and acceptance came with the 1992 Earth Summit in Rio when the official document of the summit provided a blueprint for harmonizing the imperatives of economic development and those of a healthy environment. Cf. Nyamu, J.G. (2000). 'Environmental law and practice – a big step forward'. *The Lawyer* 14. Agenda 21 stressed the need for national capacity for sustainable development in developing countries by using national environmental legislation and building up institutional frameworks to deal with the management of the environment.

82 See Ministry of Environment and Natural Resources (MENR). (1994). *The Kenya National Environment Action Plan Report*, p.137 ff. Nairobi: Government Printer.

- i) The cultural and social principles traditionally applied by any community in Kenya for the management of the environment or natural resources in so far as the same are relevant and are not repugnant to justice and morality or inconsistent with any written law;
- j) The principle of international cooperation in the management of environmental resources shared by two or more states;
- k) The principles of inter-generational and intra-generational equity;<sup>83</sup>
- l) The polluter-pays principle;<sup>84</sup> and
- m) The precautionary principle.

These principles guide the elaboration of environmental laws, as well as all activities that affect the environment.

### 3. Institutional structures

#### *Fisheries Department*

##### *a) Director*

The Fisheries Act establishes the office of the Director who is the main authority charged with the administration of the provisions of the Act subject to the directions of the Minister (Section 3(1)). He is assisted by an assistant Director.

In order to discharge his powers, the Director is mandated to delegate, in writing, powers and functions conferred upon him by the Act to authorized officers at his own discretion (Section 3(2)).

The Director is endowed with regulatory powers aimed at promoting traditional and industrial fisheries, fish culture and related industries<sup>85</sup> (Section 4), as well as imposing management measures – with the approval of the Minister (Section 5).

The Director receives applications for licences from foreign fishing vessels and issues licences (Section

##### *e) Scope of application in the coastal zone and EEZ*

As already mentioned above, Kenya does not have a separate law on governance of fisheries in the EEZ. The subsidiary regulations to the Fisheries Act known as 'The Fisheries (Foreign Fishing Craft) Regulations', or 'EEZ Regulations', is the only legislation which could be referred to as EEZ-specific. Consequently, most of the measures used to govern the EEZ apply equally to the coastal zone. Therefore, the instruments of promotion and management of fisheries considered in Sections 4 and 5 below are largely applicable to both coastal and exclusive economic zones.

12(1)). He may also receive applications from local fishing vessels if no fisheries officer has been designated by him to do so (Section 9(1)). It is his responsibility to ensure that a register of all vessels registered under the Fisheries Act is kept (Section 7(4)), and that all licensees comply with any requirements that the Director may establish concerning the making of statistical returns and the collection of information (Section 8(4)). He may revoke or suspend a licence for a local or foreign fishing vessel at any time if necessary (Sections 10(2) and 13(2)). With the Minister's approval, the Director may exempt a local vessel, in writing, from paying the whole or part of the registration fee (FGR, 3(3)). The Director may also compound offences and order the release of any vessel or other thing seized by receiving a sum of money not exceeding the maximum fine specified for the offence, or the value of the vessel or other thing, respectively, if the offender admits in writing to having committed the offence (Section 20(1)). Finally, the Director may assign an observer to any foreign fishing craft (FFFCR, 44(1)).

83 See Government of Kenya. (1965). *Sessional Paper No. 10 (1965): African socialism and its application to planning in Kenya*, p.39. Nairobi: Government Printer.

84 See Government of Kenya. (1989). *Development Plan 1989-1993*, para. 8.30. Nairobi: Government Printer.

85 To this end the Director shall cooperate with other appropriate agencies and other Government departments.

#### **b) Fisheries officers**

Fisheries officers may be divided into two groups depending on their function: 'white-collar' and 'field' fisheries officers.

'White-collar' fisheries officers mainly perform office duties, which include receiving applications for licences from local fishing vessels and issuing licences through designation by the Director and subject to his instructions (Section 9(1) and (2)). They may require any vessel to be inspected by an authorized officer prior to issuing a licence (FGR, 3(4)). They also receive fees for licences (Section 9(2) and allot identification numbers to vessels, as well as ensuring that the allotted number is entered in a register (FGR 3(5)). Field fisheries officers, on the other hand, are mainly involved in the enforcement of the provisions of the Act and regulations made thereunder (Sections 17 and 18). They are generally referred to as 'authorized officers' and are comprised of fisheries officers of the FiD, police officers of or above the rank of inspector, officers of the Kenyan Navy or other armed force, or persons appointed by the Minister, by notice in the Gazette, for the same purpose (Section 2).

According to Section 18, authorized officers are empowered to 1) stop and board any fishing vessel in Kenyan waters so as to inspect such vessel, its cargo, supplies, fishing gear and equipment; 2) stop and inspect any vehicle transporting fish; 3) demand and examine licences and any other documents required

under the Act or regulations made thereunder and take copies thereof; 4) require to be produced and examine any fish, net or any other fishing gear; or 5) impound any fish to be taken as samples and issue a receipt in the prescribed form. They also have the power to enter premises which have either been used, or are suspected to have been used for offences, arrest persons believed to have committed offences, and seize any fish, gear, vessel, vehicle etc. used or believed to have been used in the committing of an offence.

Authorized officers may exercise any of the powers and functions of the Director if delegated by him in writing (Section 3(2)). They may also conduct any prosecution for any offence under the Act or the regulations made subject to the direction of the Attorney General (Section 21). In such cases, the authorized officer will have all the powers conferred upon a public prosecutor by the Criminal Procedure Code (Section 21).

#### **c) Minister**

The Minister gives directions to the Director in discharging his powers (Section 3(1)), and approval in imposing management measures (Section 5(1)). He has general regulatory powers to 'make regulations for the better carrying into effect of the provisions of this Act' (Section 23(1)) and may change or abrogate the decisions or actions of the Director at the appeal of an aggrieved party (Section 6(2)).

### **4. Instruments promoting fisheries**

#### **a) Education**

The Fisheries Act broadly empowers the Director of fisheries to undertake fishery development measures in cooperation with appropriate agencies and other government departments. These include, *inter alia*, providing extension and training services, conducting research and surveys, promoting cooperation among fishermen, promoting arrangements for the orderly marketing of fish, providing infrastructure facilities, stocking waters with fish, as well as supplying fish for stocking.

#### **b) Structural policies**

In order to facilitate policies promoting fisheries, the Fisheries Act Cap 378 makes a provision in Section 24 allowing the Minister to prepare schemes, with the Treasury's approval, for modernizing fishing methods. These schemes aim to provide fishers (and fish farmers) with financial assistance so that they can achieve the following:

- a) Acquire or modernize fishing vessels;
- b) Acquire equipment e.g., gear, nets etc.;
- c) Develop fish farms; or
- d) Purchase inputs.



This law was made in the 1970s and was intended to help fishers benefit from loan schemes without them necessarily having any guarantees for repayment prior to receiving loans: it was based on good faith.<sup>86</sup> Unfortunately, administration of the scheme was difficult and chaotic with some fishers defaulting and others dying without leaving any arrangements for repayment, etc.<sup>87</sup> As a result, the Government suspended it and restructured its policies.<sup>88</sup> Though defunct, this provision was nevertheless neither repealed nor revised and remains on the statute books today as it was before the Government suspended the scheme (Section 24).

Currently, the only subsidy available to fishermen is the duty-free import of fishing gear. There are no development banks or micro-finance schemes specifically accessible to fishers. Increasingly, fishers have set up groups, associations or committees that are taking over the role of fisher cooperative societies. A total of 10 such groups are in existence.

Under restructured policies, fishers and fishers' groups, associations or committees (hereinafter organization(s)) are supposed to hold direct negotiations with financial institutions.<sup>89</sup> One such institution is the Agricultural Finance Corporation (AFC).<sup>90</sup> The fisher or fishers' organization, subject to prior consultation with the financial institution, prepares a proposal and presents it to the financial institution, which looks at it and decides whether it qualifies for a loan.<sup>91</sup> Unlike the government scheme, however, the fisher or fishers' organization is expected to show evidence of guarantees or securities, preferably in the form of property, before the loan is granted.<sup>92</sup> If the conditions are satisfied, the loan is granted.<sup>93</sup>

In 2001, the Kwale District Development Plan identified the need for fisheries development initiatives such as the provision of boats suitable for use on the outer reef, development of an efficient marketing system, improved access to development loans to enable fishermen to purchase suitable gear and boats, maintenance workshops for boat repairs, hygienic landing depots with cold storage facilities and the construction of slipways to the fish landing site. This was done in the belief that economic constraints had contributed to pressures on the fishery, by affecting gear choice and forcing fishermen into the lagoons and near shore where resources were already overexploited, as they were unable to invest in more seaworthy vessels due to inaccessibility of credit.

The failure to offer fishermen appropriate subsidies, the subsequent effect on gear choice and the combined implications on resource exploitation led to a rethink of the fisheries management regime through the incorporation of traditional management systems into a formal management regime (see below, BMUs).

### c) *Market organization*

The control of trade and price regulation was introduced in Kenya by the colonial government (1901-1962).<sup>94</sup> The newly formed government adopted this system of administrative organization of the market after independence.<sup>95</sup> In 1980, Kenya undertook reforms (Structural Adjustment Programmes (SAPs)) under the aegis of the International Monetary Fund (IMF) and the World Bank, which gradually brought about, among other things, liberalization of trade, interest rates and exchange rates. In addition, there was the privatization of public sector enterprises, removal of price controls and government subsidies.<sup>96</sup>

86 Interviewee, FiD.

87 Ibid.

88 Ibid.

89 Ibid.

90 Ibid.

91 Ibid.

92 Ibid.

93 Ibid.

94 Cf. Bokea, C. and Ikiara, M. (2000). 'The macroeconomy of the export fishing industry in Lake Victoria'. In: *Socio-economics of the Lake Victoria Fisheries*. Report No.7. Nairobi: IUCN-EARO.

95 Ibid.

96 ILO, Kenya: Meeting the employment challenges of the 21st century, Eastern African Multidisciplinary Advisory Team (EAMAT), Addis Ababa, November 1999. Available at: <http://www-ilo-mirror.cornell.edu/public/english/employment/strat/cepr/download/kenya.pdf> (accessed 27 July, 2006).

Today, fishing is a free enterprise: the Government does not, for example, apply administrative pricing any more.<sup>97</sup> Hence, prices regulate themselves depending on the economy,<sup>98</sup> markets, supply and demand.<sup>99</sup> Nonetheless, since many fishers' cooperatives had collapsed even before liberalization, fishers carry out price negotiations independently ('one to one').<sup>100</sup> However, the value added based on the quality of the

fisher's product is another factor, which determines demand and price for that particular fisher and his ability to compete in the market.<sup>101</sup>

As there is no governmental subsidy scheme, the question of compatibility with WTO treaty requirements does not arise.

## 5. Instruments of fisheries management

### *a) Access restrictions*

As mentioned above, the Fisheries Act Cap 378 gives the Director and Minister, under Sections 5, 6 and 23, the power to undertake concrete measures for promotion and management of both marine and inland fisheries. However, as this is a general regulation, there are subsidiary rules which regulate specific issues such as endangered fish species, prohibited gear, permitted fishing methods etc. These are the Fisheries (General) Regulations, Legal Notice 34/91, and the Fisheries (Foreign Fishing Craft) Regulations, Legal Notice 35/91.

### *Licences*

#### *General licence*

No person is permitted to fish in Kenyan waters unless he either possesses a valid fishing licence or is fishing for his own consumption (Section 8(1), FGR 9(1)(a)).<sup>102</sup> A licence is obtainable, subject to the Director's approval, through application to him in the

required form and on payment of the specified fees (FGR, 9(2)).<sup>103</sup>

A fishing licence is just a general authorization to catch fish,<sup>104</sup> but does not allow these activities to be carried out indiscriminately. The licence indicates the species of fish, fishing gear, method of fishing and area for which the licence is valid (Section 8(3)). For certain species of fish, a supplementary licence must be applied for.

#### *Trader's licence and movement permit*

A trader need not necessarily be a fisher. For purposes of trade, a trader's licence and a fish movement permit (FGR 15, 18)<sup>105</sup> may be granted upon application, for fish other than crustaceans and bêche-de-mer (FGR 16, 17), as well as fish products (FGR 15(1)).<sup>106</sup> The fish that are going to be sold must have been landed at a landing station designated under FGR 42 (FGR 15(5)).<sup>107</sup>

97 Interviewee, FiD.

98 Cf. Bokea/Ikiara, *supra*, note 94.

99 Interviewee, FiD; cf. *ibid*.

100 *Ibid*.

101 *Ibid*.

102 This must be done, however, according to the Minister's order published in the Gazette, which defines the quantity of fish deemed to be fish for domestic consumption. According to one fisheries officer, fish for domestic (or own) consumption is estimated at six (6) pieces of fish of a length of approximately forty-two (42) centimetres.

103 A sample of the licence (Form DF/L1) and list of fees are printed in the first and second schedules of FGR, respectively. The licence demands compliance with the provisions of the FA and the regulations made thereunder, and contingency to conditions specified thereunder. The cost of a fisher's licence depends on the use or non-use of craft, the type of craft, i.e., whether mechanized or not, and its length.

104 Although FGR 9(1) (a) raises the question as to whether two licences, for fishing and for the vessel, are required before full authorization to engage in fishery activities is attained, Sections 9(4), 11(1) and FFFCR 3 clearly suggest that a licensed vessel receives permission to enter into Kenya's fishery waters, as well as to conduct fishing activities. In addition, FFFCR 6(2) explicitly waives the registration requirement under Section 7 for foreign fishing vessels. Local fishing vessels registered under FGR 3, on the other hand, are deemed to have a licence required under Section 9. It's probable that Section 9 is meant to seal any loophole that might exist between fishing for domestic consumption and commercial fishing without vessels.

105 A fish movement permit allows the trader to freely move fish and fish products from one place to another. A licensed fisher or fish farmer does not require a trader's licence and fish movement permit.

106 This does not apply to fish already prepared as food and sold by catering institutions for eating by their patrons.

107 Regulation 42 lists designated landing stations: they present a good opportunity for different types of control – Regulation 42(2)(a), for example, provides for the weighing of fish by fisheries officers at designated fish landing stations. This could be a strategic point at which to control quotas, sizes and species.

*Licence for specific species*

As mentioned above, the Fisheries Department has the discretion to limit or abolish activities that may negatively affect certain species or types of fish, e.g., species in danger of extinction. The harvesting of such species is subject to a specific licence for that particular species. The licence defines the terms and conditions under which that given species shall be caught. These species include the following:

- a) Aquarium fish (requires an aquarium fisherman's licence);
- b) Oysters (requires an oyster collector's licence) – the use of mechanical apparatus for gathering oysters from any oyster bed is forbidden. An oyster collector's licence specifies the area where the licensee is permitted to collect oysters and may be marked out on the ground before collection commences.<sup>108</sup> The licence may be cancelled immediately, or amended in whole or in part, if the Director is of the opinion that the licensee's activities are detrimental to the proper management of oyster resources in the area specified;
- c) Trout (requires a trout fishing licence);
- d) Crustacea (requires a crustacea dealer's licence); and
- e) Bêche-de-mer (requires a licence to trade in bêche-de-mer) – any person wishing to export this type of fish must pay royalties based on the value and quantities exported. The rates are determined and prescribed by the Director.

Generally, a fishing licence and all the other licences and permits do not allow for movement of live fish from one water catchment area to another (FGR, 25),<sup>109</sup> or the import or export of fish (Reg. 26) –

including live fish. For these activities, separate licences must be applied for, e.g., export of aquarium fish (Reg. 23),<sup>110</sup> or specific formalities observed.<sup>111</sup>

**b) Catch and effort restrictions**

The Fisheries Act and subsidiary legislation do not specify how the Total Allowable Catches (TACs) for local fishing vessels are determined. For foreign fishing vessels, the Act implicitly suggests the existence of a form of TAC and ITQ under Section 12(2)(a) and (b) respectively. It says that the Director may issue a licence to a foreign fishing vessel only if there are surplus fishery resources (...), which may be harvested. From the surplus, he allocates a specific quantity, presumably an ITQ, that the vessel is permitted to harvest. The EEZ Regulations refer to this requirement under FFFCR 6(1)(f), 7(1) and 7(2)(b). It seems that Section 5(1)(d), FGR 31(2)(a) and FFFCR 10(a), which empower the Director to limit catches, landings and trading of fish based on the amount (weight and quantities), size, age, sex, species etc. could also be interpreted as a kind of TAC.

Section 6(1), which empowers the Director to limit the number of persons, vessels, nets, etc. employed in a fishery, suggests a total allowable effort (TAE). Logically, if an amount of fish to be harvested (ITQ) is fixed as a licence condition, it presupposes that a (general) TAC or TAE, which may alternatively be the basis for the calculation of individual quotas, has previously been set for the stock or species as a whole.

Some of the above instruments do not explicitly address the activities of either local or foreign vessels and therefore could be used to regulate both.

There are currently, however, no records indicating that establishment of TACs takes place in practice before ITQs are issued or TAE is determined. It is

108 If marking out is necessary, the licensee must bear the costs.

109 This prerogative belongs to the fisheries department and is meant to avoid the spread of disease and destabilizing the ecosystem (e.g., the unwarranted introduction of Nile perch in Lake Victoria has caused a drastic reduction of traditional species as Nile perch is a predator fish).

110 A licence for the export of aquarium fish must be surrendered to the collector of customs at the port of export. Its expiry will depend on which event occurs first: the date of expiry as specified in the licence, or the shipment of the consignment.

111 FGR 57(1) requires that any live fish being imported into Kenya be presented to a fisheries officer at the port of entry for verification of any disease. The inspecting officer shall order any fish contaminated with a disease to be destroyed.

possible that ITQs are allocated based on non-statistical knowledge of existing fishery potential, among other possible grounds.

**c) *Technical measures***

The Fisheries Act empowers the Director of fisheries to impose closed seasons for designated areas, species of fish or methods of fishing. Additionally, it considers the limitations on the methods or gear<sup>112</sup> or mesh sizes of nets and the limitations on the amount, size, age and other characteristics and species or composition of species of fish that may be caught, landed or traded, respectively (also FGR 31-32(1)).

The law totally prohibits all fishing activities in breeding areas (FGR 50). Consequently, any person who disturbs any spawn or spawning fish in a breeding area is guilty of an offence punishable by fine, imprisonment or both (FGR 50).

Due to the extreme and constant mobility of marine mammals and turtles, all marine zones of Kenya are declared by law to be marine mammal and turtle sanctuaries (FGR 51). All activities that might threaten, harass, disturb their behaviour or breeding habits are prohibited (FGR 51). Any marine mammal or turtle caught or taken unavoidably during fishing must be put back into the water whether alive or dead (FGR 51). It is an obligation for all fishing vessels to have a turtle excluder device (TED) in place (Kenya Gazette notice no. 7565).

The Director has the power to refuse to issue or renew licences, impose a special licence and catch fees, issue preferential licences in fisheries other than the one desired by the applicant, or revoke or suspend licences (Section 6(1), 10(2)). This is meant to limit the number of persons, vessels, nets or areas in a specific fishery so as to avoid overfishing (Section 6(1), 10(2)). A licensing officer is also empowered under FGR 30(1) to refuse to issue a licence for any reason he thinks fit. However, he must give a full account of his decision to the Director, who has the power to uphold, vary or reject the decision of the licensing officer in case of a complain by an aggrieved party. This provision gives

licensing officers an opportunity to enforce good practice in fisheries activities although their decisions might not always pass.

This instrument is weakened by two major factors. First, a party aggrieved by the Director's or licensing officer's decision may appeal to the Minister or Director, respectively, whose decision is final (Section 6(2), FGR 30(3)). Second, the Minister has the power to exempt any vessel or person from any provision of this Act (Section 23(2)(l)). According to his mandate, the Director is in a better position to know the status of fishery resources than a Minister. If the Director makes a decision to deny, revoke or suspend a licence based on necessity for proper management, it is still within the Minister's power to abrogate it. These kinds of overlapping and conflicting mandates are unhelpful and are likely to have a negative impact on the proper administration of fisheries.

The law makes provision for public or consumer involvement in controlling unlicensed fishing and/or fish trade, which could also be considered as a technical measure. This is done by restricting the purchase of fish by any person from an unlicensed fish dealer, fisher, fish farmer or fisherman's cooperative society, and prescribing penalty measures for contravention of the regulation (Reg. 58). Although this provision might not have been meant to act as a management measure, or be based on public awareness of environmental issues, it can be used as a tool to fight unlicensed fishing and fish trade in environmental public awareness campaigns. This will of course only make sense if the licensing authorities educate fishermen on the need for sustainable fishing and include terms expedient to sustainability in fishing licences.

**d) *Requirements for vessels***

Any local fishing vessel wishing to carry out fishing activities in Kenyan waters must be registered as required by Section 7 of the Fisheries Act and issued with a certificate of registration in the form provided by regulation 3(2) of LN 34/91.<sup>113</sup> The licensing officer may require the vessel to be inspected to ascertain whether it complies with the provisions of the Act

112 According to Section 5(2) of the Fisheries Act, the Director may, by notice in the Gazette, prohibit the possession of gear in the area where it has been prohibited.

113 A sample of the required certificate (Form DF/CR1) is printed in the first schedule of FGR.

before registration (FGR 3(4)). After registration, the vessel is issued with an identification number which is subsequently entered in the register of registered vessels (FGR 3(5)) and is deemed to have a licence required for a local fishing vessel (FGR 8). The number must be painted on each side of the bow of the vessel and must be clear, legible and visible at all times (FGR 4(1)(a), (b)). The change of ownership of a registered vessel must be applied for by the person transferring and the person to whom ownership is being transferred (FGR 6(1)).

A registered vessel must be seaworthy before proceeding on a fishing trip (FGR 7(1)). If a fisheries officer, upon inspection of such a vessel, finds it unseaworthy, he must detain it until it is made seaworthy and a certificate of seaworthiness from an authorized examiner is produced (FGR 7(2)).

All of the above are general management measures, which are applicable in both inland and marine waters. However, in the past they have been used mainly in inland waters. As a result, the FA did not place any concrete restrictions on gear use in the EEZ except for a provision in Reg. 10(b) of FFFCR stating that the Director may include the types, size and amount of fishing gear as a condition for a fishing licence. The only other provision, which could be interpreted as applying to EEZ, is Reg. 43(2) of FGR which states

that a 'seining net with mesh sizes less than 50 mm when diagonally stretched is prohibited fishing gear except for fishing for *Rastrineobola* (Omena)'. Although the fish species referred to as an exception in this provision is most likely found in inland waters, there is no indication that the provision is addressed exclusively to inland waters, and hence may be equally applied in the EEZ.

In 2001, a number of specific restrictions for marine fisheries were put in place including seasonal restrictions on trawling, the need for an approved TED on trawlers, a ban on the use of monofilament nets, seine nets, harpoons and spear guns (Kenya Gazette notice no. 7565). The legal notice number 214 of 2003 prohibited the use of scuba gear and spear guns for fishing lobster and bêche-de-mer. These laws have not been enforced except for beach seine used in some near-shore areas.<sup>114</sup> However, the Fisheries Department has implemented a satellite monitoring system to monitor trawlers, and on-board inspections by fisheries officers are also carried out periodically.<sup>115</sup>

Apart from the general prohibition of gear, an absolute ban on any gear in a particular area (fishery) is permitted by law. In fact, the Director has the power in such cases to attach an additional ban by forbidding the mere possession of such gear in that area by notice in the Gazette (Section 5(2)).

## 6. Special fisheries management measures in the EEZ

### a) *Institutional structures*

The EEZ is mainly governed by the Fisheries Act Cap 378 and subsidiary legislation. By virtue of this Act, the main institution involved in the promotion and management of fisheries in 'Kenya's fishery waters'<sup>116</sup> is the Fisheries Department. In spite of jurisdictional arrangements limiting KWS activities to marine parks and reserves, shortages of personnel and capacity in the Fisheries Department necessitate the KWS' involvement in the general coastal zone, as well as the EEZ, albeit to a limited extent, especially as far as

management efforts are concerned.<sup>117</sup> Hence, the KWS is to be regarded here as the FiD's vital partner in the governance of the EEZ.

### *Fisheries Department*

#### *Observers*

Observers are mainly allocated the duty of scientific data collection (FFFCR, 44(1)). Like authorized officers, they may also carry out management and enforcement activities (*ibid.*). However, they are

114 McClanahan et al., *supra*, note 58.

115 N. Muthiga. Personal communication.

116 'Kenya's fishery waters' are defined as inland waters and the waters of the marine zones (extending to 200 nm according to the Maritime Zones Act of 1989 (Rev. 1991)), and excludes Government and private fishponds and farms not established for commercial purposes.

117 Interviewee, KWS Nairobi.



assigned to foreign fishing vessels by the Director and may carry out those activities only at his authorization (*ibid.*).

### ***Kenya Wildlife Service***

As mentioned above, the activities of the KWS are limited to marine parks and reserves. However, since it is rich in personnel and capacity, it contributes immensely in the EEZ, mainly within the reef system through unregulated participation.<sup>118</sup> This is mainly in research, monitoring and enforcement. The KWS has the capacity and personnel to carry out 24-hour surveillance.<sup>119</sup> It has wardens, cadets, rangers and divers who can do underwater monitoring.<sup>120</sup> It also has other facilities such as offices, boats and vehicles, and carries out education and awareness programmes.<sup>121</sup> The KWS has all along been able to finance all these activities from its own budget as it has always had a greater ability to attract donor funds through bilateral and project funding.<sup>122</sup> It also collects entrance fees in its parks and reserves.<sup>123</sup> However, an ever-broadening mandate, and the need to share available funds between fund-generating and non-fund-generating parks and reserves has seen the KWS' budget diminish.<sup>124</sup>

The KWS' contribution to the governance of the EEZ faces a number of challenges. Based on its legal background, the KWS believes in strict management and exploitation of resources based on proper knowledge thereof, and as a product (or benefit) of good management (*cf.* WCMA, preamble). It is therefore of the opinion that the FiD issuing too many licences, without proper knowledge of the status (of fish species) and behavioural patterns of marine resources, is contrary to good management and detrimental to sustainable fishing.<sup>125</sup> The KWS also

feels that the FiD does so irrespective of shortage of capacity and personnel to control, monitor and enforce regulations.<sup>126</sup>

Probably the worst obstacle for the KWS is the lack of a legal basis for its activities in the EEZ: the KWS cannot enforce FiD measures especially curtailing exploitation, as the FiD has exclusive jurisdiction in the EEZ over this matter.<sup>127</sup> This results in conflicts and difficulties in collaboration between the two departments.<sup>128</sup>

There are prospects for 'friction-free' collaboration between the FiD and the KWS once the Memorandum of Understanding (MOU), which is expected to clearly lay out their mandates and basis for sharing authority and management,<sup>129</sup> takes effect.

### ***b) Requirements for foreign vessels***

#### ***Licences***

Apart from the formal conditions and procedures discussed below, licences for foreign fishing vessels should under normal circumstances be issued based on the ecological status of the fishery. Section 12 of the Act states that the Director may issue such a licence after determining '(...) that there are fishery resources surplus to the Kenya fishery industry that may be harvested' under the licence. From that he may establish the quantity of the surplus that may be harvested and make that requirement a condition of the contract. He also specifies the period of validity of the licence (Section 13). Such licences may, however, be revoked or suspended due to lack of compliance or where such action is necessary for proper management of fisheries (Section 13, *cf.* FFFCR 16).

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118 Ibid.

119 Ibid.

120 Ibid.

121 Ibid.

122 McClanahan et al., *supra*, note 58, p.920.

123 Interviewee, KWS; *cf. ibid.*, pp.906, 915, 920.

124 Ibid.

125 Interviewee, KWS: The interviewee quoted a case when Mexico proposed a deal to the FiD to import twelve (12) dolphins from Kenya. 'There was no information or prior study of the behaviour of dolphins, ecology, or even whether Kenya had any dolphins'. Fortunately, the 'request came to KWS' desk and was rejected'.

126 Interviewee, KWS.

127 Ibid.

128 Ibid.

129 McClanahan et al., *supra*, note 58, pp.906, 926.

These provisions are misleading as proper allocation of quotas can only take place when there is adequate knowledge of a fishery's resources, i.e., the species and stocks of fish available. Presently that knowledge is scarce<sup>130</sup> and in addition, monitoring and surveillance in the EEZ is poor.<sup>131</sup> Hence, this law could be said to be on the statute books but not in use. It is possible that quotas are apportioned as Reg. 33 of FFFCR indicates when requiring notification of completion of quota. This is done though without proper understanding of how much damage the allocation could cause to the fishery. Depending on feedback and information from foreign fishing vessels concerning the fishery or their activities in the fishery cannot be a reliable solution.<sup>132</sup>

According to Section 12 of the Act, an application for a licence may be made either directly to the Director or through a diplomatic representative of the flag state of the craft (FFFCR, 4, 5). The government of the flag state or the inter-governmental organization (e.g., Tuna Association)<sup>133</sup> to which the craft belongs ought to have signed a fisheries cooperation agreement with the Government of Kenya (FFFCR 6). As discussed later, the Kenyan Government has not signed any fisheries cooperation agreements with any country as yet.<sup>134</sup> Hence, no basis exists for the practical implementation of this provision.

A fishing plan must be approved by the Director (FFFCR 6, 7). This or any proposal to revise it may be submitted to the Director from time to time by the diplomatic representative of the country in respect to which an allocation of the allowable catch was made (FFFCR 7). It outlines the proposals for taking from Kenya's fishery waters the country's allocation and includes, *inter alia*, information concerning the following:

- a) The area in the EEZ in which fishing will be carried out by the country's vessel;
- b) The exact number of fishing vessels from that country that will be engaged;
- c) The estimated times for arrival in and departure from the EEZ of such fishing vessels;
- d) The proposed duration of the fishing plan;
- e) An outline of the calls into Kenyan ports to be made by the fishing vessels of that country during the duration of the fishing plan;
- f) An outline of all other proposed operations in support of the fishing vessels of that country in the EEZ during the duration of the fishing plan; and
- g) Any other information required by the Director in order to exercise his powers.

Other requirements include having a local representative for the vessel with authorization to act as well as accept legal responsibility on behalf of the owner and master of that vessel (FFFCR 8) and supplying a performance bond in respect to payment of royalties (FFFCR 6(1)(h)).

A licence for a foreign fishing vessel may contain such terms and conditions as the Director, with the Minister's approval, may determine. These may be such terms and conditions as listed under regulation 10(a)-(s) of LN 35/91 which include, *inter alia*:

- a) The stock, size, sex, weight and quantities of fish to be harvested;
- b) The types, size and amount of fishing gear that may be used or carried on board, and the modes of storage of that gear when not in use;
- c) The amount of bycatch that may be retained;

130 Cf. Gitonga and Achoki, *supra*, note 2.

131 Ibid.

132 Cf. *ibid.*: Long-liners unlike other foreign vessels, for example, are exempted from the annual fee of US\$ 20,000 because they claim that the fish are only available in Kenyan waters for approximately three months of the year. Unfortunately, the FiD is not able to prove how reliable this information is.

133 Cf. Mbithi Mwikya, S. (2005). Fishery access agreements with distant water fishing nations: critical negotiating issues, <http://www.ictsd.org/dlogue/2005-05-09/2005-05-09-Mbithi.pdf>, accessed on 15 August, 2006; Mbithi Mwikya, S. (2006). *Fisheries Access Agreements: Trade and Development Issues*. Geneva: ICTSD. Also available at: [http://www.ictsd.org/pubs/ictsd\\_series/nat\\_res/Mbithi\\_2006.pdf](http://www.ictsd.org/pubs/ictsd_series/nat_res/Mbithi_2006.pdf), accessed on 15 August, 2006; Japan's fisheries agreements with coastal states, for example, do not involve the Japanese government. All arrangements permitting access to Japanese vessels into the EEZs of other countries are either signed between the Japanese Tuna Association and coastal countries or take the form of licence fee arrangements between a specific Japanese company and fisheries authorities of coastal countries.

134 Cf. Gitonga and Achoki, *supra*, note 2; cf. Okidi, C.O. 'Enforcement of Kenya's EEZ fisheries through access agreements'. <http://www.law.pace.edu/environment/2006-abstract-summaries.pdf>.

- d) The requirement to take on board authorized officers or observers;
- e) The inspection of any fishing or fishing-support vessel at any specified periods;
- f) The landing of fish in Kenya;
- g) The provision of statistical and other information, including statistics relating to catch and effort and reports as to the position of the vessel;
- h) The training of Kenyan citizens in the methods of fishing employed by the foreign fishing vessel and the transfer to Kenya of technology relating to fisheries;
- i) The marking of the fishing vessel and other means for its identification;
- j) The installation on the fishing vessel and maintenance in working order of a transponder or other equipment for the identification and location of the vessel and of adequate navigation equipment to enable its position to be fixed from the vessel;
- k) Directions, instructions and other requirements given or made by vessels or aircraft of the Kenya Armed Forces or other government vessels to the fishing craft that shall be complied with; and
- l) Fees and other related charges to be paid.

The Director may modify the fishing plan and/or the licence (FFFCR 11(1)) and shall subsequently notify the craft's local representative concerning the terms of the modification (FFFCR 11(2)). The licence must be kept on board at all times and in good condition in a place where it is safe and can be readily inspected by an authorized officer (FFFCR 14). If the Director determines that the foreign fishing vessel has failed to comply with the conditions of the licence, or deems the licence a threat or an impediment to the proper management of the fisheries, he may revoke or suspend it for the period he deems appropriate (FFFCR 16(1)). A notice of revocation shall be delivered by the Director to the local representative of the vessel after which the owner or master shall ensure that the licence is delivered to the designated person within 72 hours (FFFCR 16(2), (3)). A party aggrieved by the decision of the Director may make an appeal and the decision of the Minister shall be final (FFFCR 17).

Section 23(2) empowers the Minister also to make regulations to control fisheries. These include regulations on foreign participation in fisheries, licensing of foreign fishing vessels, handling, storage and processing of fish, inspection of fish trading and processing establishments and fish products, management and control of fishing ports and waters. He also has the power to exempt any type of fishing gear, vessel or any person from any provision of the Act, etc.

### ***Fees***

A foreign fishing craft must pay a non-reimbursable minimum fee of US\$ 20,000 annually, or at agreed intervals, and royalties (FFFCR, second schedule; Reg. 6(1)(g), (h)). The Director determines the percentage of royalties to be paid based on the total catch, as well as the value of tuna fish and bycatch assumed caught in Kenyan EEZ (FFFCR, second schedule).

### ***Control measures***

In order to control the activities of foreign fishing vessels in Kenya fishery waters, the law has laid down the procedure on how these should behave while in or leaving Kenyan waters. Any foreign fishing vessel that has not been licensed under reg. 6 of the EEZ (Fisheries (Foreign Fishing Craft)) Regulations must keep all fishing gear stowed in such a manner that it is not readily available for fishing (Reg. 19) and shall comply with specific provisions under Regulation 19(1)(a)-(d) regarding fishing gear, nets, trawl boards and weights, and bottom/skiff and helicopter for purse seiners. This also applies to any licensed fishing vessel before it receives port inspection (as it enters the EEZ from the high seas) or after it has been granted clearance to leave the EEZ (Reg. 19).

Any foreign fishing vessel intending to enter the Kenyan EEZ whether licensed, or for the purpose of furtherance of or making an application for a licence must notify the Director 24 hours in advance. The notification must indicate the name, call sign and flag state of the craft; the latitude and longitude of the point at which the craft will enter the EEZ; the port to which the craft will proceed for inspection; the species of fish

on board the craft, and the quantity and condition of each species (Reg. 21).

Any foreign fishing vessel wishing to tranship fish to another vessel in Kenyan fishery waters must do so at the port designated by the Director, at the time authorized for the purpose by him, or at the direction of an authorized officer (Reg. 20).

The Director may exempt any foreign fishing vessel from any inspection requirement(s) at his discretion (Reg. 24).

Every vessel must keep a fishery log at all times in duplicate whenever it is in Kenyan fishery waters. The log should have details of the daily fishing activities of the vessel concerning 1) the fishing methods used; 2) the fishing effort of the vessel (indicated in terms of the number of hauls of trawls or seine nets and in the case of set nets or long lines, the length of netting or number of hooks set per day); 3) the area in which fishing was undertaken specified in longitude and latitude; 4) the species of fish taken and the quantity and average size of fish of each species measured by weight; and 5) the species of fish returned from the vessel to the sea and the quantity. The vessel might be required to give any other information that the Director may consider necessary so as to ascertain the activities of the craft in the Kenyan fishery waters (Reg. 31). In addition, it must report weekly to the Director, or a person designated in the licence, with information concerning the identity of the craft, its geographical location, the quantity in kilograms of each species in the hold and those caught since the last port inspection or weekly radio report, depending on which one occurred last (Reg. 32). Fishing operations must be conducted in such a way as to avoid any intentional or negligent pollution that could cause harm to any fishery resource or marine mammals (Reg. 35). Any incident of pollution either through accident or necessity to rescue the craft or crew, or encountered by the vessel, must be reported immediately to the Director (Reg. 35). Lastly, the Director must be notified immediately the vessel has completed its quota. The quota is deemed

complete once the allotted amount has been harvested from any fishery in the EEZ, or after so much as may only be collected of the allocation from a specified area or by a specified method has been harvested (Reg. 33).

### **Research**

Marine fisheries research activities may only be conducted in the maritime zones of Kenya with the express consent of the Kenyan scientific authority and a permit by the Director (Reg. 37(1), 39). Any state or competent international organization that is permitted to carry out such research must do it for peaceful purposes and to increase scientific knowledge of the marine environment in Kenyan waters (Reg. 37). The application must contain a comprehensive description of the nature and objectives of the research project, the name of the sponsoring institution, its Director and the person in charge of the research project, the names and biographies of all scientific personnel expected to be on board the research vessel and the methods and means to be used, including the name, tonnage, type and class of the research vessel and a description of the scientific equipment on board (Reg. 39). Also to be included is the precise geographical location in which the research project is to be conducted, the anticipated date of first appearance and final departure of the research vessel, or deployment of the equipment and its removal, and the extent to which Kenyan scientists can participate or be represented in the research project (Reg. 39). A copy of the research data must be surrendered to the Director before departure and results made available thereafter (Reg. 40(1)(e)).

### **c) Coherence with pertinent international law**

The UNCLOS of 1982 gives coastal states the sovereign right to explore, exploit, conserve and manage fisheries resources located in their EEZ,<sup>135</sup> which extends to 200 nm from the low-water baseline of the territorial sea (Articles 55-57). The right to access the EEZ fisheries resources and their benefits is thus subject to the duty to conserve and optimally use (Art. 62) them.<sup>136</sup> Proper conservation is to be achieved by

135 Art. 56(1)(a). For further information on the fisheries regime of the exclusive economic zone see Dahmani, M. (1987). *The fisheries regime of the exclusive economic zone*. Dordrecht: Martinus Nijhoff.

136 See also Hey, E. (1999). 'The fisheries provisions of the LOS convention'. In: Hey, E. (Ed.). *Development in international fisheries*, pp.13-29, at 21 ff. The Hague/London/Boston: Kluwer Law International; Birnie, P. and Boyle, A. (2002). *International law and the environment*, pp.659 ff. 2nd Edition. New York: Oxford University Press.

determination of the maximum sustainable yield (MSY)<sup>137</sup> as qualified by environmental and economic factors and taking into account available scientific information (Art. 61).<sup>138</sup> Other states may be allowed access to the remainder (surplus) of the resources subject to conditions pertaining to conservation of resources and payment of allocated quotas (Art. 62 (4)).<sup>139</sup>

Although proper conservation and optimal use is in the interest of the international community, the burden of ensuring that the resources are not depleted is left to the coastal state (Art. 61 (2)). Kenyan laws pertaining to access to and sustainable use of fisheries resources have evolved tremendously so as to conform to pertinent international and regional international agreements, and recommendations of international, regional and national research organisations. As a result, laws have been formulated introducing regulations concerning open and closed seasons for fishing, prohibiting certain gears and methods and demanding, as well as recommending, the introduction of certain devices e.g., TED and Vessel Monitoring System (VMS). The greatest challenge for Kenya is the lack of capacity to research in the EEZ in order to establish the status of the stocks therein, monitor and carry out surveillance of fishing activities and also enforce the EEZ regulations.

Due to a lack of sufficient research, monitoring, surveillance and enforcement, many activities may end up being allowed that are at odds with international

agreements and organizations. These include allocating quotas without proper knowledge of stocks or species and declaring a 200 nm EEZ without the capacity to control either IUU activities or even licensed ones. Again, this is mainly a matter of resources. The fact that even the most developed countries are not able to effectively manage and conserve fisheries in their EEZs<sup>140</sup> testifies that developing countries need a lot of help in this area. It is expected though that regional collaboration within SWIOFC, SIOFA and other such bodies will help to improve the situation not only in the general region but also in individual EEZs. Consequently, laws and fisheries activities are expected to become more coherent with time.

#### *d) Interim remark*

Current Kenyan law is comprehensive enough to ensure proper management of fisheries in the EEZ. Where it fails is in its implementation and enforcement due to a lack of resources and capacity. It is clear, for example, that most of the control of foreign fishing vessels is dependent on good faith and self-reporting. Meanwhile, the status of the fisheries in the EEZ is not well known as not enough research has been carried out. Unfortunately, the gains derived from licence fees are minimal, especially in the light of possible unsustainable fishing and damage done to the ecosystem. The expected introduction of VMS will probably ameliorate this situation, but without adequate human capacity and financial resources, it will still be hard to eradicate violations.

## **7. Special fisheries management measures in the coastal zone**

### *a) Institutional organizational structures*

There are a number of institutions involved in the governance of the coastal zone. These include the Fisheries Department (FiD), the Kenya Wildlife Service (KWS), the Forestry Department (FD), the Kenya Marine and Fisheries Research Institute (KMFRI), the Coastal Development Authority (CDA), Coral Reef

Degradation in Indian Ocean (CORDIO) and the Coral Reef Conservation Program (CRCP).

#### *Fisheries Department*

The Fisheries Department is the main institute mandated to manage fisheries in the coastal zone.<sup>141</sup> This includes areas adjacent to marine parks and marine

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137 Interviewee, FiD.

138 Hey, *supra*, note 136; Birnie and Boyle, *supra*, note 136.

139 Cf. Hey, *ibid.*, p.22.

140 Birnie and Boyle, *supra*, note 136, p.660.

141 Cf. McClanahan et al., *supra*, note 58, p.906.



reserves. Marine parks are exclusively managed by the KWS, whereas marine reserves are jointly managed by the FiD and the KWS.<sup>142</sup> The FiD is primarily mandated for the promotion of fisheries,<sup>143</sup> which includes the development of traditional and industrial fisheries, aquacultures and related industries (FA, Section 4). The Act lists a number of measures for achieving this such as providing extension and training services, conducting research and surveys, promoting cooperation among fishermen, promoting arrangements for the orderly marketing of fish, providing infrastructure facilities, stocking waters with fish and supplying fish for stocking (FA, Section 4), and promoting modern fishing methods by providing financial assistance to fishermen (FA, Section 24). As has already been seen, some of these functions are defunct though still on the books.

Licensing is also seen as a quasi means of promotion in the sense of encouraging more exploitation of fisheries. This is especially important since the FiD no longer belongs to a ministry that is attached to the office of the president, and therefore no longer has such easy access to finances.<sup>144</sup> Hence, the FiD has to generate its own resources to cover its budget.<sup>145</sup> This has caused excessive licensing which has resulted in conflicts between the FiD and the KWS, especially in marine reserves which are governed by both institutions:<sup>146</sup> the KWS is considered too restrictive by the FiD.<sup>147</sup> It also conflicts with the management role of the FiD itself and that of the KWS<sup>148</sup> (see subsection b)i) below).

### *Kenya Wildlife Service*

The Kenya Wildlife Service is primarily mandated to manage and conserve wildlife with a focus on protected

areas and endangered species.<sup>149</sup> The legislation issuing this mandate, the WCMA, does not address marine parks and reserves specifically but rather parks and reserves in general. Hence, certain features particular to marine resources may not be sufficiently addressed. However, in discharging its responsibilities, the KWS is guided by bylaws: in marine parks by fisheries' Gazettes, an approach which is more or less an amalgamation of the FA and the WCMA, and in marine reserves by the Local Authorities Act and Local Council bylaws, but still taking into account the FA and the WCMA.<sup>150</sup>

Although, legally, promotion of fisheries is not a significant part of the KWS' role, tangible effects nevertheless ensue from its managerial role. The spillover effect from the no-take zones to surrounding areas not only shows the impact of KWS' ability to manage fisheries, but also testifies to its positive contribution towards promotion of fisheries.<sup>151</sup> There is more breeding in the no-take zones thus providing more fish for the surrounding areas where fishing is allowed.<sup>152</sup> The number and species of fish are greater in the marine parks and marine reserves.<sup>153</sup> Consequently, the tendency of fishermen to concentrate in certain areas believed to have more fish has changed: now they tend to pitch their nets and traps very close to marine parks.<sup>154</sup> This trend has also helped relieve former preferred fishing areas from the pressures of overexploitation.<sup>155</sup>

Aside its management role, the KWS carries out research within MPAs mainly in close collaboration with the KMFRI.<sup>156</sup> It also cooperates with CORDIO, the CRCP and the WCS.<sup>157</sup>

142 Ibid., p.911.

143 Ibid., p.906.

144 Interviewee, FiD; cf. Gitonga and Achoki, *supra*, note 2: One of the constraints of the fisheries sub-sector is low funding levels for the Fisheries Department and the sector.

145 Ibid.

146 E.g., Kiunga marine reserve: interviewee, KWS.

147 Interviewee, KWS.

148 A KWS interviewee quoted a case of licensing in Watamu marine reserve by the FiD without involving or informing KWS.

149 McClanahan et al., *supra*, note 58, p.911 (Table 3).

150 Interviewee, KWS.

151 Interviewee, KWS.

152 Ibid.

153 Ibid.

154 Ibid.

155 Ibid.

156 Ibid.

157 Ibid.

### *Forestry Department*

The Forestry Department falls under the Ministry of Environment and Natural Resources. It is responsible for the management of forests (coastal and mangrove) including licensing of logging and reforestation.<sup>158</sup>

Mangrove forests are vital breeding and feeding areas for fish<sup>159</sup> and they also perform other vital functions for fisheries.<sup>160</sup> It means that degazetting such forests as well as licensing community use of them for fuel wood, medicinal plants, etc. must be done with knowledge of the impact of such activities on fisheries and in consultation with other institutions such as the FiD and the KWS, and the KMFRI which are involved in the management of and research on fisheries, respectively. In the past, most legislation has failed to take into account the interests of all the relevant institutions. The Forest Act Cap 385 of 1962, for example, empowered the Minister to degazette forests or allow their excision on his own initiative (Section 4). The new Act of 2005 introduces consultation, EIA and the approval of parliament before degazetting or excising forests<sup>161</sup> and states clearly that '[A]ll indigenous forests (...) shall be managed on a sustainable basis for purposes of', among others, '(...) fisheries in mangrove forests' (Section 40(1)h)).

The new developments in the regulation of forests are a signal of the need to go beyond immediate departmental considerations and to seek and encourage institutional consultation and collaboration where mandates overlap and/or conflict. Hopefully other ministries/departments will follow the same trend.

### *Kenya Marine and Fisheries Research Institute*

The Kenya Marine and Fisheries Research Institute falls under the Ministry of Research, Technical Training and Technology.<sup>162</sup> It is administered by a Board of Management constituted under the Science and Technology Act of 1979.<sup>163</sup> Unlike the KWS and other bodies involved in fisheries and aquatic research, its jurisdiction is nationwide<sup>164</sup> and has a wide spectrum

of research including all aspects of aquatic systems<sup>165</sup> and physical as well as social sciences – fisheries,<sup>166</sup> pollution, socio-economics, information and data management etc.

Fisheries research is an interdisciplinary subject that involves the study of productivity ecology, physical and chemical characteristics of water (oceanography and limnology) besides studies which are directly related to fisheries biology, fishery diseases, stock assessment, fish nutrition, fisheries quality and marketing. In order to better understand fisheries resources and their predictability (which is essential in exploitation and management), fisheries research aims to: establish quantities of fish stocks in inland and marine water bodies, innovate appropriate fishing technology for various types of fisheries organisms in different water bodies and habitats, document fish diseases that are a hindrance to fisheries development, and understand the biology and ecology of major species of fisheries organisms of economic and commercial importance for sustainable exploitation.

Socio-economic research looks at the use of aquatic resources not only from the point of view of monetary gain, but also the benefits of better health as a result of improved nutrition standards and conservation of resources through cultural and religious practices, which is one way of living in harmony with the environment. Furthermore, poverty alleviation and creation of employment are additional benefits.

Therefore, it aims at achieving cost-effective methods of sustainable exploitation of aquatic resources (and the environment) through participatory approaches with communities in order to guarantee benefits to the latter.

Information and data management research strives to create adequate information on the state of the marine environment and resources, facilitate informed

158 McClanahan et al., supra, note 58, p.911 (Table 3).

159 Marshall, supra, note 63; Beck et al., supra, note 63; Alongi, supra, note 63; cf. Sasekumar et al., supra, note 63.

160 Marshall, *ibid.*; Beck et al., *ibid.*

161 Marshall, *ibid.*

162 See East African Region, supra, note 74.

163 *Ibid.*

164 *Ibid.*

165 *Ibid.*

166 *Ibid.*

decision making and the formulation of technology-related policies and plans, sustainable development, and the rational use or management of the environment and natural resources. Information channels play an essential role between researchers and innovators, and users. They are necessary since they give scientists access to the results of previous work on which they can build. Hence, information and data management research aims at creating an authoritative aquatic information and data system for use in increasing food production, protecting the aquatic environment, and development planning. Additionally, it gives scientists and other users the chance to access aquatic science information and data from local and international sources. It also ensures that aquatic information and data collected in Kenya are archived, have undergone quality control and have been analyzed and interpreted for use by scientists.

Unfortunately, the low funding levels for research<sup>167</sup> and the lack of clarity of the system for sharing research data between the institute and the key players of the sector has also inhibited fisheries growth.<sup>168</sup>

#### *Coast Development Authority*

The Coast Development Authority falls under the Ministry of Agriculture and Rural Development. It was established in 1990 by an Act of Parliament, the CDA Act (Cap 449). The Act provides for the establishment of an Authority to plan, facilitate and coordinate the implementation of development projects in the whole of the coast province.<sup>169</sup> The development areas covered are 'that part of the coast province within Lamu, Mombasa, Kilifi, Tana River, Kwale and the Taita-Taveta districts including the southern half of the Garisa District and the EEZ'.

The functions of the CDA include:

- a) To plan for the development of the coastal area;

- b) To initiate studies, carry out surveys and assess alternative demands on the natural resources of the coastal area, and to initiate, operate or implement projects in agriculture, forestry, wildlife, tourism, power generation, mining and fishing;
- c) To avoid the duplication of efforts by liaising with the operational agencies of the government, private sector and others;
- d) To implement projects with the primary aim of enhancing socio-economic development in the Coast province of Kenya; and
- e) To advocate for the effective management of natural resources by encouraging sustainable development projects that minimize negative environmental impacts.

#### *Tourist Department*

The Tourist Department falls under the Ministry of Tourism. Its role is to manage and regulate all tourism activities<sup>170</sup> including licensing. Overlapping mandates, for example, between the Tourist Department, the FiD and the KWS result in conflicts. Tourists receive licences, for example, for deep-sea diving from the Tourism Department without prior consultation with the MPA manager.<sup>171</sup> Unfortunately, tour guides who possess no training on fisheries, and hence, are incapable of tracking unlicensed activities, escort the tourists.<sup>172</sup> Tourists, for instance, destroy fishing nets at times by cutting them.<sup>173</sup> This creates conflicts between the KWS, fishers and divers.<sup>174</sup> It is therefore necessary that the Tourist Department consults and collaborates with relevant institutes/departments while discharging its power especially where mandates overlap.

#### *Municipal councils/local government*

Municipal councils are under the local government. They regulate, license and manage all city and town activities<sup>175</sup> through bylaws (*cf.* above, KWS). Actually, as mentioned above, the KWS is guided in discharging

167 Gitonga and Achoki, *supra*, note 2; Interviewee, KWS.

168 Gitonga and Achoki, *ibid.*

169 Cf. McClanahan et al., *supra*, note 58, p.911 (Table 3).

170 Tourism and recreational activities within MPAs include glass-bottomed boat tours, SCUBA diving, snorkelling, sailing, windsurfing and jet skiing: *cf.* McClanahan et al., *supra*, note 58, p.912 (Table 4).

171 Interviewee, KWS.

172 *Ibid.*

173 *Ibid.*

174 *Ibid.*

175 McClanahan et al., *supra*, note 58, p.911 (Table 3).

its activities in marine reserves by an amalgamation of the WCMA, the FA and local council bylaws.

#### *Provincial/district administration*

Provincial and district administration answer to the Office of the President and are charged with liaising with central government on all development activities at the grassroots level.<sup>176</sup> This should help the government not to come into conflict with any development policies and projects, including 'its own'. However, this is not always the case as there are often violations within the government by government officials.<sup>177</sup> Corruption also has an impact on fisheries and needs to be seriously fought against. Legally, legislative powers should be clearly delineated from powers to execute laws, on the one hand. On the other, implementation authorities must be granted legal security to enable them to function independently in their respective hierarchies without interference or coercion from above. But, there is a great need to transform the judiciary into a body free from corruption and with an exemplary prosecution record.

#### *Coral Reef Degradation in Indian Ocean*

Coral Reef Degradation in Indian Ocean<sup>178</sup> is an operational programme under the ICRI (International Coral Reef Initiative) which involves (approximately 50) researchers from 11 countries in the central and western Indian Ocean<sup>179</sup> – Kenya, Tanzania, Mozambique, Madagascar, Mauritius, Seychelles,

Comores, Reunion, Maldives, Sri Lanka and India.<sup>180</sup> The programme was created in 1999 to assess the widespread degradation of coral reefs throughout the region.<sup>181</sup>

Coral reefs are highly productive and sustain the livelihoods and the wellbeing of local communities throughout the wider Indian Ocean region by providing fish, other edible species and valuable natural resources.<sup>182</sup> In addition, healthy coral reefs attract tourists and protect coastlines against coastal erosion.<sup>183</sup> As a consequence of coral degradation, there is a decline in the availability of fish and other resources throughout the Indian Ocean.<sup>184</sup>

Gradually much of the research is focusing on the mitigation of damage to Indian Ocean coral reefs, which are severely degraded due to climate change and other stresses, including human activities,<sup>185</sup> and on alternative livelihoods for people dependent on them.<sup>186</sup>

As mentioned earlier on, CORDIO not only shares research results with other institutions like the KWS and the KMFRI, but also collaborates closely especially with the KWS in coral reef restoration work.

#### *Coral Reef Conservation Project<sup>187</sup>*

The Coral Reef Conservation Project was started in 1986 to study the effects of human influences on Kenyan coral reefs. The project is hosted in the country

176 Ibid.

177 Cf. interviewee, the FiD: Although, according to the interviewee, trawling is prohibited in Lake Victoria (cf. FA, Section 43(1)(a) which states that '[T]rawling is a prohibited fishing method within five nautical miles from any point on the entire shoreline of Kenya waters of Lake Victoria'), a senior official of the provincial administration once licensed trawlers to fish in Lake Victoria. It was only after the FiD and local communities complained that trawling stopped. Cf. Kamau, E.C. (2005). 'Environmental regimes and direct investment in third world countries'. In Winter, G. (Ed.). *Die Umweltverantwortung multinationaler Unternehmen. Selbststeuerung und Recht bei Auslandsdirektinvestitionen*, pp.147-185. 1st Edition. Baden-Baden: Nomos.

178 CORDIO is supported by SIDA (Swedish International Development Cooperation Agency), the Government of Finland, the Dutch Trust Fund of the World Bank, WWF (World Wide Fund for Nature) and IUCN (International Union for Conservation of Nature): <http://www.cordio.org/default.asp>.

179 CORDIO, Coral bleaching and mortality: assessment of the extent of damage, socio-economic effects, mitigation and recovery, <http://www.cordio.org/default.asp>; Brief History of CORDIO, <http://www.cordio.org/background.asp>; Riyadh, 'Coral reef degradation in the Indian Ocean', a paper submitted to the proceedings of 'International Symposium on the Extent of Coral Reef Bleaching' 2000, [http://www.icriforum.org/secretariat/word/CebuCPC\\_6.doc](http://www.icriforum.org/secretariat/word/CebuCPC_6.doc).

180 Brief History of CORDIO, *ibid.*; Riyadh, *ibid.*

181 CORDIO, *supra*, note 179; Brief History of CORDIO, *ibid.*; Riyadh, *ibid.*

182 Brief History of CORDIO, *ibid.*; Riyadh, *ibid.*

183 Ibid.

184 Ibid.

185 CORDIO, *supra*, note 179; Brief History of CORDIO, *ibid.*; Riyadh, *ibid.*

186 Brief History of CORDIO, *ibid.*; Riyadh, *ibid.*: Millions of people in the tropical development countries are dependent on coral reefs, as a protein source, or for income from the fisheries or tourism industries. Thus, the degradation of the coral reefs in the Indian Ocean is likely to have significant socio-economic as well as ecological effects.

187 The information about CRCP is an excerpt accessed online at <http://www.wcs.org/international/marine/marineafrica/kenyacoralreefconservation/crcpsummary> on 3 August, 2006.

by the KWS and, through long-term research clearance, is authorized by Kenya's Ministry of Science and Technology. The five major objectives of the Coral Reef Conservation Project are the following: 1) to determine the effects of marine parks, global climate change, fishing, and indigenous management on fishery catches, species diversity and reef ecology; 2) to develop methods to restore coral reefs that have been degraded by heavy fishing, pollution or coral bleaching; 3) to assist the organization of relevant government agencies and social organizations in developing sustainable resource use for coral reefs; 4) to foster the professional development and training of marine scientists in coral reef ecology and management practices; and 5) contribute to the coordination and general development of coral reef conservation and science in the tropics.

Project employees and associates receive support for data collection, analysis, research and academic training. The researchers and managers are Kenyans, working with regional governments as well as the Kenya Marine and Fisheries Research Institute, the FiD, and regional universities and societies. The project works closely with the Kenya Wildlife Service, particularly in the annual monitoring of the four marine protected areas; a programme that has been maintained since 1987. It also works closely with Kenya's Fisheries Department by monitoring fish catches and the ecology of fished reefs in southern Kenya since 1991.

The project maintains relationships with foreign and local universities and supports graduate work and an internship program for African nationals. Interns learn and participate in the coral reef and fisheries monitoring methods, the analysis of the data and the production of reports and publications.

Employees, interns and students assist in the overall project goals as well as undertaking research on related subjects of their choosing.<sup>188</sup>

#### *Traditional structures*

Apart from government institutions, there are also traditional structures whose role and influence in the general management of coastal zone cannot be overlooked. In southern Kenya, for example, landing sites and settlements are associated with sacred coastal forests known as *Kaya*.<sup>189</sup> Each Kaya has two traditional elders who represent and uphold the traditions of these sacred forests (landing sites) and associated culture. As of late, there are also two elected leaders of the resource-using community.<sup>190</sup> (The traditional position of elder is passed down the family lineage by birth). These four leaders mediate decisions and represent the landing-site (Kaya) community independent of government-elected leaders such as chiefs and district officers.<sup>191</sup> This arrangement gives the Kaya community certain rights and privileges, which might be limited to, and formalized within, family lineage, clan or chiefdom.<sup>192</sup> Many Kayas in Kenya are gazetted and Kaya elders are (formally) recognized as having ceremonial rights and powers.<sup>193</sup>

#### *Integrated Coastal Management*

With these multiple roles and responsibilities, issues of coastal resource use and management were hard to handle (e.g., disagreement between the FiD and the KWS increased with the introduction of MPAs due to conflicting mandates). Therefore, so-called Integrated Coastal Management (ICM) was introduced in the early 1990s<sup>194</sup> to, *inter alia*, address coastal resource management issues by promoting collaboration, participation and coordination (the FiD and the KMFRI) between the various stakeholders. With the

188 Examples of theses and dissertations include 1) a study of the growth of corals in reefs exposed to different fishing gear; 2) a study of the population dynamics and early life history (i.e., reproduction, settlement and recruitment) of the keystone sea urchin species, *echinometra mathaei*; 3) a comparative historical and present-day analysis of the economic and ecological impacts of tourism and fishing on Kenya's economy and coral reef ecology; 4) the influences of tourism and fishing on the population dynamics and community structure of coral reef species in the Mombasa Marine National Park; 5) the effects of warm water on coral death and recovery; and 6) an economic modelling study of the effect of the Mombasa MNP on fish catches and fishing income. Research gives an insight into the effects of fishing and biological factors affecting species diversity, population dynamics, extinction and fisheries productivity of coral reefs.

189 McClanahan et al., *supra*, note 58, p.904; Spear, T.T. (1978). *The Kaya Complex: A History of the Mijikenda Peoples of Kenya to 1900*. Nairobi: Kenya Literature Bureau.

190 McClanahan et al., *ibid.*, p.904.

191 *Ibid.*

192 *Ibid.*

193 N. Muthiga. Personal communication.

194 For the history of ICM see McClanahan et al., *supra*, note 58, pp.905-906.



aim of achieving this, the CDA formed an ICM Secretariat in Mombasa mainly to deal with conflict issues between the various sectors and coordinate institutions with traditional single-sector programmes.<sup>195</sup>

This process was not without problems at the beginning. Being a government process, it was resisted by local communities especially because it followed a top-down approach thus marginalizing or completely leaving out the direct voice of local communities.<sup>196</sup> This resistance is subsiding as participation and involvement improves. This, in turn, is raising awareness and building trust.<sup>197</sup> It has also been noticed that fisher communities that interact more with the KWS have a higher compliance level.<sup>198</sup> Therefore, stakeholder involvement has proved to be a vital management tool in the Kenyan coast.

#### **b) Instruments of fisheries management**

##### **i) Access and catch restrictions, technical measures**

There are a number of instruments used in the management of fisheries in the coastal zone. Since most of them depend on an institution or organization, probably the most logical way of looking at them is by analyzing them under the respective institutions or organizations.

##### *Fisheries Department*

As mentioned earlier, the Fisheries Act Cap 378 is the primary legal instrument regulating access and catches in all Kenya's fishery waters, including the coastal zone. It establishes the FiD, which is responsible for the management of fisheries nationally. The FiD uses various measures in order to regulate access and catch including licensing, regulation of gear<sup>199</sup> and methods, allowable catch and species, fishing seasons, control of weight and quality of landed fish etc. In addition, it may be noted that no foreign vessel is authorized to fish in the territorial zone (FFFCR 18); foreign vessels are confined to the EEZ. As for fishing methods and

gear, the following are prohibited not only within Kenya's inland waters, but also the territorial waters (Reg. 43):

- 1) Seining for *Rastrineobola (Omena)* with any net with a mesh size of less than 10 mm when diagonally stretched;
- 2) Seining nets with a mesh size of less than 50 mm when diagonally stretched except when fishing for *Rastrineobola (Omena)*;
- 3) Trawling within five nautical miles off the coast of Kenya within the territorial waters of Kenya;
- 4) Using explosives, poisonous or noxious substances, or electric shock devices in order to render fish more easily caught.

The use of gear is not explicit in these laws and in many instances has been interpreted to allow traditional or non-destructive gear according to the discretion of individual wardens<sup>200</sup> leading to resource overuse. They also do not provide for explicit allocation of quotas for local fishermen. According to Reg. 31 of the FGR, '(...) the Director may impose conditions as to the stock, size, sex, weight and quantities of fish to be harvested (...)'. An authorized officer may also require fish landed to be weighed (FGR, Reg. 42(2)(a)), but the law does not provide concrete means of allocating quotas. However, the FiD keeps a register of all licensed persons and vessels. Based on the fishers/vessels licensed for a particular fishery and knowledge of its resources, the Director may mitigate overexploitation of resources by using his mandate under Sections 6(1) and 10(2) to ensure proper management of fisheries by:

- a) Refusing to issue or renew licences;
- b) Imposing special licence and catch fees;
- c) Preferential licensing in other fisheries; or
- d) Revoking or suspending licences.

<sup>195</sup> Ibid., p.906.

<sup>196</sup> Ibid., p.907.

<sup>197</sup> Interviewee, FiD, legal; Interviewee, KWS; cf. McClanahan et al., *ibid.*, pp.917, 921, 925, 928, 930.

<sup>198</sup> McClanahan et al., *ibid.*, p.926.

<sup>199</sup> Ibid., p.911 (Table 3).

<sup>200</sup> Malleret-King, *supra*, note 5; cf. *ibid.*, p.927.

*Kenya Wildlife Service*

Fishery waters, which have been gazetted as MPAs, are regulated by the WMCA and hence are under the direct mandate of the KWS. Nevertheless, the issue concerning who regulates access and catch in MPAs is determined by the nature of the PA: whether it is a park or a reserve. The FiD licenses fishing in marine reserves (MRs), a mandate which conflicts with that of KWS.

There are 52 protected areas in Kenya managed by the KWS.<sup>201</sup> Of these, six complexes comprise marine parks and reserves.<sup>202</sup> They are Kisite/Mpunguti Marine Park and Reserve, Mombasa Marine Park and Reserve, Watamu Marine Park and Reserve, Malindi Marine Park and Reserve, Kiunga Marine Reserve and Diani-Chale Marine Park and Reserve. Marine parks are usually smaller in size (up to ~ 28 km<sup>2</sup>) than marine reserves (~ 280 km<sup>2</sup>)<sup>203</sup> and are at times encompassed within the larger marine reserves.<sup>204</sup> Apart from marine parks and reserves, KWS manages coral gardens, which are fish breeding areas.<sup>205</sup> Marine areas adjacent to these fall under the jurisdiction of the fisheries or the forestry department depending on the ecosystem and nature of extractive activities.<sup>206</sup>

Marine parks and reserves in Kenya form two distinct zones depending on the activities permitted. In marine reserves, controlled fishing, normally artisanal using traditional methods such as traps, hook-and-line and 63.5 mm mesh-sized nets, is allowed. The type of gear, size of nets, etc. are controlled. Poisoning, use of explosives and dish seining are forbidden. In marine parks, on the other hand, there is an absolute ban on fishing: no take of any resources is permitted. However, tourist and recreational activities such as

glass-bottomed boat tours, SCUBA diving, snorkelling, sailing, windsurfing, jet skiing<sup>207</sup> and research are allowed.<sup>208</sup> This applies likewise to coral gardens (fish breeding areas) where tourist activities are allowed but only to view the biodiversity.

The KWS, which manages these areas, does so in accordance with its prime objective as stated in the preamble and Section 3(3) of the WMCA. It is to ensure that wildlife is managed and conserved so as to yield to the Nation in general and to individual areas in particular, cultural, aesthetic and scientific gains, as well as economic gains as long as they are incidental and not prejudicial to proper management and conservation. This kind of management demands strict control and surveillance, which is often not understood and/or supported by local communities and even at times disputed and/or resisted by fellow government institutions e.g., the fisheries department.<sup>209</sup> Therefore, one of the greatest tasks for the KWS has been not only engaging in extensive awareness programmes, but also searching for means to enhance participation in management by other institutions, stakeholders and local communities.<sup>210</sup> As a result, all MPAs in Kenya except the Diani marine reserve have management plans that were drafted with stakeholder involvement,<sup>211</sup> albeit reflecting the primary objective of the KWS.<sup>212</sup>

Wardens and park rangers with paramilitary training carry out the daily management of MPAs. The paramilitary training helps them to respond to control and security issues both on land and in the sea: their operations are financed by the KWS. However, due to constantly increasing costs as a result of its broadening mandate,<sup>213</sup> the KWS' ability to continue managing

201 Interviewee, KWS; cf. McClanahan et al., *ibid.*, p.908.

202 *Ibid.*

203 *Ibid.*

204 McClanahan et al., *supra*, note 58, p.911.

205 Interviewee, KWS.

206 McClanahan et al., *supra*, note 58, p.911.

207 MPA managers may restrict the area and time for this activity by legal notice.

208 McClanahan et al., *supra*, note 58, p.912 (Table 4).

209 Interviewee, KWS.

210 Muthiga, N. (1998). 'National perspectives of marine protected areas in Kenya'. In: Salm, R. and Tessema, Y. (Eds). *Partnership for Conservation: Report of the Regional Workshop on Marine Protected Areas, Tourism and Communities, Kenya*, pp.28-32. Nairobi: IUCN Eastern Africa Regional Office and Kenya Wildlife Service.

211 Weru, S. et al. (2001). 'Management plan for the Mombasa Marine Park and Reserve'. In: van't Hof, T. (Ed.). *Management plan: Mombasa Marine National Park and Reserve*. Mombasa: Kenya Wildlife Service.

212 McClanahan et al., *supra*, note 58, p.908.

213 Some of the MPAs do not generate any revenue but depend on visitor fees collected from other MPAs, the KWS' main source of operating funds.

all areas placed under its jurisdiction is a question of major concern. The financial burden has been eased to a certain extent by enhanced collaboration between MPA authorities, local stakeholders and donors.<sup>214</sup> Whereas the local stakeholders either take up or help to deflect some of the management costs,<sup>215</sup> donors help in monitoring, research and awareness (WCS, WWF), improvement of management through infrastructural support (ICRAN), management planning and training (KWS/Netherlands Wetlands Conservation and Training project), etc.<sup>216</sup>

As previously mentioned, the KWS management efforts – in terms of stocks, species and relief to disturbed and overexploited areas – have shown tangible results in MPAs in spite of the numerous challenges. Therefore, MPAs are vital fisheries management tools in Kenya.

Besides these measures, there are additional measures which also serve as instruments of fisheries management that include traditional practices (management) and community-based management.

#### *Traditional management*

While the national government policy to increase fish catch and regulate fisheries is done through national laws and institutions, traditional fishing is regulated by customs concerning time, space and gear restrictions.<sup>217</sup> This has, on several occasions, led to conflict between traditional and national leaders leading to few enforced restrictions.<sup>218</sup>

Traditional management practices may either show similarities to or differences with modern scientific fisheries management. Their explanations, however, always differ. Fishers in southern Kenya, for example, have time and space restrictions just like modern fisheries management does. The reasons for these

restrictions, however, relate to traditional and religious beliefs. Some areas are closed to fishing because they are believed to be sacred and haunted by spirits.<sup>219</sup> Thus, entry is only possible while in a 'pure and holy state' and to perform appropriate sacrifices.<sup>220</sup>

The difference in explanations makes it hard to amalgamate the two forms of management. Firstly, though certain sites have the potential to be gazetted as closed areas or MPAs, traditional fishers might construe this to mean absolute loss of access<sup>221</sup> on the one hand. On the other hand, they might see the potential visitation of tourists as a loss of tradition<sup>222</sup> and a violation of sacred practices resulting in a decrease in fish stocks. Secondly, traditional and modern explanations of a general decline in fish stocks might differ extremely. Whereas modern fishing management explains resource fluctuations in terms of ecosystem productivity, numbers of fishers and level of human (fishing) effort, traditional fishers associate poor catches with breaks from traditions such as sacrifices, prayers or the use of untraditional fishing gear.<sup>223</sup>

Some of these explanations, e.g., discouragement of use of untraditional gear, might be helpful in limiting the catch. However, they might also hinder the modernization of fishing gear. As long as chances for fishers to modernize their gear are slim, and support systems, e.g., subsidies, are non-existent, this presents no problem at present.

#### *Beach Management Units*

Another form of regulating access and catch is embraced in the draft policy 2006 – still awaiting Cabinet approval – which advocates the establishment of the so-called Beach Management Units (BMUs), or Community Management Units (CMUs). The draft policy 2006 is a subsidiary legislation on sustainable use and management of (coastal) resources.

214 Cf. Muthiga, *supra*, note 210.

215 E.g., for boats, vehicles, computers, SCUBA equipment etc.; provision of scientific expertise e.g., by the KMFRI and the CRCP; through the willingness of fishers, recreational users etc., to comply with regulations.

216 McClanahan et al., *supra*, note 58, p.915.

217 McClanahan et al., *supra*, note 50.

218 *Ibid.*

219 McClanahan et al., *supra*, note 58, p.904.

220 *Ibid.*

221 *Ibid.*

222 *Ibid.*

223 McClanahan et al., *supra*, note 50.

This policy seeks to create an enabling environment for a vibrant fishing industry by providing optimal and sustainable benefits, alleviating poverty, creating wealth and taking into consideration gender issues. The policy addresses most aspects of fisheries management and development including environmental conservation, regional cooperation, research, surveillance and monitoring, as well as social responsibility and governance issues.

As mentioned earlier, the Government initially used government commands (the top-down approach) to manage all natural resources, as it did not recognize the concept of co-ownership. This separation resulted in a mess since the local communities and other potential stakeholders outside government ranks lacked incentives for involvement in management. The essence of BMUs, therefore, is to create a partnership between officialdom and local communities (stakeholders) in the management of coastal resources.

The policy encourages community participation in resource management and aims to institutionalize co-management in the use and management of fisheries resources through establishing Beach Management Units (BMUs) that shall be given (in consultation with the Fisheries Department) exclusive rights to landing sites. The policy further promotes the use of indigenous knowledge alongside scientific information to improve management by involving the private sector, civil society, local authorities and NGOs in their individual capacity in the promotion of fisheries management.

The BMU structures are closely tied to previous traditional institutions that related to safety, social order, religion and fishing skills.<sup>224</sup> Traditionally, an elder of a landing site would organize the local fishermen, advising on the effect of seasonality, on what to do in case of accidents associated with evil spirits, issuing permissions to fishermen from other areas, ensuring social cohesion, as well as the management of gear and the environment. The BMUs are therefore replacing the institution of elders of the landing site

through a system where the FiD wishes to devolve powers to the fishers to manage their resource at a local level.

The BMUs would be involved in the implementation of legislation with regard to destructive and banned gear, assist in data collection where there are not enough FiD staff, promote modern environmental management practices in consultation with the fisheries department and other relevant organizations, assist in marketing the fish caught and solve minor disputes. Hopefully they would act as a link between the FiD and artisanal fishermen and play a leading role in fisheries management. The FiD has recommended that the BMUs be formalized and gazetted in order to give them a legal mandate.

A more formal role for the BMUs is also foreseen: managing tenure, access rights, and the development and enforcement of local fishing rules. However, the socio-economic condition of fishers, their fear of losing landing sites, and the continued perception that a marine reserve is being imposed on them are barriers to any initiatives seeking to promote community-level management.

The question on how BMUs are to be implemented is still unresolved and is a complex issue also for authorities. Local communities certainly need an implementing body/arm but how is this to be formed?

One of the ways such a body could be formed is through the amalgamation of existing traditional leadership and government (official) positions, where they exist. As already seen, landing sites (*Kayas*, which are actually beaches) in southern Kenya, for example, possess both traditional and government structures. However, due to conflicting interests in the past,<sup>225</sup> collaboration has always been difficult. With the new approach, friction should be drastically reduced, if not removed altogether.

224 Glaesel, *supra*, note 13.

225 McClanahan et al., *supra*, note 58, p.904.

Excluding traditional leaders from management would create similar problems to those experienced in the past. The local communities have a high level of respect for traditional leaders hence any decisions made with their involvement and contribution are more easily accepted by the local people especially when also delivered by these leaders.<sup>226</sup> Future gazettement of beaches may follow a similar formula. To help with enforcing the decisions of these bodies, means of cooperating should be sought with those institutions

which have a functioning infrastructure and are actively collaborating with other institutions in the promotion and management of fisheries. This will enable BMUs to benefit from existing research findings and experience, as well as other forms of resources from existing institutions. Actually, the BMU authority should be more or less an executing body with the benefits of collaborative activities flowing to the community living within that particular area.

## 8. The national management system as applied in relation to the impact of the 'North'

### a) *Fishing by EC/North American/Japanese fleets*

#### i) Bilateral access agreements

Fishing in the Indian Ocean region is dominated by Japanese, Korean and EU fleets. North American fleets may occur in the region but not in any significant numbers.

The Kenyan offshore fisheries zone, which is believed to contain vast and valuable stocks of fishery resources, is exploited by vessels from Distant Water Fishing Nations (DWFNs)<sup>227</sup> – mostly European and East Asian<sup>228</sup> – without the involvement of Kenyan nationals or any benefit for the country.<sup>229</sup> To date, Kenya has not entered into any fishing access agreements with DWFNs.<sup>230</sup> Some of these vessels operate under licence whereas others are illegal,

unregulated and unregistered (IUU).<sup>231</sup> Kenya hopes to enter into access agreements with DWFNs in line with UNCLOS once sufficient knowledge of her stocks has been acquired.<sup>232</sup> Since the EU uses specific forms of access agreements with African, Pacific and Caribbean (ACP) countries, it is possible that any future access agreements between the EU and Kenya could follow the format of existing EU-ACP access agreements. Hence, it will be interesting to see what future access agreements between the EU and Kenya look like.

The EU pursues bilateral fisheries access agreements with coastal and island countries in order to ensure the continuing presence of its fleets in traditional fishing regions where they existed before the coming into force of UNCLOS, and also to export overcapacity from EU waters to other regions with

226 This statement is not based on literature but on knowledge and experience of the hierarchical order and command in the Kenyan traditional setting, and conforms to statements of several Africans from eastern, western and southern Africa. However, President Mwai Kibaki's recent meeting with 160 Kaya elders from the nine Mijikenda (coastal) communities, as reported by The Standard (Newspapers) of 3 and 4 January 2007, clearly indicates this fact. The elders together with members of a newly formed 'Mijikenda Community Council of Elders Association' (MICOSEA) presented demands for projects they wanted accomplished before the presidential elections in December 2007 as a condition of their communities voting the President back in. Apart from demands concerning land, bankrupt factories and a public university for the region, the elders demanded a seafarers' training college and a fishermen's college 'to provide skills and expertise to the many seafarers on the coast'.

227 Okidi, *supra*, note 134; Gitonga and Achoki, *supra*, note 2.

228 Habib, G. (2003). *National report on fisheries potential in Kenya's EEZ*. London: Commonwealth Secretariat.

229 Gitonga and Achoki, *supra*, note 2.

230 *Ibid.*; cf. Okidi, *supra*, note 134.

231 That does not mean licensed vessels never violate their licence obligations. As long as adequate capacity to monitor and control is lacking, possible violations by any vessel cannot be ruled out.

232 Gitonga and Achoki, *supra*, note 2. The Government requested technical assistance from the Commonwealth Secretariat and was provided with a consultant to carry out a desk study on stocks and to come up with recommendations and costs for a stock assessment project, see Habib, G. (2003). *The Kenya marine fisheries. A final report of the Commonwealth Secretariat consultant on Stock Assessment*. Cf. Okidi, *supra*, note 134: suggests that access agreements should be made through a treaty framework with Tanzania, Mozambique, Somalia, Madagascar, Mauritius and South Africa, and should include conditions for licensing, enforcement procedures and conditions, surveillance and monitoring, and transfer of technology. This kind of procedure has the potential to produce synergy in the region because, as Professor Okidi rightly notes, 'cooperating countries could share surveillance and enforcement responsibilities, protect fishery resources, and strengthen the implementation of the 1985 Nairobi Convention on the Marine Environment'.



surplus stocks.<sup>233</sup> These agreements are of three major types:<sup>234</sup> Agreements with Financial Compensation (AFCOs), Reciprocal Agreements (RAs), and the so-called Second Generation Agreements (SGAs). The EU deals with the ACP countries mainly through AFCOs, described below. However, specific access agreements with Kenya could differ from these depending on the country's interests and based on particular peculiarities. Since the EU has initiated reforms to change access agreements into new types of agreements called Fisheries Partnership Agreements (FPAs),<sup>235</sup> it is to be expected that sooner or later EU-ACP fisheries deals could change direction. Eventually, the FPAs will replace all previous fisheries access agreements.<sup>236</sup> Hence, we shall briefly look at the essence of the FPAs.

Agreements with Financial Compensation ('cash for catch' or 'cash for access' agreements)<sup>237</sup> allow access to fish stocks for financial compensation by EU or fees by private owners. They are based on the number and types of vessels, or a certain volume in terms of Gross Registered Tonnage (GRT) for a specified duration of time. For ACP countries in the Indian Ocean coast, these agreements mainly cover tuna.

Unfortunately, there are no clear policy guidelines in negotiating these agreements, thus disadvantaging ACP countries with a weak negotiating capacity in comparison to the EU's powerful negotiating machinery. The situation is escalated by these countries' (poor) economic status and thus desperate need for money.<sup>238</sup> Hence, financial compensation, even for similar species, varies considerably in these countries depending on the negotiating power and the level of

economic need and is often unfair. IFREMER (1999)<sup>239</sup> estimates the compensation at only 2-17% of the market value of the catch.

Fisheries Partnership Agreements aim to transform EU-ACP countries present 'cash-catch' relationship in fisheries into a partnership able to contribute to sustainable exploitation of natural resources.<sup>240</sup> This will involve, for example, collaboration in stock assessments, monitoring, control and surveillance.<sup>241</sup> The FPAs, however, also intend to maintain a European presence in the distant fisheries and protect the European fisheries sector interests amidst increased competition between DWFN fleets from the Far East, the USA and the EU in most major fishing grounds.<sup>242</sup> It is also suspected that EU might use FPAs to force host countries to abstain from access agreements with EU competitors.<sup>243</sup> In addition, from experiences gained from the Economic Partnership Agreements (EPA) discussions between the EU, and east and southern African countries in Nairobi in June 2005, it is feared that translating the EU's formal commitment to contribute to sustainable fisheries management into practice might not be so easy. In the meeting, the EU Fisheries Directorate General (DG) insisted on concluding bilateral tuna agreements with the South West Indian Ocean (SWIO) countries rather than multilateral agreements.<sup>244</sup> This raised questions as to whether the EU was really committed to the sustainable management of fisheries bearing in mind the impossibility of conserving migratory stocks in a bilateral agreement – an issue which has slowed the FPAs process.<sup>245</sup>

233 Mbithi Mwikya, 2005, *supra*, note 133.

234 Ibid.

235 Ibid. The FPAs are to become part of a wider Economic Partnership Agreements (EPAs) process which was expected to be completed by December 2007: see Gorez, B. and O'Riordan, B. (2003). 'The future of EU-ACP countries fisheries relations'. In: Grynberg, R. (Ed.), *Fisheries issues in WTO and ACP-EU trade negotiations*. London: Commonwealth Secretariat. Also submitted to the joint COMSEC – CTA meeting on 'ACP-EU Fisheries Agreement: Towards a greater sustainability', 7-9 April 2003, ACP House, Brussels, available online at <http://www.cta.int/events2003/fisheries/Gorez-O'Riordan-EN.doc> (accessed on 30 October 2006).

236 Mbithi Mwikya, 2005, *supra*, note 133.

237 Ibid.

238 Cf. Gorez and O'Riordan, *supra*, note 235, fn 14.

239 IFREMER (French Institute for Research and Exploitation of Fisheries Resources). (1999). *Evaluation of fisheries agreements concluded by the European Community*. Final Report. Brussels.

240 Gorez and O'Riordan, *supra*, note 235, p.45.

241 Mbithi Mwikya, 2005, *supra*, note 133.

242 Ibid.

243 Ibid.

244 Ibid.

245 Cf. Ibid.

Reciprocal Agreements are a form of exchange or 'barter' trade and involve a reciprocal access agreement (between countries) into one another's EEZs. The EU has no such agreements with ACP countries since the latter lack the capacity/technology even to venture into their own EEZs.

Second Generation Partnership Agreements on the other hand are based on incentives for setting up joint ventures, which allow EU fleets quota access in the EEZ of another country. Such an agreement was only signed with Argentina, but it was discontinued as it almost caused the collapse of hake fisheries due to overexploitation.

The Indian Ocean is one of the traditional fishing grounds for Japanese fleets. In fact, according to an IOTC list of vessels authorized to operate in the IOTC area,<sup>246</sup> the Japanese operate 573 vessels out of the total of 1,972, compared to 234 vessels from five EC Member States (Spain – 138, France – 75, Portugal – 16, UK – three and Italy – one).<sup>247</sup> Most Japanese vessels are long-liners, with poles and lines, which target mostly Yellowfin tuna, Bigeye tuna, Bluefin tuna and swordfish. However, Japan also has a significant number of purse seiners for catching Skipjack tuna.

Japan does not pursue inter-governmental fisheries access agreements. Its fishing operations are carried either based on either agreements between the Japanese Tuna Association and coastal countries<sup>248</sup> or licence fee arrangements between a specific Japanese company and the fisheries authorities of a coastal country.<sup>249</sup> These agreements, unlike EU and USA agreements, are not published ('closed agreements') and the financial compensation agreed is considered a private issue.

Apart from Japanese fleets, there is a heavy presence of Indonesian, Korean and Chinese vessels (669, 202 and 67 vessels, respectively) in the Indian

Ocean area, with fisheries access agreements for tuna, most of which are based on payment of licence fees by individual vessels to the coastal countries.

As already mentioned, the financial compensation from these agreements to the EEZ State(s), in comparison to gains made by foreign fleets and damage on the ecosystem, is minimal.<sup>250</sup> This is exacerbated by EEZ states' lack of capacity to control licensed and unlicensed activities. In addition, some of the licences granted to foreign vessels lack vital information for determining the duration of validity. For example, out of the 573 Japanese vessels licensed to operate in the IOTC area, only 18 licences indicate when the vessels were licensed and even these lack complete information on duration: they do not indicate up to when they are valid. This leaves a serious gap, which can be easily exploited by corrupt fishing firms and local fisheries licensing authorities.

## ii) Illegal foreign fishing and related legal issues

The Kenyan EEZ is highly unregulated due to lack of monitoring, control and the east coast of Africa is known to be one of the world's most unregulated fisheries areas.<sup>251</sup> Although the region's EEZ States, i.e., Kenya, Tanzania, Mozambique, Comoros, Madagascar and South Africa (SA), have all declared 200 nm Exclusive Economic Zones, most of them, apart from SA, have no institutional and financial capacity to exercise their jurisdictions.<sup>252</sup> This makes it impossible to follow up licensed activities as well as to curtail unlicensed ones.

The majority of catches are landed and processed outside the region.<sup>253</sup> DWFN vessels hardly ever report catches to national authorities which means there is little information on species composition, quantities of catches taken by commercial operators, sources and timing of those catches.<sup>254</sup>

246 See <http://www.iotc.org/English/record/search.php>.

247 Kenya, an IOTC member, has only one vessel operating in the area. See <http://www.iotc.org/English/record/search.php>: The 1,972 vessels operate under 25 different flags. Cf. [http://www.iotc.org/files/proceedings/misc/ComReportsTexts/resolutions\\_E.pdf](http://www.iotc.org/files/proceedings/misc/ComReportsTexts/resolutions_E.pdf).

248 The Japanese Fisheries Commission is represented in negotiations for these agreements, but with observer status only.

249 Mbithi Mwikya, 2005, *supra*, note 133.

250 Interviewees, KWS and FiD.

251 Cf. Gitonga and Achoki, *supra*, note 2; Habib, *supra*, note 228.

252 Gitonga and Achoki, *ibid*.

253 *Ibid*.

254 Habib, *supra*, note 228.

According to existing information, approximately 40 vessels have been granted fishing licences to operate in the Kenyan EEZ.<sup>255</sup> Of these, about 30 were engaged in illegal, unregulated and unregistered (IUU) activities<sup>256</sup> until recently when the FiD joined efforts with the Kenya Navy in order to boost surveillance. It would be naive though to imagine that IUU activities have instantly ceased as a result of this. Much more needs to be done, and for that, immense help in the form of resources, capacity, voluntary cooperation and collaboration from DWFNs and their fleets is necessary.

As a result of the lack of MCS capacity, there are very few cases of near-to-judicial procedures. However, a recent case involving a Korean vessel shows that with more MCS and less corruption, much can be achieved.

According to the interviewee,<sup>257</sup> the Korean vessel was licensed to carry out research activities in the Kenyan marine zone. After the licence expired, it neither departed nor applied for renewal of the licence, but stayed in Kenyan waters for some time. It is not known what activities the vessel carried out during its extended presence. When the FiD found out about this violation, the vessel was apprehended and held in the FiD's custody pending judicial hearing. Unfortunately, the vessel sought government intervention, which saw the judicial application by the FiD against the Korean vessel quashed.

#### ***b) Purchase of fish by EC/North American/ Japanese food companies***

The Fisheries Act is the key legislation regulating all issues concerning fish and fish products, both for local and export market. It is supplemented by the Fisheries (Fish Quality) Assurance 2000 (subsidiary legislation), covering both the local and export market; the Food, Drugs and Chemical Substances Act; the Public Health Act; the Standards Act; the Safety of Foods (general legislation) and so forth. In addition, there are the standards issued by the Kenya Bureau of Standards (KEBS), a statutory government organization established in 1974 by the Act of Parliament Chapter

496, which are meant to ensure that foods both for local and export markets are of a good quality.

#### *Kenya Bureau of Standards*

The Kenya Bureau of Standards has developed 3,800 standards which include KS05-40 that sets out labelling requirements for pre-packaged foods, KS05-1516 code of hygienic practice for the handling, processing, storage and sale of fish and fish products.<sup>258</sup> Furthermore, there is the KS1652:2000 code for hygiene practice on commercial fishing vessels. It also certifies firms according to ISO standards. The FA supplementing legislations and KEBS standards, however, do not deal with issues of quality and standards pertaining to sustainability of harvesting of (fish) stocks, but rather to health, safety and assurance concerns. Therefore, they are not considered of much value for our study.

#### *Fisheries Act/Department*

The Fisheries Act contains general provisions on fish and fish products' hygiene, and proper management of fisheries as listed above which, if enforced, should yield positive results as far as the standards of sustainable harvested stocks are concerned. Prescribed measures of proper management and harvesting as listed under part VI, VII and IX of the FA have already been discussed above in Section II.5(c).

Probably the most remarkable feature of the Act as far as this question is concerned is the mandate it grants to the Director (in accordance with the powers conferred by Sections 5 and 23) to regulate specific measures – of great importance to sustainable harvesting of stocks – through Gazette Notices. Legal Notice No. 214 (Kenya Subsidiary Legislation) of 2003 is a good example of such measures. Although it touches on various Kenyan fisheries, it clearly depicts how fish harvesting is controlled in Kenya.

Through the Fisheries (Prohibitions) Regulations (FPR) 2003, the Director prohibits the following activities:

255 Interviewee, FiD Mombasa (interview carried out on 29 March 2006 at the FiD Nairobi). Cf. Gitonga and Achoki, *supra*, note 2.

256 Interviewee, *ibid*.

257 FiD, Nairobi.

258 KS05-1516 sets out the general guidelines for the hygiene requirements in the fish industry and is aligned to EU Directive 91/493/EEC, thus enhancing fish exports to Europe and other countries that have stringent hygienic requirements.

- a) Fishing, landing, processing, moving and trading in Nile Perch fish (*Lates niloticus*) exceeding a specified size.
- b) Fishing, landing, processing, moving and trading in *Rastrineobola argentea* (*Omena*) in L. Victoria during the season 1 April- 31 July each year.
- c) The use of scuba diving gear or spearguns to fish for lobsters and *Bêche-de-mer* (sea cucumber) within territorial waters of Kenya as described under the MZA Cap 371 unless for experimental purposes.
- d) Fishing, landing, processing, moving and trading in fish of any species from Lake Naivasha during the closed season, 1 June-30 September, unless approved by Director.
- e) Fishing, landing, processing, moving and trading in lobsters weighing less than 250 g and crabs weighing less than 500 g.

As these measures clearly show, if violations occur during fishing, it should be possible to expose them on landing. If any irregularities are not picked up at the landing phase, it should be possible to catch them and take appropriate action at the processing phase. Since export fish and products pass through all three phases, there should be sufficient opportunities to ensure an end-product of high quality by all standards – as long as the prescribed measures are implemented and enforced.

The processing phase is an important stage that needs to be briefly discussed. In order to ensure that fishing-related industries observe the regulations and measures foreseen by Kenya laws during processing, and dispatch high-quality finished products to the consumer (whether local or foreign), they must have a

Fish Processing Licence (FPL).<sup>259</sup> Such a licence is granted subject to certain conditions (FGR, Reg. 14). For export fish and fish products, the industry concerned must also have an Approved Number for Export (ANE).<sup>260</sup> The FiD has inspectors permanently attached to the processing establishments: an inspector is the monitoring authority for the industry.<sup>261</sup> He certifies as well as keeping a record of every export batch.<sup>262</sup> Finally, he issues a certificate as proof that the batch has fulfilled the safety and quality requirements.<sup>263</sup> A supplementary measure by the FiD involves issuing a list of all approved and licensed fish processing industries to importing countries.<sup>264</sup> There are also national and regional initiatives to determine, among other things, which gear should be used in order to sustain stocks,<sup>265</sup> for example, by the three East African countries, Tanzania, Uganda and Tanzania, within the Lake Victoria Fisheries Organization (LVFO),<sup>266</sup> under the WIOMSA, the CRCP and CORDIO.

The above measures are not meant to respond to importing (developed) countries' demands for sustainable harvesting, but they produce that effect, albeit not necessarily to the equivalence of e.g., EU standards. Developed countries' requirements of developing countries' products have concentrated on SPS measures to date. There is a move, though, to introduce environmental, besides SPS, requirements of developing countries' products.<sup>267</sup>

An interesting and somewhat ironic feature with fish for the EU market is that the most significant regulations for the fisheries sector are the EU directives 91/493/EEC and 98/83/EEC. They are enforced by an authority approved by the EU, in this case the Fisheries Department, that is subject to periodic audits

259 Interviewee, FiD; FGR, Reg. 14 (a sample (DF/L4) is printed in the first schedule).

260 Interviewee, FiD.

261 Ibid.

262 Ibid.

263 Ibid.

264 Ibid.

265 Ibid; cf. Van der Knaap, M., Ntiba, M.J. and Cowx, I.G. (2002). 'Key elements of fisheries management on Lake Victoria'. *Aquatic Ecosystem Health & Management* 5(3): 245-254.

266 Ntiba, M.J., Kudoja, W.M. and Mukasa, C.T. (2001). 'Management issues in the Lake Victoria watershed: Lakes Reservoirs'. *Research & Management* 6(3): 211-216.

267 Doha WTO Ministerial 2001: Ministerial Declaration, WT / MIN (01) /DEC/1, adopted on 14 November 2001, paragraph 32 (iii): 'labelling requirements for environmental purposes', [http://www.wto.org/English/thewto\\_e/minist\\_e/min01\\_e/mindecl\\_e.htm](http://www.wto.org/English/thewto_e/minist_e/min01_e/mindecl_e.htm) (accessed on 15 August 2006).

by the EU inspectors.<sup>268</sup> These directives focus on the SPS requirements and hence do not contribute much to our study. The resulting scenario of laws being forced upon other countries, however, indicates that Kenya and other developing countries might never have a chance to develop their own standards of fish quality as long as they heavily depend on the EU market. An

impression is even created that the EU does so in order to hinder imports from these countries.<sup>269</sup> There is a feeling that, once the EU ('North') has successfully enforced requirements of sustainable fishing on its own territory, the same will be pushed down the throat of the 'South' when the need arises.<sup>270</sup>

### III. Examples of coastal fisheries management

#### 1. Local management in the Diani-Chale area

##### *a) Fisheries in the area*

With an estimated area of 25 km<sup>2</sup>, the economic activities within the Diani Chale area revolve around fishing, agriculture and tourism and are heavily influenced by the monsoon weather cycles. Apart from the Digo sub-tribe of the Mijikenda (who comprise the majority of fishermen in the area), a few migrant fishermen from Pemba and Tanzania have been reported.

Fishing mainly takes place inside the reef and has led to pressure on overexploited lagoon resources.<sup>271</sup> Fish caught include lethrinids, Rabbit fish and Parrot fish. Sea cucumbers, crabs, lobsters, squids and octopus are also caught.<sup>272</sup> Sport fishing is an increasingly popular activity in the area where tourists and residents are the main clients. The catch is sometimes difficult to quantify and evaluate as it is consumed locally or sold directly to hotels.

Two (Green and Hawksbill) of the five sea turtle species found in Kenya reside in the waters off the Diani-Chale area. Green turtles nest frequently but a few Hawksbill nests have also been recorded. Sea turtles

are still exploited for their eggs, oil and meat in the area and for the wider national trade in turtle products.<sup>273</sup> Indirect harvesting is also a serious threat to the sea turtle populations. This is through accidental capture by set nets (of both artisanal and large-scale fishers), the loss of nesting beaches and the disturbance of the same due to tourism development.

Shells are collected by fishermen as a supplementary source of income and sold to dealers or directly to tourists or locals. Aquarium fish are also collected. There are potentially suitable areas for farming marine species such as crabs, lobsters, oysters, sea cucumbers and seaweed, but there is no commercial development as yet. Experimental trials have been undertaken with oysters and seaweeds with the support of KMFRI at Gazi although there is no definite market.

In 2002, there were a total of 1,385 artisanal fishers (see Table 5) in the whole of Kwale district. The Diani-Chale area and Kinondo had the highest number of fishermen according to a study undertaken by CORDIO in 2003.<sup>274</sup>

268 Abila, *supra*, note 27; cf. Noor, H. 'Sanitary and phytosanitary measures and their impact on Kenya'. Nairobi: *EcoNews Africa*. Available online at [http://www.unctad.org/trade\\_env/test1/meetings/standards/kenya3.doc](http://www.unctad.org/trade_env/test1/meetings/standards/kenya3.doc) (accessed on 30 October 2006).

269 Interviewee, FiD.

270 Ibid.

271 McClanahan and Mangi, *supra*, note 10.

272 UNEP, *supra*, note 3.

273 Wamukoya et al., *supra*, note 43.

274 Malleret-King et al., *supra*, note 1.



**Table 5. Number of fishers in Kwale District**

Location	Sub-location	Number of fishers
Tiwi	Simkumbe	25
Waa	Kitivo	50
Diani	Ukunda	100 211 <sup>275</sup>
Kinondo	Kinondo	150
	Gazi	60
Msambweni	Vingujini	300
Pongwe/Kidimu	Shimoni	400
Vanga	Vanga	300
<b>Total</b>		<b>1.385</b>

These fishers landed a total of 12,087.2 metric tonnes between 1991 and 2000, an average of 1,208.7 tonnes per year. The gear used included traps, gillnets, beach seines, ringnets, hand lines and spear guns (most common). In Diani, spear guns and beach seines were widely used (representing 39.3% and 25.9% respectively).<sup>276</sup> Of the five types of gear used, spear gun and beach seines got 80% of the total catch. While the spear gun fishers' average catch per day was 3.67 kg, that of trap fishers, hand-line fishers and beach-seine fishers was 4.09 kg, 4.7 kg and 5.53 kg respectively. The study also found that 5.8% of fishers were using gillnets and catching an average of 6.47 kg of fish per day. At Shimoni, traps and hand lines were mostly used.<sup>277</sup>

While the benefit of banning spear guns is to relieve pressure on the fishery, the suggested transfer of these fishers to offshore fishing which requires boats may be unlikely due to a lack of appropriate subsidies.

Additionally, if spear gun fishers and beach seine fishers were to be reallocated to the traditional fishery, the reef fishery would incur a loss through a decrease in diversity as the fish species targeted by these fishers are not targeted by traditional gears. The ban of the gear would also likely affect a large number of fishers whose dependence on the fishery is as high as 80%<sup>278</sup> and might be in a vulnerable position already.

Catch data collected for five years (1995-1999) at eight landing sites showed a decline in the catch despite constant effort at all the sites. The average daily catch per landing site showed an annual decline of 6 kg.<sup>279</sup> According to fishermen, catch per unit effort had dropped significantly over the last 30 years in the area.

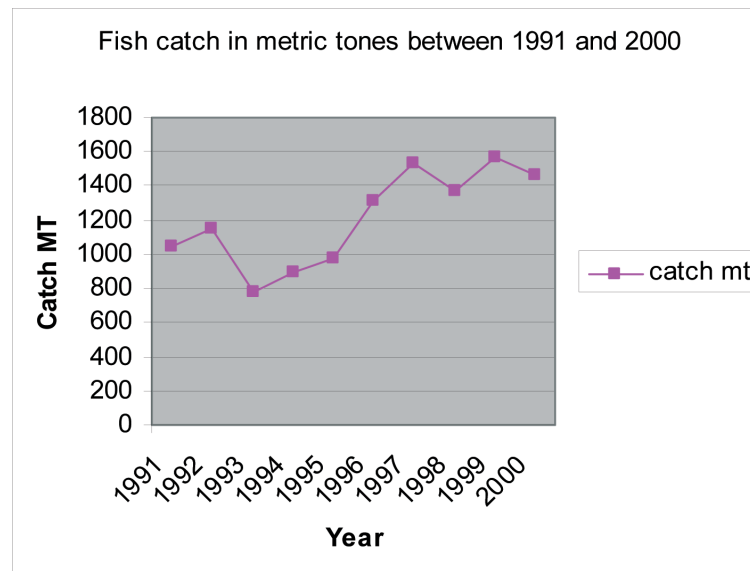
Data collected over a period of ten years by the Fisheries Department on the other hand indicate an overall increase in the catches between 1991-1999, but with occasional lapses.

<sup>275</sup> According to Rubens, *supra*, note 5.

<sup>276</sup> McClanahan and Kaunda-Arara, *supra*, note 14.

<sup>277</sup> Malleret-King, *supra*, note 5.

<sup>278</sup> *Ibid.*

**Figure 3. Fish catch in tonnes, 1991-2000**

The decline in catch (estimated at 4-6 kg at the most productive site and season) is attributed to the increased number of fishers and the introduction of destructive gear, particularly the small-meshed beach seines. The local fishermen estimate a 90% drop in catch since the introduction of beach seines.<sup>280</sup> In areas where beach seines were excluded, higher fish catches were recorded.<sup>281</sup>

Various levels of gear-use conflicts have been reported. These are mostly brought about by a lack of appropriate subsidy and no access to credit following the collapse of fisher cooperative societies soon after their creation in the 1970s due to mismanagement.

#### ***b) Management practices***

Many traditions of coastal peoples are viewed as traditional forms of marine conservation because, like modern fisheries management, they restrict fishing gear, fishing times, and places.<sup>282</sup> Traditional conservation

often revolves around protecting religious sites and cultural symbols that are believed to protect food supplies.<sup>283</sup> Many of these traditions have decayed in recent times with the Islamization of the culture, and authority has shifted towards national organizations, resulting in traditional leaders becoming less effective.

Generally, there are mixed perceptions with regard to marine fishery management in terms of closed area management,<sup>284</sup> reducing the use of nets, supernatural factors (including giving sacrifices, repenting, and going back to traditional ways), and improved enforcement.<sup>285</sup> However, the management and acceptance of these regulations varies for a variety of reasons including legal, government agency, economic, cultural and technical. They are further complicated by diversity in ethnic practices, multi-species fisheries, numerous gear types and different levels of governance<sup>286</sup> leading to confusion, conflict, poor enforcement and unsustainable use unless efforts are

279 McClanahan and Mangi, *supra*, note 13.

280 McClanahan and Kaunda-Arara, *supra*, note 14.

281 McClanahan and Mangi, *supra*, note 13.

282 McClanahan et al., *supra*, note 50; McClanahan et al., *supra*, note 58.

283 Glaesel, *supra*, note 13.

284 McClanahan et al., *supra*, note 54.

285 Cinner, J., Marnane, M.J., McClanahan, T.R. and Almany, G.R. (2006). 'Periodic closures as adaptive coral reef management in the Indo-Pacific'. *Ecology & Society* 11(1), Article 31. Also available online at [www.ecologyandsociety.org/vol11/iss1/art31](http://www.ecologyandsociety.org/vol11/iss1/art31) (accessed on 31 October 2006).

286 McClanahan et al., *supra*, note 54.

made to understand and rationalize the multiple types of possible management.<sup>287</sup> Active participation in the enforcement of management has been proposed<sup>288</sup> and suggestions to achieve this include the Beach

Management Unit (BMU) structure being developed by the Fisheries Department in consultation with fishermen and other stakeholders (see above).

## 2. Sea turtle protection in Kenya

Kenya is home to five of the seven species of sea turtles, which exist globally in significant populations. These species include nester turtles such as the Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*) and Olive ridley (*Lepidochelys olivacea*). Also included are forager turtles, which are the Loggerhead (*Caretta caretta*) and Leatherback (*Dermochelys coriacea*). All five species feature in the 1996 IUCN Red List of Threatened Animals. The Hawksbill and Leatherback were listed as 'critically endangered' and the Green, Loggerhead and Olive ridley as 'endangered'.

Interviews with fishermen have revealed that marine fisheries and poaching of marine turtle products are the two leading causes of marine turtle population decline in Kenya. It is estimated (gillnet estimates, Fisheries Department) that illegal off-takes and the marine fishery industry reduce the turtle population by 6,000 individuals annually. Critical nesting and foraging grounds have also been destroyed by the impacts of unplanned coastal development and poor waste disposal, erosion and destructive fishing practices (e.g., dynamite fishing), land-based run-off, water pollution and by the temperature rise associated with global warming. All the above have led to a dramatic decline in sea turtle populations.<sup>289</sup> Recent research shows that sea turtle populations have declined by between 25-75% due to habitat degradation caused by destructive methods of fishing, demand for trade and consumption of marine turtle products, as well as growth of coastal populations and tourism.<sup>290</sup>

The legislation which protects sea turtles in Kenya, such as the Wildlife Conservation and Management Act (Cap 376) and the Fisheries Act (Cap 378), does not provide for the protection of habitats within which sea turtles inhabit except for nesting and foraging areas falling within MPAs. Apart from the legislation being considered not coercive and prohibitive enough, insufficient financial and human resources also continue to hamper enforcement of the legislation.

The Kenya Sea Turtle Conservation Committee (KESCOM) was established in 1993 to address threats affecting sea turtles in Kenya against the backdrop of the aforementioned challenges by involving government institutions and the local community. Initial efforts to implement conservation and management objectives were limited to the Mombasa area (especially the area around the Mombasa Marine National Park and Reserve) and supported by the Kenya Wildlife Service.

Through increased support from the local community, government institutions (Fisheries Department, Kenya Marine and Fisheries Research Institute, National Museums of Kenya and Coast Development Authority), as well as private interests and volunteers, KESCOM has to date established 15 community-based Turtle Conservation Groups (TCGs) along the Kenyan Coast, covering 50% of the coastline.

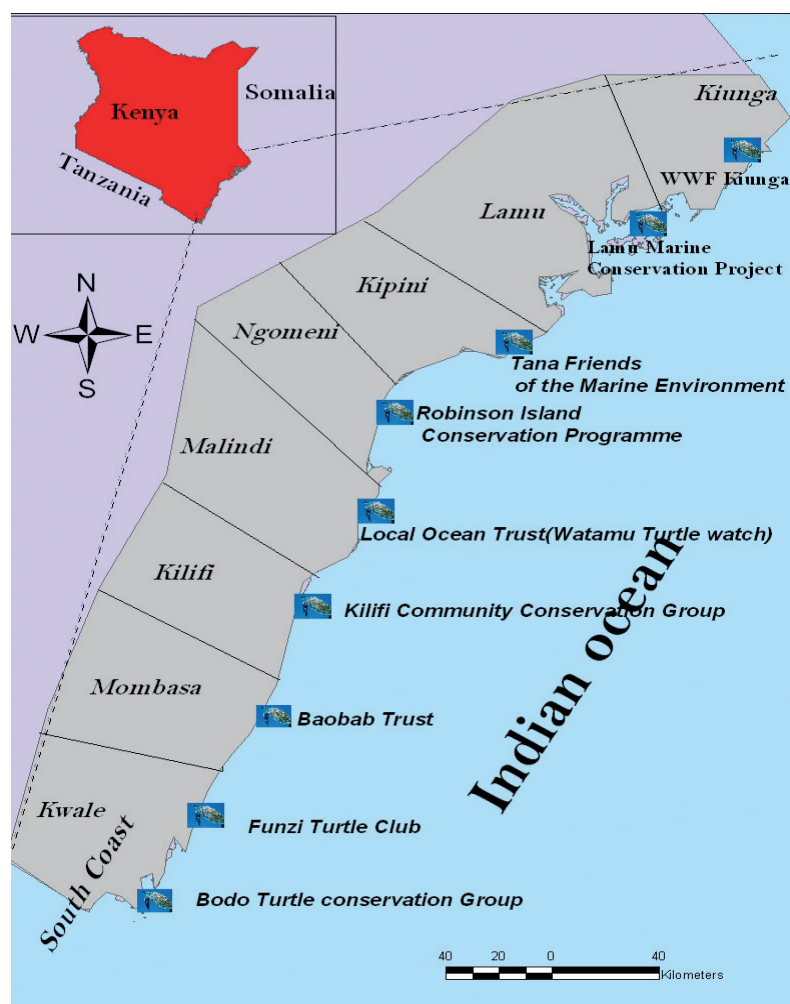
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287 White, A.T., Hale, L.Z., Renard, Y. and Cortesi, L. (Eds). (1994). *Collaborative and Community-based Management of Coral Reefs: Lessons from Experience*. West Hartford: Kumarian Press; McClanahan et al., supra, note 50; Glaesel, supra, note 13.

288 McClanahan et al., supra, note 54.

289 Frazier, J. (1975). *The status of knowledge on marine turtles in the Western Indian Ocean*. Marine Turtle Survey. East African Wildlife Society.

290 Wamukota, A.W., Nzuki, S. and Muasa, J. Community participation in the conservation and management of sea turtle in Kenya. Available online at <http://www.seaturtle.org/symposium/export.html> (accessed on 5 July 2007).

**Figure 4. The spatial extent of KESCOM TCG activities**

Through a cash incentive or with voluntary action, the TCGs are involved in the collection of turtle data and information on the ground, and engaging local communities in the conservation process through education and awareness programmes, and beach patrols and surveillance. This is done to protect turtle nests and nesting females, help with the tagging of sea turtles, research, and fishermen-turtle-release programmes. They also participate in beach clean-up events and currently some of them are involved in habitat protection measures mainly focusing on mangrove replanting. The data and information collected by the TCGs is organised into a national database managed by the KESCOM.

The adoption of a voluntary and participatory approach has led to an increase in conservation action. For instance from 1991-2005, the TCGs in Kenya reported a total of 2,601 nests laid within their areas

of coverage. During the same period, 1,863 dead turtles were reported to the KESCOM with about 85% of mortality cases due to the poaching and slaughtering of turtles and fishing activities (mainly trawling and entrapment in set nets). About 1,000 turtles have been tagged and tag returns have been realized from Somalia and Tanzania.

In spite of the mixed success in some areas, the challenge of sea turtle conservation in Kenya still remains especially given that a large percentage of mortalities are caused by humans, and mitigation measures partly involve major socio-cultural as well as socio-economic shifts. The lack of adequate financial and human resources also continues to hamper conservation action. However, the proposed BMU framework will hopefully add synergies to sea turtle conservation work in Kenya especially in areas not yet covered.

## IV. Proposed policy reforms

The Kenyan government's Economic Recovery Strategy Paper (2003-2007) is geared towards the realization of wealth and employment creation. In recognizing research as a fundamental prerequisite for fisheries development, the draft policy provides for better coordination between fisheries management and research. The policy requires the KMFRI, in liaison with the Department of Fisheries, to promote and coordinate multidisciplinary, participatory collaborative demand-driven research activities aimed at sustainable use of fisheries resources, and to establish the co-management of research as the guiding principle. An important departure is the proposal for the FiD to establish an armed unit to enhance the enforcement capacity of the Department and to eradicate poachers or illegal fishers. The Department hopes to collaborate with the Office of the President to provide modern patrol facilities including boats and vehicles to fishery field stations to facilitate fishery management and enforcement of the law.

In order to remove constraints and exploit the fishery resources, the following policy reform agenda has been proposed:

- Develop a facilitative infrastructure which includes landing beaches, cooling plants and access roads to reduce wastage and achieve the required sanitary and health standards.
- Promote aquaculture to improve food security, nutritional status and incomes.
- Enter into agreements which promote closer regional cooperation in the management and regulation of the transboundary fisheries resources including the control of water hyacinth.
- Encourage the growth of micro-finance institutions to provide credit to the sub-sector.
- Encourage sector incentives within the framework of fiscal reforms to deal with the costs of exploiting fisheries resources, processing, preservation and export of the products.
- Make jet fuel exempt from duties to reduce

transportation costs, encourage more exports and increase market share and foreign exchange earnings.

- Increase funding to the sector to enhance research into the production and preservation of fisheries species that are marketable both locally and overseas.
- Increase funding for equipment and surveillance of the country's Exclusive Economic Zone to stop encroachment by foreign fishing vessels and thus contribute to wealth and employment creation.
- Integrate the fishery sector into the country's agricultural commodities export strategy to reduce marketing costs to the sector.
- Develop strong regional integration networks to benefit from economies of scale and infrastructure development to facilitate the export of fishery resources on a sustainable basis.
- Promote local and foreign investments in the establishment of a fishing processing plant and fishing fleets to tap the EEZ resource, especially the tuna fishery.
- Develop a comprehensive fisheries policy, to include a fisheries master plan in order to expedite growth of the sector through focused strategies.
- Carry out stock assessment and based on information gathered, negotiate fishing access agreements that would benefit Kenyans and ensure sustainable exploitation of fisheries resources.
- Build institutional capacity through training and the involvement of community participation in fisheries management.
- Promote effective use of natural resources through appropriate extraction methods.

The need to realize these reforms still persists, as their implementation requires huge financial investments.



## V. Conclusions

The decline in the marine fishery is generally attributed to overfishing brought about by an increasing human population. The increased fisher population has seen traditionally non-fisher tribes joining the fish trade in addition to migrant fishers and has witnessed an upsurge of destructive fishing practices. The overuse of the reef area is particularly evident through the falling numbers of finfish and the increased numbers of sea urchins. Fish habitats have also been negatively affected by the activities of the salt recovery industries, tourism and prawn trawling.

Domestic legal instruments are thorough enough and are theoretically adequate to deal with the problems of unsustainable use of marine resources. The Fisheries Act of 1989, for instance, empowers the Director of Fisheries, with the approval of the Minister, to issue regulations to promote the development of fisheries and aquaculture and to ensure the proper management of specific fisheries. This includes the possibility of declaring closed seasons and/or areas, access limitations, and restrictions on fishing methods, gear, and specifying the characteristics of the fish that may be caught. The Act further establishes a basis for the registration and licensing of local and foreign fishermen and fishing vessels, enforcement in terms of prohibited methods of fishing, including the use of chemicals and trade in fish illegally caught, as well as prohibition on fishing for marine mammals in Kenya waters. The Wildlife (Conservation and Management) Act, on the other hand, enforces regulation although only within marine protected areas. However, effective implementation of these and other laws is hampered by a number of factors, *inter alia*:

- 1) Lack of enforcement capacity/personnel especially in the EEZ;

- 2) Overlapping mandates;
- 3) Conflicting and/or contradicting mandates;
- 4) Economic status of enforcement personnel which at times forces them to ignore or overlook violations in return for bribes;
- 5) Low levels of fines which stop them from being effective deterrents against violations;
- 6) Collapsed promotion and management structures;
- 7) Unimplemented provisions which remain on the statute books but are not in use;
- 8) Unclear and at times incoherent interpretation of provisions: the use of fishing gear within national parks, for example, is not explicit and has in many instances been interpreted to allow traditional or non-destructive gear according to the discretion of individual wardens; and
- 9) Conflict between traditional and national leaders resulting in few enforced restrictions.<sup>291</sup>

The promotion and management of fisheries in Kenya also suffers due to its high dependence on the EU market. The EU demands stringent SPS requirements, which are often imposed impromptu, though developing countries are never involved in the legislative process.<sup>292</sup> As a result, new requirements often come as a surprise causing panic due to fear of losing the market.<sup>293</sup> This has caused excessive, and at times unnecessary, resources to be channelled into the implementation of SPS measures, thus depriving management efforts of needed resources.<sup>294</sup> It also affects the FiD's ability to develop a systematic and progressive way of improving the fishery industry.

291 The management and acceptance of fisheries regulations has seen conflicts arising due to socio-economic, cultural, legal, economic and technical reasons. It has also been complicated by the multi-species nature of fisheries, different types of gear and levels of governance.

292 Interviewee, FiD.

293 The safety and quality conditions imposed by various countries in 1997 and 1999 following reports of the presence of salmonella, a cholera outbreak and the use of pesticides saw a decline in fish exports from Kenya by 68%. As a condition for exporting fish to the EU, all Kenya's fish factories instituted stringent quality control procedures like the Hazard Analysis Critical Control Point (HACCP). The fish industry is now governed directly by at least six sets of standards operated through the Fisheries Department and the Kenya Bureau of Standards. They include requirements for handling and marketing fishery products based on HACCP principles and the practices governing fish production such as the handling, processing, packaging, and transporting of fishery products destined for the EU. Additionally, they include the standards regarding the construction of buildings, equipment, purification tanks, and storage tanks intended for holding fish prior to shipping, as well as on-premise laboratories, strict record keeping, and accurate labelling.

294 The impact of safety measures has been felt in terms of restructuring fish-processing factories and production lines; investment in newer, cleaner boats and preservation facilities; and retraining fishermen and other workers on hygienic fish-handling practices. These measures have pushed up the price of fish on the domestic market and also raised fish export costs.

Developed countries (the EU) need to be transparent about decisions (developments) they desire to undertake by involving developing countries in talks. They also need to give more time for implementation/compliance. Perhaps the FAO could act as a link between developed and developing countries by tracking developments in industrialized countries and supporting training in developing countries. The FAO could also set aside a fund to sponsor developing countries' representatives to take part in EU meetings. This way, developing countries would be aware of what was happening in the EU and have the opportunity of informing EU legislators and policy makers of the prevailing conditions in their respective countries before decisions were made. They would also be able to communicate decisions to their countries early to allow adequate time for implementation.

A unique feature of the EEZ, as far as enforcement is concerned, is the possibility of building synergy through collaboration with regional states in order to curb violations. This has led to the formation of regional bodies such as the SWIOFC and the SIOFA. Unfortunately, some of these bodies only exist on paper because vital structures have neither been laid down, nor competences defined. Others lack strong backing due to non-participation of pertinent regional states. Worse still is the shortage of finances.

Management initiatives suggested include the encouragement of responsible fishing practices and co-management structures, curtailment of destructive fishing methods, further development of Marine Protected Areas and the resolution of conflicts arising from the migration of foreign nationals from Pemba Island and the northern Tanzanian coast into south coast fishing areas. In essence, the amalgamation of traditional fisheries management with the formal regime through the Beach Management Unit (BMU) is seen as a lasting solution.

In recognition of the fundamental prerequisite for fishery development, the Draft Fisheries Policy provides for better coordination between fishery management and research. An important departure is the

establishment of an armed unit by the FiD to enhance enforcement capabilities in eradicating illegal fishermen. Providing fishery field stations with modern patrol facilities (boats and vehicles) will further assist in the management and enforcement of the law.

The policy reform agenda (in particular to develop facilitative infrastructure facilities), promotion of regional cooperation in the management and regulation of the transboundary fishery resources, encouraging the growth of micro-finance institutions to provide credit to the sub-sector, and subsidizing the cost of exploiting fishery resources, processing, preservation and export of the products, are important reforms for the sector.

Other important reforms including increased funding to the sector to enhance research in production and preservation of fisheries, to improve equipment and build institutional capacity through training, and involvement of community participation in fishery management, go well with the safety and quality standards imposed by the EU, although the cost of implementing the reform agenda is very high.

Generally, future prospects are bright. There is much willingness to update the existing structures and to install more effective modern equipment as well as to increase and employ knowledgeable capacity in order to ensure proper management and hence sustainable fisheries. Better collaboration between the FiD and the KWS through the Memorandum of Understanding, closer interaction between the FiD, the KWS, the KMFRI and other professional groups is expected to increase synergy. Involvement of all stakeholders in management efforts is expected to ease efforts and make implementation more effective. Also, installation of VMS in vessels will definitely make a big difference in the management of the EEZ. However, there is a deficit in the resources needed for the implementation process. Such a burden should be taken up not only by one or a handful of states, but by a wider group of the international community, especially the countries that benefit from the resources of those fisheries.

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# 3 Promotion and Management of Marine Fisheries in Namibia

*Raywood Mavetja Rukoro<sup>1</sup>*

## Summary

Namibia inherited a severely depleted fishery. The previous regime left the fishing industry uncontrolled, with excessive exploitation practices and no sustainable fishing practices in place. This opened the waters to long-distance fleets which openly exploited the fish stock found outside the territorial waters and put severe pressured on the resource.

The former administration had jurisdiction over 12 nautical miles out from the shore, while the remainder was managed by the International Commission for South East Atlantic Fisheries. This organization which was established mainly as a tool to ensure sustainable fishing in the South East Atlantic was abused by member states whose main aim was to harvest to the maximum the rich resources found in the said waters.

With the attainment of independence and the change in the governing regime, a new fisheries management regime started with the enactment by parliament of the Territorial Sea and Exclusive Economic Zone Act (Act 3 of 1990). It stipulates that the 'sea outside the territorial sea of Namibia, but within a distance of 200 nautical miles from the low water line or any other base line from which the territorial sea was measured, shall constitute the exclusive economic zone (EEZ) of Namibia'.

This proved to be a mammoth task at first as Namibia had no adequate means to enforce the fisheries laws within the EEZ. For the first year illegal fishing by uncontrolled foreign vessels continued. This prompted the government to implement a fisheries management system and parliament enacted the Sea Fisheries Act (Act 29 of 1992) to ensure that Namibia's

living marine resources were utilized on a sustainable basis, as required by Article 95(l) of the Constitution of Namibia.

Namibia has one of the most productive fishing grounds in the world and its marine ecosystem is dominated by the Benguela current. The fishery supports vast populations of commercially exploitable fish species, some of which are shared with Angola and South Africa. The inshore marine environment provides valuable migration and nursery habitats for many marine organisms. These organisms, in turn, support rich populations of fish, which constitutes the very foundation of marine fisheries in Namibia. As is the case in other upwelling systems, relatively few species dominate and their abundance is very much dependent on changing environmental and climatic conditions.

The fisheries sector is one of the main foreign currency earners and contributes significantly to the Namibian economy. In 2000, the sector contributed US\$ 221.1 million to the GDP in comparison with US\$ 97.8 million in 1996.

As a measure to regulate the industry, the government of Namibia opted for a rights-based approach to its management of the fishery. The prerequisites to the commercial harvesting of marine resources generally states that no person shall in Namibia, or in Namibian waters, harvest any marine resource for commercial purposes, except under a right, an exploratory right or a fisheries agreement.

The Namibian fisheries management system is proving to be somewhat successful in that it has been

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<sup>1</sup> My sincere gratitude goes far and wide to a number of individuals for their unwavering support in the research and writing of this report. More specifically to Gerd Winter, Manfred Hinz, Till Markus, Marion Markowski for the endless proof reading of the initial drafts of this report and their very helpful suggestions, recommendations and advice; and to my very able assistants to whom I am indebted for ensuring that together we were able to compile this report, Dunia Zongwe, Theophilus Mayumbelo and Frederick Haulofu.

able to eradicate illegal fishing in Namibian waters. Few cases, if any, of illegal fishing have been reported recently. However, fish stocks are still declining and,

at least in part, this trend is not a result of a lax management regime, but rather of adverse environmental conditions.

## I. Environmental and socio-economic background

### 1. Environmental conditions

Upon gaining independence on 21 March 1990, Namibia inherited a fisheries industry whose resources were severely depleted.<sup>2</sup> This was because the pre-independence regime had left the fishing industry largely uncontrolled.<sup>3</sup> Before Namibia's 200-nautical mile Exclusive Economic Zone was declared in 1990, the former administration had jurisdiction only over 12 nautical miles of territorial waters<sup>4</sup> while the remainder was managed by the International Commission for South East Atlantic Fisheries.<sup>5</sup> Long distance fleets openly exploited the fish stock found outside the territorial waters and the fishing pressure was high.<sup>6</sup>

Namibia's fisheries management regime started with section 4(1) of the Territorial Sea and Exclusive Economic Zone Act<sup>7</sup> which stipulates that:

*[t]he sea outside the territorial sea of Namibia but within a distance of two hundred nautical miles from the low water line or any other base line from which the territorial sea was measured shall constitute the exclusive economic zone of Namibia.*

Namibia had no adequate means to enforce the fisheries laws within the EEZ and for the first year illegal fishing by uncontrolled foreign vessels continued.<sup>8</sup> In early

1991, the Government of the Republic of Namibia (hereinafter referred to as 'Government') set out its fisheries policies in a White Paper towards Responsible Fisheries.<sup>9</sup> Following the guidelines in the White Paper, the Sea Fisheries Act<sup>10</sup> came into force in October 1992 to ensure that Namibia's living marine resources were utilized on a sustainable basis as required by Article 95(l) of the Constitution of Namibia,<sup>11</sup> and to ensure an optimal level of compliance with fisheries laws and regulations.<sup>12</sup> Through the establishment of the Monitoring, Control and Surveillance System (MCS) project, the hope was to find practical options that would help realize the government's fisheries management goals.

Namibia has one of the most productive fishing grounds and systems in the world.<sup>13</sup> Namibia's marine ecosystem is dominated by the Benguela current, and supports vast populations of commercially exploitable fish species, some of which are shared with Angola and South Africa.<sup>14</sup>

The Benguela current is a broad northward flow off southwestern Africa and is part of the South Atlantic subtropical gyre. It is driven by large-scale wind patterns and thermohaline forcing.<sup>15</sup> The currents close to the coast are known as the Benguela upwelling system,

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2 Namibia. Ministry of Fisheries and Marine Resources. (2000). *Presentation on the Namibian fisheries compliance on monitoring, control and surveillance*, p.2. Windhoek: Ministry of Fisheries and Marine Resources.

3 Ibid.

4 Section 2(1) of the Territorial Sea and Exclusive Economic Zone Act, Act 3 of 1990, also lays down that '[t]he sea within a distance of 12 nautical miles measured from the low water line shall be the territorial sea of Namibia'.

5 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 2.

6 Ibid.

7 Act 3 of 1990.

8 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 2.

9 Ibid.

10 Act 29 of 1992.

11 Act 1 of 1990.

12 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 2.

13 See also Shannon, V.L. and O'Toole, M.J. (2003). 'Sustainability of the Benguela: *ex Africa semper aliquid novi*'. In: Hempel, G. and Sherman, K. (Eds). *Large marine ecosystems of the world: Trends in exploitation and research*, 227-253, at p.228. Amsterdam: Elsevier Science.

14 Government of the Republic of Namibia. (2004). *Namibia Vision 2030*, p.157. Windhoek: Office of the President.

15 Fennel, W. (1999). 'Theory of the Benguela Upwelling System' in: Vol. 29, Issue 2 *Journal of Physical Oceanography*, pp. 177-190.



which is forced locally by the wind stress field off Southwest Africa.<sup>16</sup> The Benguela upwelling system stretches from the southern tip of Africa to about 15°-16°S where it is bounded by the Angola front, which separates the warm water of the Angola Current from the cold Benguela water.<sup>17</sup> In the northern part of the Benguela upwelling system, a poleward surface flow is found that extends as far south as 17°-18°S. The upwelling varies alongshore.

The area of the Benguela is exposed to a persistent alongshore wind associated with the St. Helena high pressure system. The upwelling favorable alongshore wind has a maximum at about 25°S and decreases toward the northern and southern boundaries of the Benguela system at the Angola front and the southern tip of Africa, respectively.<sup>18</sup> In the south, the winds are highly seasonal and reach a maximum during spring and summer.

North of 31°S, the seasonal variation is weaker with permanent alongshore winds with a spring-summer maximum and autumn minimum as far north as 25°S. North of that latitude, the maximum occurs in late winter to spring. The wind increases somewhat away from the coast.<sup>19</sup>

The driving physical process in the Benguela system is coastal, wind-induced upwelling. Prevailing southwesterly winds, which occur all year round off Namibia, tend to move nearshore surface water northwards and offshore, while cool, central water from a depth of about 300 m wells up to take its place.<sup>20</sup> The deeper water is rich in dissolved nutrients which, when present in the photic zone, facilitate rapid growth of phytoplankton, the basic food of fish. The high productivity of these microscopic plants supports abundant marine life.<sup>21</sup> The most intense upwelling regions off Namibia are found where the continental shelf is narrowest and the wind strongest, e.g., off Cape Rio, Palgrave Point and Lüderitz. The strongest most extensive and intense centre of the upwelling in the entire Benguela system is off Lüderitz, Namibia.<sup>22</sup>

The inshore marine environment provides valuable migration and nursery habitats for many marine organisms.<sup>23</sup> These organisms in turn support rich populations of fish, which constitute the very foundation of marine fisheries in Namibia.<sup>24</sup> As is the case in other upwelling systems, relatively few species dominate and their abundance is very much dependent on changing environmental and climatic conditions.

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16 Ibid.

17 Ibid.

18 Ibid.

19 Ibid.

20 Van Zyl, B.J. (2002). *A decade of Namibian fisheries and biodiversity management*, p.5. Available from <http://www.wordfish.org/BlueMillenniumPDFs/Chapter 2-VanZylCaseStudy.pdf>.

21 Ibid.

22 Ibid.

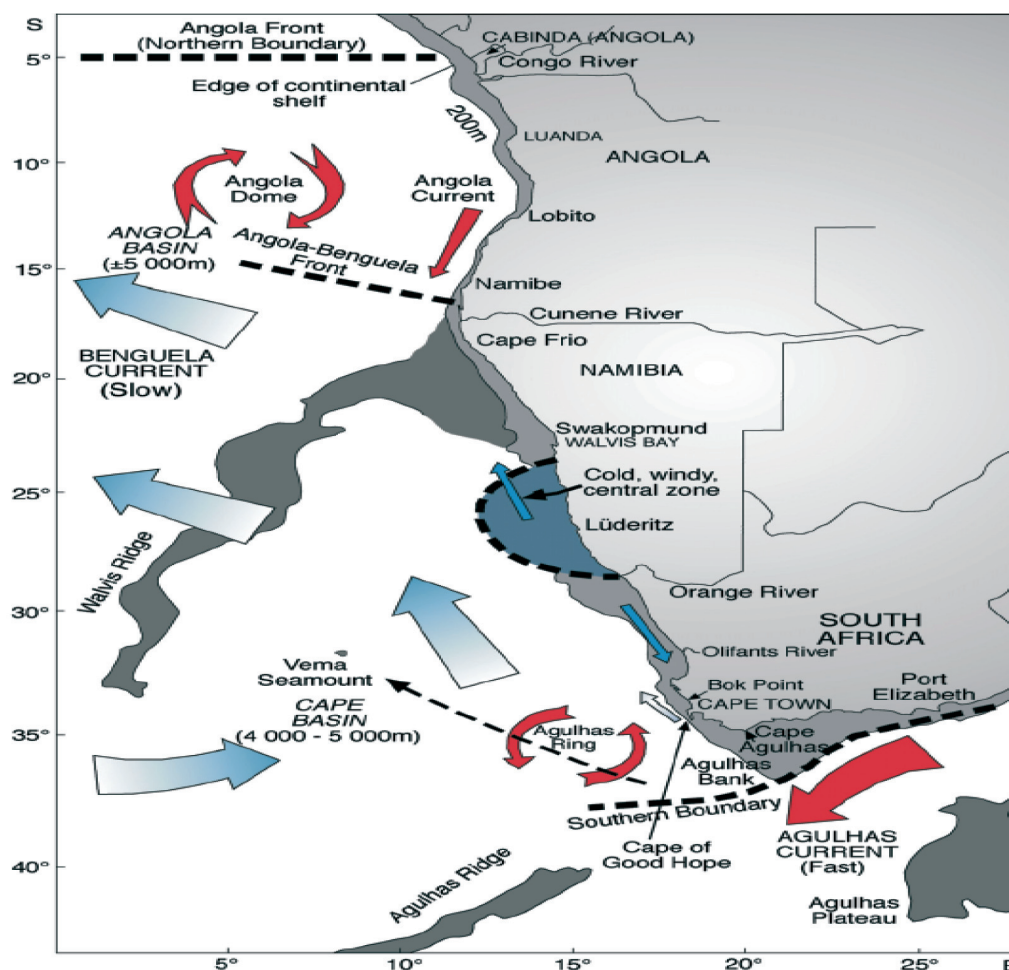
23 Government of the Republic of Namibia, supra, note 14.

24 Sumaila, U.R., Boyer, D., Skogen, M.D. and Steinshamn, S.I. (Eds). (2004). *Namibia's fisheries: Ecological, economic and social aspects*, p.2. Delft: Eburon Academic Publishers.

25 Namibia. National Planning Commission. (2006). *2001 Census*. Also available from <http://www.npc.gov.na/census/index.htm>.

Figure 1 depicts the external and internal boundaries of the Benguela current, its large marine ecosystem, bathymetric features and surface (upper layer) currents.

**Figure 1: Integrated Management of the Benguela Current Region**



Source: Shannon and O'Toole, supra, note 13.

## 2. Overview of multiple demands on the coastal and exclusive economic zone

### a) *Urbanization*

Namibia has three major coastal towns: Swakopmund, Walvis Bay and Lüderitz. However, in Namibia's 2001 Housing and Population Census, Swakopmund and Lüderitz are not considered large urban areas compared to Walvis Bay. Even though the populations are currently not large in these two coastal towns, it is expected that more people will be moving to these towns as the fishing industry and marine exploration continue to grow. Walvis Bay, which is Namibia's second largest town, is considered to be a large urban

area in the census, with a population of about 42,415 people.<sup>25</sup> A rise in the need for housing means a high level of urbanization in these towns, where housing developments tend to be moving more towards the sea and away from the forbidding Namib Desert.

### b) *Modern ports*

Namibia has two major ports – Walvis Bay and Lüderitz. Walvis Bay is Namibia's largest commercial port, visited by approximately 1,000 vessels each year and handling about 2.5 million tonnes of cargo. It is a

26 Namibia. Namibian Port Authority. (2006). *The port of Walvis Bay*. Available from: <http://www.namport.com/content/show.php?m=4>.

sheltered deepwater harbour benefiting from a temperate climate.<sup>26</sup>

Namport is Namibia's Ports Authority Company and it has a container terminal at Walvis Bay that can accommodate 380 containers, with space for 210 reefer container plug points. The container terminal can host about 150,000 containers per annum.<sup>27</sup> The Walvis Bay syncrolift, a modern drydocking facility, which is also owned and operated by Namport, is located between the commercial and fishing harbours, and it caters mainly for fishing vessels, offshore supply boats and offshore mining industry vessels of up to 2,000 tonnes. While many of the smaller fishing boats berth at the jetties of the various factories, larger white fish trawlers use the commercial port.

Since 1995, investment in the port of Lüderitz has significantly improved harbour facilities so it can now handle modern coastal traffic, as well as the needs of the offshore sector, including the diamond mining and fishing industries.<sup>28</sup> This included dredging the approach channel to the harbour, as well as the 198 m-wide turning basin. Cargo handled at the port has increased dramatically since 1994, when the average number of ships calling was 826 and cargo reached 51,513 tonnes. By 1997, the number of ships had gone up to 1,253 and tonnage peaked at 102,614 t. The cargo landed consisted mainly of fuel and fish products. Exports were predominantly fish products. However, mineral and offshore activities in southern Namibia have brought a new lease of life to the port which until recently depended mainly on the fishing industry.<sup>29</sup>

#### **c) Fishing industry estates**

Fishing continues to be a major line of business for Walvis Bay. About two-thirds of the waterfront area of the port is taken up by the fishing harbour, where the many landing quays are backed by more than 2 km of warehouses, processing facilities and canning factories.

In recent years, the industry has shown great flexibility in managing to adapt to changing tastes and markets. A large modern cold store allows high-value fish to be stored for export to niche markets around the world.

#### **d) Tourist attractions**

Old-world charm, adventure sports and spotless beaches are some of the many qualities one associates with Swakopmund, one of the fastest growing cities in the country.

One of the biggest building initiatives on the coast is the Swakopmund Waterfront development project that is already underway. Not only will this development project add shops, housing, restaurants and a marina to what Swakopmund already has to offer, it will actually extend Namibia's territory, as it will change the high-water mark, thus adding land.<sup>30</sup> Phase 1A of the development is almost complete, with 72 townhouses and eight houses built thus far. Ultimately there will be up to 240 residential units, in addition to shops, restaurants, and activities based around the marina.<sup>31</sup> The idea is to create as many activities as possible. The beach will grow north of the development as sand is pushed around the marina.

Demand and growth are going hand in hand at the coastal towns and mainly at Swakopmund, for the benefit of residents and tourists alike. Upon completion of the marina, business opportunities will be available, e.g., creating a demand for activities such as sundowner cruises and fishing excursions.<sup>32</sup> These activities are aimed at attracting tourists to Namibia's coastal zone.

#### **e) Marine exploration and mining**

Namibia has a wealth of marine mineral resources, such as glauconite, phosphorite, industrial minerals and diamonds. The exploration and development of oil and gas marine resources are fully captured in the *White Paper on Energy Policy*.<sup>33</sup> The current Kudu Gas Project

<sup>27</sup> Ibid.

<sup>28</sup> Information available from <http://www.ports.co.za/luderitz.php>.

<sup>29</sup> Namibia, Namibian Port Authority, *supra*, note 26.

<sup>30</sup> Information available from <http://www.travelnews.com.na/index.php?fAfricaId=881>.

<sup>31</sup> Ibid.

<sup>32</sup> Ibid.

<sup>33</sup> Namibia. Ministry of Mines and Energy. (1998). *White paper on energy policy*. Windhoek: Ministry of Mines and Energy.

<sup>34</sup> Namibia. Ministry of Mines and Energy. Minerals policy of Namibia – draft, p.17. Windhoek: Ministry of Mines and Energy.

– the development of a power-generating and gas-fired station 170 km off the coast near Oranjemund – is an example of the government’s increasing marine exploration.

Marine diamonds accounted for 60% of Namibia’s total diamond production in 2001.<sup>34</sup> The increase in marine diamond production was a response to the dwindling on-shore diamond reserves, as well as to the development of new exploration technologies.<sup>35</sup> With

on-going research and further improvements in technology, marine diamond production is likely to increase.<sup>36</sup>

Since offshore development in exploration and mining is a relatively new activity, the associated impact on the environment is not yet fully understood.<sup>37</sup> Therefore, there is a need for continued on-going research into the probable environmental impacts.<sup>38</sup>

### 3. Fisheries

#### *a) Indigenous and artisanal fisheries*

There are no indigenous coastal fisheries communities, nor is there substantial artisanal fishing.<sup>39</sup> There are remnants of traditional fisher communities found in Namibia. The Topnaars communities were able to endure the harsh environmental conditions prevalent in the Namib desert which is part of the Namibian coastline.<sup>40</sup> However these communities are no longer actively involved in fishing. They have been absorbed into the main industrial fisheries industry where they have been allocated quotas and have entered into joint ventures with companies involved in fisheries which possess the technical know-how and the capital required to successfully harvest the sea resources.<sup>41</sup> Nonetheless, there exist initiatives within the industry that specially focus on the needs of the Topnaars communities and many fishing companies contribute financially towards improving their livelihoods.<sup>42</sup> While in precolonial times the Topnaar communities had their own indigenous law regulating fisheries, nowadays this law is obsolete.<sup>43</sup> Artisanal fisheries are virtually non-existent. Most of the small-scale fishing is recreational or linked to recreational activities (see below).

#### *b) Recreational fishing*

The only coastal fishing is recreational fishing.<sup>44</sup> Local inhabitants of the coastal towns and cities mostly use this form of fishing to catch fish for their own consumption and sometimes to supply small markets. It must be noted however that there are limits on daily catches to discourage people from using this type of fishing to engage in larger business initiatives. Whilst out with the Patrol officials in Swakopmund, fishermen assured the author that their take for the day was either for their own consumption or simply for sport and that the fish caught were either distributed amongst the local poor or amongst the people on the boat. However, this was difficult to believe as clearly some of them were well-known to the Patrol officials since they go out fishing every day. While this cannot be seen as a form of recreational fishing it probably borders on subsistence fishing. It is difficult for the author to be certain of their status as he was only there for a short while.

Recreational fishing targets species such as Blacktail, also known as *Dassie* (*Diplodus sargus*),

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35 Ibid.

36 Ibid.

37 Ibid.

38 Ibid.

39 Nichols, P. (2004). ‘Marine fisheries management in Namibia: Has it worked’. In: Sumaila et al., supra, note 24, 319-332 at p.326.

40 Fieldnote 9.

41 Fieldnote 10.

42 Fieldnote 8; see also fieldnote 2.

43 See, on the history of the Topnaar and their fisheries practices and rules, Mapaure, C. (2007). ‘A failed success: natural acumen and sustainable traditional fishing among the Topnaar community’. Dissertation submitted in partial fulfilment of the requirements of the award of the Specialised Certificate in Customary Law at the Faculty of Law, University of Namibia.

44 Government of the Republic of Namibia, supra, note 14.

*Dichistius capensis*, Kob which is also known as Kabeljou (*Argyrosomus* spp.), Snoek, etc. Additionally, there are Coast steenbras, also known as White fish (*Lithognathus aureti*), Barbell, sharks (principally Cow

shark) (*Notorynchus cepedianus*), Bronze whaler (*Carcharhinus brachyurus*), Spotted gullyshark (*Triakis megalopterus*) and Smooth hound (*Mustelus mustelus*).<sup>45</sup>

**Table 1. Total number of recreational fishing permits issued and revenue generated during 2004**

Months	Permits issued	Revenue collected (N\$)*
January	4.572	89.264
February	4.807	83.146
March	5.331	87.416
April	4.631	73.150
May	3.060	54.544
June	1.763	30.072
July	2.622	44.114
August	2.191	40.992
September	2.297	41.650
October	2.829	52.388
November	4.764	98.574
December	14.284	228.774
<b>Total</b>	<b>51.772</b>	<b>924.084</b>

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*.

Windhoek: Ministry of Fisheries and Marine Resources, p.23.

\* N\$ 1 is approximately 7.5.

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**Table 2. Types of permit issued in 2004**

Period	Total number of permits	Amount received (N\$)
Monthly permits issued	50.478	706.692
Annual permits issued	1.294	217.392
<b>Total</b>	<b>51.772</b>	<b>924.084</b>

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*.

Windhoek: Ministry of Fisheries and Marine Resources, p.23.

Harvesting for recreational purposes is regulated by Regulation No. 5,46 which requires that persons who want to harvest fish in the Namibian waters for

recreational purposes must be in possession of a fishing permit and carry out such harvesting in accordance with the conditions prescribed in the regulations.

<sup>45</sup> Food and Agriculture Organization of the United Nations (FAO). (2002). 'Fishery country profile: Namibia'. Available from <http://www.fao.org/fi/fcp/en/NAM/profile.htm>.



### c) *Industrial fisheries*

The bulk of Namibian fisheries is industrial. It can be divided into nine main fisheries:<sup>47</sup>

**1. Demersal fisheries:** Around 111<sup>48</sup> demersal trawlers (19-77m length) are currently licensed. Their principal target species is Hake (*Merluccius capensis* and *M. paradoxus*), caught in deeper water (trawlers are not permitted in less than 200 m depth). The spawning biomass of hake was estimated at 1.3 million tonnes and the allocated TAC for the 2004/5 fishing season was 195,000 tonnes.<sup>49</sup> Smaller trawlers fish closer to shore for Monkfish, sole and Kingklip. Twenty-four<sup>50</sup> demersal long-liners (19-55 m in length) also target smaller quantities of highly valuable Kingklip and Snoek. Catches in 2000 were Hake; Monkfish – 14,358 tonnes; and Kingklip – 3,922 tonnes.<sup>51</sup> The stock assessment model estimate for the fishable biomass in 2004 was around 35,000 tonnes.<sup>52</sup> However, there is a downward trend in the biomass of Monkfish. Thus, catches have to be slightly reduced to compensate for this.<sup>53</sup>

**2. Mid-water fishery:** Twenty-six<sup>54</sup> mid-water trawlers, 62-120 m in length, are licensed to catch Horse mackerel (*Trachurus capensis*). This sub-sector has the largest number of foreign vessels, with 12-15 operating at any one time.<sup>55</sup> However, at least eight are wholly owned by Namibian nationals, but retain foreign flags

in order to facilitate work permits for the largely expatriate crews.<sup>56</sup> Horse mackerel stocks are growing steadily. This resource is estimated at 1.4 million tonnes, comprising 47% juvenile and 53% adult fish.<sup>57</sup> The total Horse mackerel catch 2002-2004 was 350,000 tonnes.<sup>58</sup>

**3. Purse-seine fishery:** A fleet of 30<sup>59</sup> purse-seiners (21-47 m in length) target Pilchards (*Sardinops sagax*) for canning.<sup>60</sup> Juvenile Horse mackerel and Anchovy (*Engraulis capensis*) are sporadically found in Namibian waters and are also used for fish meal. Namibia's Pilchard stocks have not responded as well as others to measures designed to rebuild stocks, and there is concern for recruitment levels which appear to be largely influenced by environmental factors. Catches have declined rapidly in recent years from 68,600 tonnes in 1998 to 25,400 tonnes in 2000.<sup>61</sup> During October 2004, Pilchard were found in patchy aggregations in central Namibia and extending into southern Angola, with the proportion of the stock found in southern Angola increasing to 35% of the total biomass.<sup>62</sup> The Pilchard stock was estimated at approximately 327,000 tonnes.<sup>63</sup> The adult stock decreased from 320,000 estimated in October 2003 to 147,000 tonnes in a period of one year.<sup>64</sup> Despite this decrease, recruitment from the 2003/2004 spawning season was very good and the juveniles (with a modal length of 17 cm) accounted for about 60% of

46 Regulations made in section 61 (1) of the Marine Resources Act 27 of 2000.

47 The division of the industry as outlined below is adopted from the FAO report found on [http://www.fao.org/fishery/countrysector/FI-CP\\_NA](http://www.fao.org/fishery/countrysector/FI-CP_NA). The figures used above differ from the ones contained in the FAO report. The figures have been updated to reflect those in the report published by the Ministry of Fisheries and Marine Resources and contained in the Annual Report for 2004 and published in 2005.

48 The FAO report indicates that 121 licences were issued to demersal trawlers, differing from the Ministry's figures as shown above. The discrepancy may be due to the fact that the report was published earlier and we thought it prudent to use the latest figures published as contained in the government report.

49 Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*, p.11. Windhoek: Ministry of Fisheries and Marine Resources.

50 The FAO figure is 28 demersal long-liners.

51 FAO, *supra*, note 45.

52 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49.

53 *Ibid.*

54 The FAO figure is 15 mid-water trawlers

55 FAO, *supra*, note 45.

56 *Ibid.*

57 Namibia, Ministry of Fisheries and Marine Resources. *supra*, note 49.

58 The figure represents an average of the years 2002-2004 as is reflected in Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49, p.21.

59 The FAO figures showed a fleet of 36 purse-seiners licensed

60 FAO, *supra*, note 45.

61 *Ibid.*

62 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49.

63 *Ibid.*

64 *Ibid.*

the total biomass estimated in October 2004.<sup>65</sup> A TAC of 25,000 tonnes was granted for 2004.<sup>66</sup>

**4. Deep-water fishery:** Five deep-water trawlers are currently licensed to target Orange roughy (*Hoplostethus atlanticus*) and Alfonsino (*Beryx splendens*). The fishery began in 1994 but low catch levels have since reduced the value and importance of the fishery.<sup>67</sup>

**5. Tuna fishery:** A fleet of 73 tuna vessels in the 6-79 m length range using long-line and line gear are licensed to catch Albacore (*Thunnus alalunga*), Bigeye (*Thunnus obesus*), *Xyphias gladius* and Skipjack (*Katsuwonus pelamis*).<sup>68</sup> Pelagic sharks are also taken. Some 2,000 tonnes of tuna species and 290 tonnes of swordfish were landed in 2000.<sup>69</sup>

**6. Rock lobster fishery:** The fishery for rock lobster (*Jasus lalandii*) is based in southern Lüderitz. Twenty-nine craft, 7-21 m in length, are currently licensed and use lobster traps. The rock lobster stock, which is shared with South Africa, is showing signs of continued growth.<sup>70</sup> During the 2003/2004 commercial season, the lobster fishing fleet again did not succeed in fulfilling the lobster total allowable catch (TAC), just as in the previous three seasons.<sup>71</sup> This was mainly due to high swell conditions (and possibly also due to the high levels of bottom-dissolved oxygen, resulting in adult lobsters migrating to deeper waters and thus out of reach of the fleet).<sup>72</sup> Catch per unit effort was lower than that of the previous season, and about one half of the TAC remained uncaught.<sup>73</sup>

**7. Deep-sea red crab fishery:** Deep-water traps are used to target red crab (*Chaceon maritae*). Several vessels are licensed for this small, but valuable, fishery. Research on deep-sea red crab indicates that stock size continues to grow slowly.<sup>74</sup> Being a shared stock, Namibia has initiated research activities with neighbouring Angola. The estimated total biomass of Deep-sea red crab during 2004 was between 10,000 and 13,000 tonnes.<sup>75</sup> The biomass of this species has remained relatively stable since 1993. The allocated TAC for the 2004 season has increased from 2,000 tonnes in 2003 to 2,200 tonnes in 2004.<sup>76</sup>

**8. Line-fish vessels:** A fleet of 26 industrial line-fish vessels operates offshore and target Kob, steenbras, etc. This fishery landed 1,600 tonnes in 2000.<sup>77</sup>

**9. Cape fur seals:** Cape fur seals (*Arctocephalus pusillus*) are also harvested around Cape Cross, Wolfs Bay and Walvis Bay. Harvests have risen from 29,500 seals in 1998 to nearly 42,000 in 2000.<sup>78</sup> Seals, including predominantly Kelp, are harvested at a number of locations. Production in 2000 was 825 tonnes.<sup>79</sup> In the 2004 season, the catch comprised 28,496 pups and 3,415 bulls.<sup>80</sup> During 2004, a rolling TAC was set for the period 2004-2006. The TAC was set at 60,000 pups and 5,000 bulls.<sup>81</sup>

#### d) Landed fish

The total volume of marine resource production for 2005 is not available yet. However, the total volume of marine resource production for 2004 declined by 10%, compared with the total volume of the previous

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65 Ibid.  
 66 Ibid.  
 67 FAO, *supra*, note 45.  
 68 Ibid.  
 69 Ibid.  
 70 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49.  
 71 Ibid.  
 72 Ibid.  
 73 Ibid.  
 74 FAO, *supra*, note 45.  
 75 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49, p.12.  
 76 Ibid.  
 77 FAO, *supra*, note 45.  
 78 Ibid.  
 79 Ibid.  
 80 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49, p.12.  
 81 Ibid.

year.<sup>82</sup> Overall, the exchange rate volatility and the cost of fishing were not the most favourable to the fisheries and resources sector during 2004.<sup>83</sup> These factors

affected the operation of major fisheries such as those for Horse mackerel, Hake and tuna.<sup>84</sup>

**Table 3. Total volume of marine resources production 2000–2004 (in tonnes)**

Species	2000	2001	2002	2003	2004
Pilchard	25,388	10,763	4,160	22,255	28,605
Hake	171,397	173,277	154,588	189,305	173,902
Horse mackerel	344,314	315,245	359,183	360,447	310,405
Monkfish	14,358	12,390	15,174	13,135	8,961
Kingklip	3,922	6,607	7,210	6,603	7,067
Tuna	2,401	3,198	2,837	3,371	3,581
Crab	2,700	2,343	2,471	2,092	2,400
Rock lobster	365	365	361	269	214
Other fish species	22,987	30,810	77,407	33,644	31,997
<b>Total fish harvest</b>	<b>588,404</b>	<b>554,998</b>	<b>623,391</b>	<b>631,121</b>	<b>567,133</b>
Seals (numbers)*	41,753	44,223	40,000	34,000	31,971
Seaweed	829	800	500	288	n/a

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*.

Windhoek: Ministry of Fisheries and Marine Resources, p.23.

Note: Other fish species are Orange roughy, Alfonsino, Anchovy, sharks, sole, line-fish species, amongst others.

\* Seals are in numbers, not tonnes. n/a = not available.

#### 4. Economic importance of the fisheries sector

Since Namibia's independence in 1990, the country's prosperous economy, which has a real Gross Domestic Product (GDP) growth rate of 3.5%,<sup>85</sup> has been driven by mining (diamond and uranium), fishing, agriculture (cattle herding and subsistence agriculture) and tourism. Namibia's GDP is approximately twice the average for African countries. Fishing is the third-largest sector of the Namibian economy, after agriculture and mining, and the second-largest growth industry in the

Namibian economy (after tourism), a growth achieved mainly through product value enhancement.<sup>86</sup> Namibia's small population gives it one of the world's lowest population densities. Approximately 60% of the population resides in inland rural areas – predominantly inland – and the remaining 40% resides in urban areas.<sup>87</sup> There is practically no marine subsistence fishing sub-sector.

82 Namibia, Ministry of Fisheries and Marine Resources, supra, note 49, p.21.

83 Ibid.

84 Ibid.

85 CIA World Factbook. 'Namibia'. July 2006. Available from <https://www.cia.gov/library/publications/the-world-factbook/geos/wa.html>.

86 Boyer, D and Oelofsen, B. (2004). 'Co-management: Namibia's experience with two large-scale industrial fisheries – sardine and orange roughy'. In: Sumaila et al., supra, note 24, 333-356, p.336.

87 See also Winterfeldt, V., Fox, T. and Mufune, P. (2002). *Namibia. Society. Sociology*, [preliminary pages]. Windhoek: University of Namibia Press.

The socio-economic relevance of the fisheries in Namibia may be evaluated in terms of:

- (a) their contribution to the national economy;
- (b) their exports and foreign exchange earnings;
- (c) employment for Namibians;
- (d) corporate social responsibility;
- (e) the growth of landed vessels and catch year on year; and
- (f) the number of species landed.

However, this list is by no means exhaustive nor is it the only way of evaluating the socio-economic relevance of the fisheries.

**a) Contribution to the national economy**

Firstly, the fisheries sector is a major contributor to the national economy. Some non-official estimates are optimistic and indicate that the sector generates more than 10% of the GDP.<sup>88</sup> However, the official data indicate rather conservatively that the fisheries sector contribution was 6.7%, 7.1%, 7.3%, and 7.8% of the GDP in 2000, 2001, 2002 and 2003, respectively.<sup>89</sup> In 2000, the sector contributed US\$ 221.1 million to the GDP, compared with US\$ 97.8 million in 1996.

**Table 4. Fisheries contribution to GDP, 2000-2004**

GDP contribution	2000	2001	2002	2003	2004*
Fishing	1.044	1.445	1.608	1.627	1.293
Processing	548	494	703	899	920
<b>Total</b>	<b>1.592</b>	<b>1.939</b>	<b>2.311</b>	<b>2.526</b>	<b>2.213</b>
<b>% of GDP</b>	<b>6.7%</b>	<b>7.1%</b>	<b>7.3%</b>	<b>7.8%</b>	<b>0.1</b>

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*.

Windhoek: Ministry of Fisheries and Marine Resources, p.20.

\* Provisional figures

Direct government revenues generated from the fisheries sector include quota fees; the Marine Resources Fund levy (a levy on all landed species, used to fund research and training); a bycatch levy (bycatch must be landed – discarding is prohibited) with charge rates per tonne set on a species basis; and licence fees for vessels. Although the contribution of income from

marine resources to GDP has fluctuated over the years, mainly due to the unpredictable nature of the resource, it has shown an overall increase from N\$ 288 million (4% of GDP) in 1991 to N\$ 2,016 million (6.6% of GDP) in 2002.<sup>90</sup> However, as Namibianization of the industry progresses, a reduction in the revenue due to tax incentives is expected.

88 Boyer and Oelofsen, supra, note 86, p.332; Richard Sherman estimates that fisheries contributes 35% of the GDP: Sherman, R. (2003). 'Briefing on national, regional and international fisheries and marine-related agreements'. Global Legislators Organisation for a Balanced Environment (GLOBE) Southern Africa. Available from <http://www.emg.org.za/Documents/FisheriesBriefing.doc>.

89 Namibia, Ministry of Fisheries and Marine Resources, supra, note 49, p.24.

90 Nichols, supra, note 39, p.327.

**Table 5. State revenue from the marine fishing industry, 2000-2004 (N\$ thousands, current value)**

Fee	2000	2001	2002	2003	2004
Quota fees	76.125	69.900	100.011	74.437	84.629
Marine Resources Fund levy	11.027	9.211	15.794	12.042	17.663
Bycatch fees	10.300	12.800	15.788	13.561	16.294
Licence fees	185	172	286	187	110
<b>Total revenue</b>	<b>97.637</b>	<b>82.083</b>	<b>131.879</b>	<b>100.227</b>	<b>120.292</b>

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*. Windhoek: Ministry of Fisheries and Marine Resources, p.23.

However, two fisheries experts state that the calculations of revenue from the harvesting of marine resources are ‘very unreliable’.<sup>91</sup> They have identified a number of weaknesses in the calculation including the manual calculation of revenue at the factories by fisheries inspectors before it is entered in the database, cumbersome work routines when data is collected and registered, an inaccurate reconciliation process leading to an almost 100% reliance on industry figures, large backlogs in data entry, and software problems and inadequate training in the use of the database.<sup>92</sup>

That said, the government realized at an early stage the actual and potential benefits that could be derived from the utilization, conservation, protection and promotion of marine resources. Hence, the tight control of the industry as part of its management regime. This is illustrated in the mission statement of the ministry responsible.

#### ***b) Exports and foreign exchange earnings***

The marine fisheries sector is an important foreign exchange earner and has continuously been the second largest sector in the Namibian economy behind mining in terms of export earnings. A major export market for Namibia’s fisheries and marine resource production is the European Union (EU). According to the EU Market Survey (2002) for Fisheries Products, the EU

imported 99,410 tonnes of fish and fish products worth an estimated € 180 million.<sup>93</sup>

#### ***c) Employment for Namibians***

The fisheries sector is one of the major contributors in terms of employment and job creation. The Ministry of Fisheries and Marine Resources (MFMR) estimated total employment in the fishing sector to be around 15,000 persons in 2000.<sup>94</sup> Of this total, some 7,500 are employed on-board vessels, 65% of which are Namibians. Shore workers are nearly all Namibians.

#### ***d) Corporate social responsibility***

One accomplishment worthy of commendation – and which most often goes unnoticed – is the regular voluntary contributions made by companies in the marine fisheries sector to several social development schemes throughout the country. The companies in the fishing industry have lent a helping hand and provided money and other forms of assistance to schools, clinics and other much-needed civic facilities. The contribution of the fishing industry to these noble causes has been, over the past 11 years, in excess of N\$ 33 million (approximately € 4.4 million). The newcomer companies also deserve special mention. Despite being new to fishing, altogether they have managed to contribute more than N\$ 11 million (approximately € 1.4 million).<sup>95</sup>

91 Bergh, E. and Davies, S. ‘Against all odds: Taking control of the Namibian fisheries’. In: Sumaila et al., supra, note 24, 289-318, p.306.

92 Ibid.

93 FAO, supra, note 45.

94 Boyer and Oelofsen, supra, note 86, p.336; see also Namibia. Ministry of Finance. (2006). *Namibia Budget 2004/05-2006/07*. Windhoek: Ministry of Finance. Available from <http://www.mof.gov.na>.

95 FAO, supra, note 45.



**e) Growth of landed vessels and catch year on year**

The healthy state of the Namibian fisheries sector is further evidenced by the growth of landed vessels and the annual catch. The value of all landings has risen from US\$ 156.25 million in 1996 to US\$ 286 million in 2001.<sup>96</sup> The value of exports has risen from US\$ 181.4 million in 1996 to US\$ 354 million in 2001. There are estimates that the revenue generated by recreational fishing is in excess of US\$ 3.75 million per year.

**f) Number of species landed**

More than 20 commercially important species are landed. During 2000, a total of 309 vessels were licensed to fish in Namibian waters, 80% of which were Namibian flagship vessels with multiple licences allowing them to target more than one species.<sup>97</sup> Foreign flag vessels can only operate with a local right holder and all fish caught by such vessels must be landed in Namibia, at either Walvis Bay or Lüderitz, and counted against the local right-holder's quota species.

**Table 6. Main commercial species harvested, 2000–2004 (in tonnes)**

Species	2000	2001	2002	2003	2004
Pilchard	25.388	10.763	4.160	22.255	28.605
Hake	171.397	173.277	154.588	189.305	173.902
Horse mackerel	344.314	315.245	359.183	360.447	310.405
Monkfish	14.358	12.390	15.174	13.135	8.961
Kingklip	3.922	6.607	7.210	6.603	7.067
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Crab	2.700	2.343	2.471	2.092	2.400
Rock lobster	365	365	361	269	214
Other fish species	22.987	30.810	77.407	33.644	31.997
<b>Total fish harvest</b>	<b>588.404</b>	<b>554.998</b>	<b>623.391</b>	<b>631.121</b>	<b>567.133</b>
Seals (numbers)*	41.753	44.223	34.000	34.000	31.971
Seaweed	829	800	288	288	n/a

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*.

Windhoek: Ministry of Fisheries and Marine Resources, p.22.

Note: Other fish species are Orange roughy, Alfonsino, Anchovy, sharks, sole, line-fish species, amongst others.

\* Seals are in numbers, not tonnes.

## 5. Public perception of basic fisheries issues

**a) Structure of the political debate**

In a nutshell, fisheries issues may be classified into those concerning (a) the sustainability of fisheries, (b) fisheries economics and (c) fisheries management.

Different stakeholders take different positions on different fisheries issues. However, debates on basic fisheries issues tend to be argued out from three perspectives:

- (1) The government, as represented by the Ministry of Fisheries and Marine Resources and the Marine Resources Advisory Council (MRAC);
- (2) The economic players in the fishing industry; and
- (3) The general public whose views are generally reported in the media.

<sup>96</sup> Ibid.

<sup>97</sup> Ibid.

Issues are perceived differently depending on the perspective assumed, but, generally speaking, the general public does not have a great awareness of most of the issues identified below. As can be gathered from the media, issues perceived by the public include the allocation and use of fish quotas, and job losses and the closing down of some businesses in the fishing sector mainly due to adverse exchange rates and a low TAC. Whereas the TAC issue has also affected and elicited some reaction from the business community, most fisheries issues are technical and usually face only specialists in both the government and the business community, leaving most of the general public unaware of the developments in those areas.

## **b) The issues**

### ***Human resources***

There are questions as to whether the training that Ministry officials get equips them sufficiently to perform their duties satisfactorily. Other concerns raised relate to the growing number of unemployed trainees of the Namibia Maritime and Fisheries Institute (NAMFI). There is also concern about the impact of the high prevalence of HIV/AIDS on the fisheries sector.<sup>98</sup> There are occasionally public debates over whether the government does (or does not) do enough to address these problems.

### ***Fisheries management***

As far as fisheries management is concerned, one basic issue has been whether the effectiveness of fisheries management is or should be measured in terms of biological sustainability (i.e., ensuring that fish stocks are not depleted) or in terms of economic and industrial growth (i.e., ensuring that contributions to GDP and businesses expand). In other words, how the government balances its interest in developing the fishing industry and the economy, with its interest in ensuring the recovery of fish stocks. Flowing from that basic issue are the need for the MFMR to consult with businesses in the fishing industry on a regular basis

and the influence these businesses have on the Ministry's policy-making functions.<sup>99</sup>

The Minister of Fisheries and Marine Resources once said that a particular feature of Namibia's fisheries management is that it is based on rights and not on licences. This management system is not without its disadvantages<sup>100</sup> and has been the subject of criticism from fisheries experts.

### ***Marine Resources Act***

To date, only one major structural weakness has been identified in the practical working of the Marine Resources Act, 27 of 2000.<sup>101</sup> It has been argued that the complexity of the Act has confounded compliance with its provisions,<sup>102</sup> because some of them are not sufficiently clear either to MFMR officials or to the fishing companies.<sup>103</sup>

### ***Fish stocks***

Namibia's fisheries management, despite being extremely conservative, has been deficient in areas where fish stocks are depleted or overfished. For instance, the sardine stocks are depleted as ever, while the recently developed Orange roughy fishery boomed and collapsed in a matter of four short years.<sup>104</sup> Moreover, some fisheries experts have called into question the accuracy and reliability of estimations of stocks and the resulting establishments of appropriate TACs.

### ***Economy***

Economic issues include the redistribution or reinvestment of revenues generated by fisheries, the strength of the Rand/Namibian dollar, fishing industry subsidies and the impact of the low TAC quota.

Firstly, Lange, a fisheries expert, claims that Namibia does not reinvest systematically the revenues (or resource rent) from fisheries in other forms of productive capital, thus missing an opportunity to build national wealth.

98 Nichols, *supra*, note 39, p.330.

99 Boyer and Oelofsen, *supra*, note 86, p.336. See chapter on institutional structures below.

100 Iyambo, A. (2000). *Managing fisheries with rights in Namibia: A Minister's perspective, use of property rights in fisheries management*. Fremantle, West Australia: Proceedings of the Fish Rights 99 Conference.

101 Bergh and Davies, *supra*, note 91, p.295.

102 *Ibid.*

103 Bergh claims that the complexity of the Act and the regulations made under it have confounded officials in the Ministry and the people who are supposed to comply with the law.

104 Sumaila et al., *supra*, note 24, pp.4 and 5.

Secondly, both the government and economic analysts say that the big export earners like mining and fishing have been the hardest hit by the continuing relative strength of the Rand/Namibian dollar against other major currencies used by Namibia's trading partners. The Namibian Ministry of Finance stated in its budget that Namibia's trade deficit worsened, largely due to the uncompetitive exchange rate.<sup>105</sup> In 2003 and 2004, the overall fiscal position deteriorated due to lower tax receipts from export-orientated industries, including the fishing industry, caused by the continuing strength of the domestic currency. Namibia's marine fisheries sector was badly affected by the strength of the Namibian dollar, resulting in reduced profitability and a number of companies closing down.

A further question relates to the manner in which the MFMR intends to protect the fishing companies trading in the local market against international competition, given that the government does not subsidize the fishing industry.

Finally, the low TAC quota has raised much heated debate. The fishing industry complains that it was not consulted when the Ministry set the TAC and also claims that Namibia is losing markets because fish exporters in Namibia cannot deliver due to the 'devastating' fish quotas.

### ***Product quality and standards in trade***

Quality control in food industries is a critical fisheries issue. As consumer awareness regarding fish quality increases, it becomes essential that Namibian fish products meet the highest standards. Plentiful harvests of fish are worthless if consumers are not willing to buy. The MFMR is currently working toward maintaining the clean waters of Namibia, and ensuring that fish processing methods match the best possible.<sup>106</sup> This will make sure that the demand for fisheries products from Namibian waters remains competitive even amongst the fussiest consumers in the developed world. Currently, most of the big markets are setting standards for goods imported from other parts to ensure

the quality of the product received by its consumers. Otherwise, it is of no use to them.

Questions as to the existence or absence of relevant structures are being asked among trade experts, especially structures relating to standardization, accreditation, certification, testing, inspections and metrology, to ensure that the quality of Namibian fish products meet the technical regulations of importing countries.

### ***Environment***

There is a general perception, especially from the scientific community, that climatic fluctuations may adversely affect the biological functioning of the Benguela marine ecosystem. The major implication of this is that efficient and effective fisheries management is the function of an extensive understanding of the dynamics of the Benguela ecosystem. The climatic conditions that determine prevailing winds, ocean currents, water temperature and fish stock distribution vary with temporary changes in the earth's atmosphere. As a result, the maximum sustainable yields of fish stocks fluctuate from one season to the other. Various environmental conditions, which are difficult to predict could increase response to atmospheric changes linked to global warming. There is great concern over the state of Namibia's environment. Many experts predict significant long-term environmental changes due to phenomena such as global warming and acid rain.<sup>107</sup>

### ***Empowerment***

One of the strategies to develop the fishing industry in a sustainable manner consists in 'empowering', or benefiting the historically disadvantaged Namibians. However, the implementation of empowerment in practice leaves much to be desired. The general public perception is that fisheries benefits mostly benefit the economically well-off businesses in the fishing industry and much less the previously disadvantaged Namibians.<sup>108</sup> The public and the government have both realized that the distribution of fisheries benefits is still problematic, even though the Namibianization

105 Namibia, Ministry of Finance, *supra*, note 94.

106 Namibia. Ministry of Fisheries and Marine Resources. (2006). Windhoek: Ministry of Fisheries and Marine Resources. March 2006. Available from <http://www.mfmr.gov.na>.

107 Sumaila et al., *supra*, note 24, pp.4 and 5.

108 See Kaure, A.T. (2006). 'Living in a parasites' paradise'. *The Namibian* 7 July. Also available from: <http://www.namibian.com.na/>.

programme of the government is helping to deal with the problem.<sup>109</sup>

The problem is that whilst it is true that a great number of Namibians have received fisheries benefits through amongst others the Namibianization policy, there is a suggestion and some evidence that the major beneficiaries are the already well off economic players in the fishing industry and not so much the neediest or previously disadvantaged Namibians. For instance, in 1998 one Namibian labour expert stated that fishing quotas tend to benefit a few individuals and not the disadvantaged communities as a whole.<sup>110</sup> He claimed that the criteria for obtaining quotas have effectively favoured business people, while community-based organizations have been unable to benefit.<sup>111</sup>

### ***Monitoring, Control and Surveillance (MCS)***

The present Monitoring, Control and Surveillance (MCS) system has generally been very successful and is performing well. However, some experts have suggested that there are certain areas where improvements on the MCS system are much needed. Some fisheries expert have suggested a three-pronged solution,<sup>112</sup> namely:

- (i) setting realistic compliance levels to guide MCS development and operational planning;
- (ii) improving the efficiency and effectiveness of MCS operational platforms; and

(iii) facing up to future financial implications.

Point (iii) alludes to the financial implications of changes in the fiscal framework of the MFMR and the organization of MCS. These are usually the result of fluctuations in fish stocks, capital repayment and running costs, changes in market demands, global political or social events or changes in the priorities of the Namibian government, to name just a few.<sup>113</sup> Whatever is the driving force, the result may bring higher landings and a greater demand on the present resources, or lower landings and a reduction in revenue and consequently in the funds available for MCS operations.<sup>114</sup> Optimal management of these new resources is vital if they are going to be cost-effective investments.

### ***Compliance***

In matters of compliance, one important concern relates to the presence of foreign vessels entering illegally into Namibian waters and the reasons therefore this. Another concern relates to the speed of the decision-making process in response to serious violations of fisheries law and regulations. Reduced catches in many other important fisheries of the world, combined with growing demand for high-quality fish products, is expected to increase the risk of illegal, unreported and unregulated (IUU) fishing. Consequently, the effectiveness of the MFMR's MCS system will become ever more important.

## **II. The legal regimes governing fisheries**

### **1. Global and regional international legal instruments affecting Namibia**

Article 144 of the Namibia's Constitution<sup>115</sup> stipulates that the general rules of public international law and international agreements binding upon Namibia form part of the law of Namibia. More particularly, the Minister of the MFMR is empowered by the Marine

Resources Act to make regulations necessary or expedient for the carrying out and giving effect to the provisions of international fisheries agreements or any amendment thereof.<sup>116</sup> The Minister must publish in the national *Gazette* the texts of all conservation and

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109 Sumaila et al., *supra*, note 24, p.4.

110 Jauch, H.M. (1998). *Affirmative action in Namibia: Redressing the imbalances of the past?*, p.147. Windhoek: New Namibia Books (Pty) Ltd.

111 Ibid.

112 See Bergh and Davies, *supra*, note 91, p.312ff.

113 Ibid.

114 Ibid.

115 Act 1 of 1990.

116 Section 37(1).

management measures adopted under any international fisheries agreement to which Namibia is a party, and any measure published must be deemed to be regulation by the Minister in terms of the Marine Resources Act.<sup>117</sup>

By virtue of Article 144 of the Namibian Constitution, all principles of customary international law, including international environmental law, are applicable to Namibia. These principles of customary international law include the sovereignty over natural resources, the responsibility for environmental damage, the principle of preventive action, good neighbourliness and international co-operation, sustainable development, the precautionary principle,<sup>118</sup> the polluter-pays principle, and the principle of common, but differentiated responsibility.<sup>119</sup>

Namibia is party to a number of treaties and conventions related to marine fisheries. These are as follows:

**a) *United Nations Convention on the Law of the Sea (UNCLOS), 1982***

Namibia signed this convention on 10 December 1982 and ratified it in 1983. The convention came into effect in 1994. As Namibia was not yet independent when it signed and ratified the convention, it was represented by the United Nations Council for Namibia as stipulated in Article 305, Paragraph 1 (b) of the Convention.

**b) *Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, 1994***

Namibia signed this agreement on 29 July 1994 and it acceded to it by means of the simplified procedure set out in Articles 4 (3) (c) and 5 on 16 November 1994. The agreement became effective on 28 July 1996.<sup>120</sup>

**c) *UN Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA), 1995*<sup>121</sup>**

Namibia signed this agreement on 19 April 1996 and it was ratified on 8 April 1998 under Proclamation 10 of 1998, Government Gazette No. 1862. The agreement came into force on 11 December 2003.

**d) *Convention on the Conservation and Management of Fishery Resources in the South East Atlantic Ocean, 2001*<sup>122</sup>**

The South East Atlantic Fisheries Organization (SEAFO) was established to protect valuable fish stocks which are straddling member States' EEZs and the high seas, and is based on the Convention **on the Conservation and Management of Fisheries Resources in the South East Atlantic Ocean** (SEAFO Convention). The Convention Area includes the EEZs of all the coastal states in the region. Economically important SEAFO fish species in the Convention Area include sedentary, discrete and straddling species such as Alfonsino, Orange roughy, Oreo dories, armourheads, sharks, Deepwater hake and Red crab. The inclusion of discrete high-seas stocks takes the SEAFO Convention beyond the scope of the UNFSA. The SEAFO Convention is the first to create a regional management organization after the adoption of UNFSA. The **Convention** was signed in April 2001 in Windhoek by Angola, the European Community, Iceland, Namibia, Norway, Republic of Korea, South Africa, United Kingdom on behalf of St Helena and its dependencies of Tristan da Cunha and Ascension Islands, and the United States of America. It entered into force in April 2003 after the deposit of instruments of ratification by Namibia and Norway, and approval by the European Community as required under Article 27 of the **Convention**. States that have participated in the negotiations but have not signed the Convention are Japan, the Russian Federation and Ukraine.

117 Section 37(2).

118 Although the binding nature of the principle of sustainable development and the precautionary principle is still uncertain, the principle of sustainable development is binding in Namibia to the extent that it is provided for in Article 95(l) of the Namibian Constitution, in Namibia's Marine Resource Policy (2004), and in the provisions of the Marine Resources Act.

119 Sands, P. (1995). *Principles of international environmental law. Volume I: Frameworks, standards and implementation*, p.181ff. Manchester: Manchester University Press.

120 Available from <http://www.lac.org.com.na>.

121 Summary available from <http://www.oceanlaw.net/texts/summaries/seafo.htm>.

122 Summary available from <http://www.oceanlaw.net/texts/summaries/seafo.htm>. See also <http://www.seafo.org/welcome.htm>.



After signing in 2001, the MFMR in Namibia acted as an interim Secretariat. In March 2005, the permanent Secretariat was opened in Walvis Bay, Namibia.

SEAFO comprises the Commission, the Scientific Committee and the Compliance Committee as subsidiary bodies and the Secretariat. The Compliance Committee has yet to be formalized. The Commission has the power to take measures such as determining the quantity of any species which may be caught, the areas and periods in which fishing may occur, the size and sex of any species which may be taken, the fishing gear and technology which may be used, the level of fishing effort, including vessel numbers, types and sizes, which may be used, and the designation of regions and sub-regions. The Scientific Committee provides scientific advice on the status of resources and on harvesting levels, taking into consideration, among others, the ecosystem approach<sup>123</sup> and the precautionary principle.<sup>124</sup> The Commission decides by consensus. Decisions become binding on those parties which do not opt out within a specified term.<sup>125</sup>

#### ***e) SADC Protocol on Fisheries, 2001***

The Southern African Development Community (SADC) has been in existence since 1980. It was formed as a loose alliance of nine States in southern Africa known as the Southern African Development Coordination Conference (SADCC) and was in 1992 transformed into a Development Community.<sup>126</sup> The Member States today are Angola, Botswana, the Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe.<sup>127</sup>

In its framework the SADC Fisheries Protocol was ratified by Namibia on 21 June 2002. Its scope straddles three great oceans: the Atlantic, the Indian and the Southern Ocean.<sup>128</sup> The Protocol entered into force on 8 August 2003.<sup>129</sup> The coastline extends from Angola on the west (Atlantic) coast to Tanzania on the east (Indian Ocean) coast.<sup>130</sup> The coast is rich in fish, seafood, mangroves and coral reefs, as well as oil, diamonds and other mineral deposits.<sup>131</sup> The region has a total of eight coastal States: Angola, Democratic Republic of Congo, Mauritius, Mozambique, Namibia, Seychelles, South Africa and Tanzania.<sup>132</sup> The EEZ of these countries is approximately five million km<sup>2</sup>, and in most instances the living marine resources of the SADC waters are shared between two or more countries.<sup>133</sup>

#### ***Application of the Protocol***

The Protocol – which generally applies to fishing by nationals of State parties and related activities – also applies to living aquatic resources and aquatic ecosystems within the jurisdiction of a State Party, and outside the areas under their jurisdiction, or high-seas resources.<sup>134</sup>

#### ***Aims and objectives of the Protocol***

The aims and objectives of the Protocol are to promote responsible and sustainable use of the living aquatic resources and aquatic ecosystems of interest to State Parties in order to promote and enhance food security and human health, safeguard the livelihood of fishing communities, generate economic opportunities for nationals in the region, ensure that future generations benefit from these renewable resources, and alleviate poverty with the ultimate objective of its eradication.<sup>135</sup>

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123 Article 3, Convention on the Conservation and Management of Fisheries Resources in the South East Atlantic Ocean.

124 Article 7.

125 Articles 17 and 23.

126 Southern Africa Development Community (SADC). 'SADC profile'. July 2006. Available from: <http://www.sadc.int/>

127 Ibid.

128 Sherman, *supra*, note 88.

129 Information about signing, ratification and date of coming into force was obtained from <http://www.lac.org.com.na>.

130 Ibid.

131 Ibid.

132 Ibid.

133 Ibid.

134 Article 2, SADC Fisheries Protocol.

135 Article 3.

The guiding principles of the Protocol are set out in Article 4 as follows: to endeavour and to ensure the participation of all stakeholders in the promotion of the objective of this Protocol; to take appropriate measures to regulate the use of living aquatic resources and protect the resources against overexploitation, whilst creating an enabling environment and building capacity for the sustainable use of the resources; and to promote gender equality and address any potential inequalities.

### ***Substantive provisions of the Protocol***

State parties have five responsibilities,<sup>136</sup> starting with the responsibility for taking measures, at national and international levels, suitable for the harmonization of laws, policies, plans and programmes on fisheries aimed at promoting the objective of the Protocol. Secondly, it also calls on them to adopt measures to ensure that their nationals and juridical persons act in a responsible manner in the use of living aquatic resources in areas within and beyond the limits of national jurisdiction. Thirdly, with regard to authorizing the use of vessels flying under their flags for fishing in the region's waters, the Protocol states that this should only be granted where a Party is able to exercise effectively its responsibilities under the Protocol. Fourthly, it requests Parties to ensure that vessels or nationals fishing in waters covered by the Protocol take appropriate steps to ensure that they comply with measures adopted under the Protocol, and that they do not engage in any activity that undermines the effectiveness of such measures. Finally, it requests Parties to ensure that aquatic living resources in the areas under their national jurisdiction are not endangered by overexploitation.

In relation to the management of high-seas fishing resources, the Protocol urges Parties to recognize that all States have the right for their nationals to engage in fishing on the high seas, to work towards effective management of high-seas living aquatic resources,<sup>137</sup> to protect the aquatic environment,<sup>138</sup> to collaborate

in the establishment of common positions and policies with regards to the effective management of high-seas living aquatic resources, and to support the activities of international organizations which conserve and manage living aquatic resources on the high seas.<sup>139</sup>

Under trade and investment, the Protocol calls on Parties to promote sustainable trade and investment in fisheries and related goods and services by reducing barriers to trade and investment; facilitating business contacts and exchange of information; and establishing basic infrastructure for the fisheries sector.<sup>140</sup> The Protocol further calls on parties to create favourable economic conditions to support sustainable fishing and processing activities in order to promote regional food security and fisheries development. With regard to the establishment of joint ventures, the Protocol urges Parties to give special consideration to ensuring sustainability of living aquatic resources and preventing overfishing and excess fishing capacity; promoting regional food security; promoting trade in fish products in the region; promoting value-added processing; establishing a favourable cross-border investment regime; and ensuring that nationals and their vessels comply with applicable domestic and international laws.<sup>141</sup>

As far as institutional arrangements are concerned, parties are urged to establish a national committee to oversee the implementation of the Protocol.<sup>142</sup> Other articles in the Protocol address international relations, management of shared resources, law enforcement, access agreements, aquaculture, human resources development, science and technology, information exchange, and financial provisions.<sup>143</sup>

### ***f) International Commission for the Conservation of Atlantic Tunas (ICCAT)***

The International Commission for the Conservation of Atlantic Tunas is responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and

136 Article 5 read with Article 8, which deals specifically with the harmonization of legislation.

137 Article 11.

138 Article 14.

139 Article 11.

140 Article 16.

141 Article 16.

142 Article 19.

143 For more information on the SADC Protocol and its Sector Coordinating Unit. see: <http://www.schoemans.com.na/sadc/>.

adjacent seas.<sup>144</sup> The organization was established in 1969 at a Conference of Plenipotentiaries, which prepared and adopted the International Convention for the Conservation of Atlantic Tunas. It was signed in Rio de Janeiro, Brazil, in 1966.<sup>145</sup>

About 30 species are of direct concern to ICCAT, including Atlantic bluefin, Skipjack, Yellowfin, Albacore and Bigeye tuna; swordfish; billfish; Blue marlin; and sailfish.<sup>146</sup>

Through the Convention, it is established that ICCAT is the only fisheries organization that can undertake the range of work required for the study and management of tunas and tuna-like fishes in the Atlantic.<sup>147</sup> Such studies include research on biometry, ecology, and oceanography, with a principal focus on the effects of fishing on stock abundance.<sup>148</sup> The Commission's work requires the collection and analysis of statistical information relative to current conditions and trends of the fishery resources in the Convention area. The Commission also undertakes work in the compilation of data for other fish species that are caught during tuna fishing (bycatch, principally sharks) in the Convention area which are not investigated by another international fisheries organization.<sup>149</sup>

**g) *Convention on the Conservation of Antarctic Marine Living Resources, 1980***

Namibia acceded to this convention on 29 January 2000. It entered into force on 7 April 1982. The main objective of this convention is to ensure the conservation, including rational use of, Antarctic marine living resources. It is based on certain principles of conservation, including: a) prevention of decrease in the size of any harvested population to levels below those which ensure its stable recruitment. For this purpose, its size should not be allowed to fall below a level close to that which ensures the greatest net annual increment; b) maintenance of the ecological

relationships between harvested, dependent and related populations of Antarctic marine living resources and the restoration of depleted populations to the levels defined in a) above. The convention covers all Antarctic marine living resources in the Antarctic area, namely the populations of fin fish, molluscs, crustaceans and all other species of all living organisms, including birds, south of the Antarctic convergence.

The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), established under Articles VII-IX of the Convention, gives effect to the Convention's objectives and principles set out in Article II.<sup>150</sup> In balancing the conservation of Antarctic marine living resources and their rational use, the Commission has led other organizations in the development of an ecosystem approach to managing such resources.<sup>151</sup> Based mainly on the advice from its Scientific Committee, the Commission is empowered to take measures such as the designation of the quantity of any species which may be harvested in the area to which the Convention applies, the designation of regions and sub-regions based on the distribution of populations of Antarctic marine living resources, the designation of the quantity which may be harvested from the populations of regions and sub-regions, the designation of protected species, the designation of the size, age and, as appropriate, sex of species which may be harvested, the designation of open and closed seasons for harvesting, the designation of the opening and closing of areas, regions or sub-regions for purposes of scientific study or conservation, including special areas for protection and scientific study, regulation of the effort employed and methods of harvesting, including fishing gear, with a view, *inter alia*, to avoiding undue concentration of harvesting in any region or sub-region, the taking of such other conservation measures as the Commission considers necessary for the fulfilment of the objective of the Convention, including measures

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144 International Commission for the Conservation of Atlantic Tunas (ICCAT). 'About ICCAT'. July 2006. Available from: <http://www.iccat.es/>.

145 Ibid.

146 Ibid.

147 Ibid.

148 Ibid.

149 Ibid.

150 International Convention Commission established by the Convention on Conservation of Antarctic Marine Living Resources (CCAMLR). 'Commission introduction'. July 2006. Available from: <http://www.ccamlr.org/>.

151 Ibid.

concerning the effects of harvesting and associated activities on components of the marine ecosystem other than the harvested populations.<sup>152</sup> The Commission

decides on substantive matters by consensus. Its decisions become binding on those parties which do not opt out within a specified term.

## 2. Overview of domestic legislation

The Constitution of Namibia, the first constitution in the world to provide for the protection of the environment,<sup>153</sup> stipulates in Article 95(l):

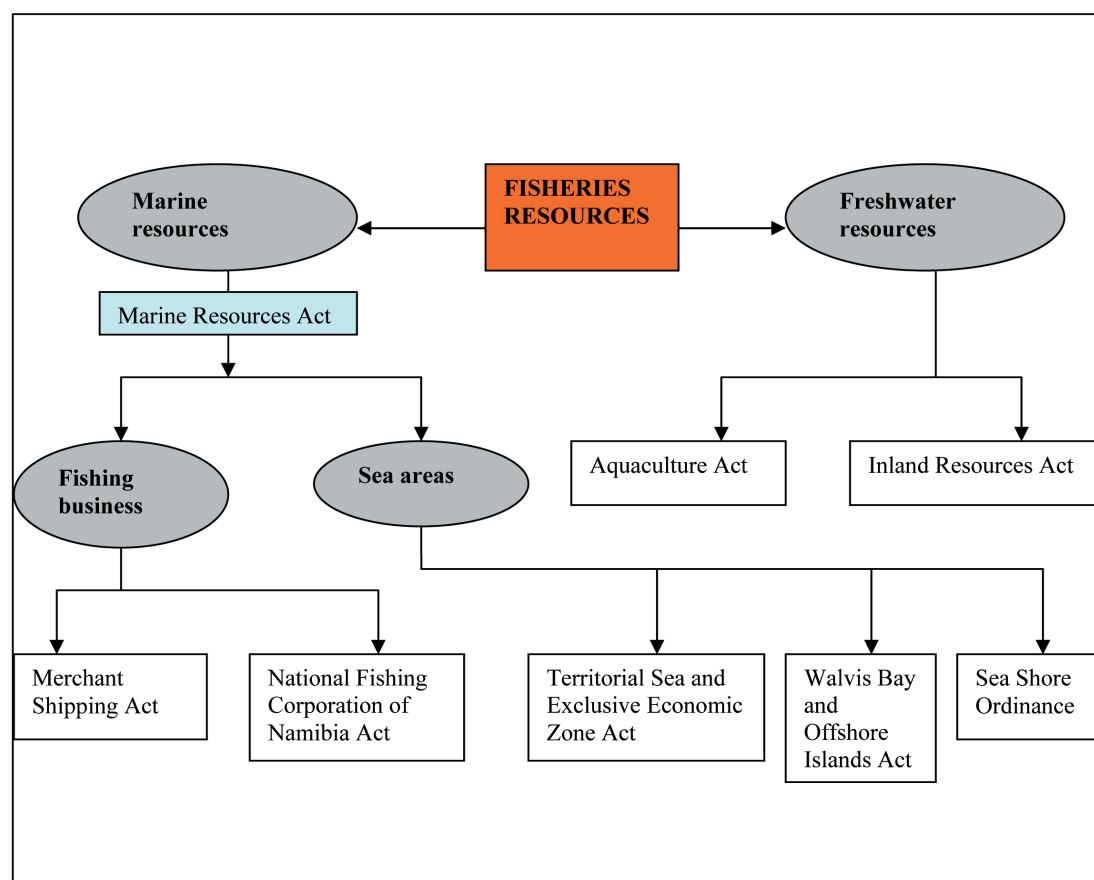
*The State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future; in particular, the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory.*<sup>154</sup>

However, in terms of Article 101, Article 95(l) is not by itself legally enforceable by any Court, but nevertheless guides the Government in making and applying laws to give effect to Article 95(l). The courts are entitled to have regard to the Article 95(l) in interpreting any laws based on it, such the Marine Resources Act (MRA).

The major legal acts relevant for fisheries are presented in the attached diagram.

The diagram demonstrates the pivotal role that the Marine Resources Act plays in the legislative framework for fisheries management in Namibia. The

**Figure 2. Overview of fisheries domestic legislation**



152 Article IX.

153 CIA World Factbook, supra, note 85.

154 Emphasis added.

entire realm of marine resources is regulated by the MRA.

Fisheries resources may conveniently be grouped in two broad categories, namely inland, or freshwater, fisheries resources and offshore, or marine, fisheries resources. The principal pieces of legislation for freshwater fisheries resources are the Aquaculture Act 18 of 2002, and the Inland Fisheries Resources Act 1 of 2003. On the other hand, the principal piece of legislation for marine fisheries resources is the MRA 27 of 2000.

For the purposes of this report, we will confine further overview of fisheries domestic legislation to marine fisheries resources.

**a) *Territorial Sea and Exclusive Economic Zone of Namibia Act 3 of 1990***

On becoming independent, Namibia demarcated distinct sea areas as required by international law. Act 3 of 1990 determines and defines the territorial sea, internal waters, exclusive economic zone and continental shelf of Namibia. Whilst the Sea Shore Ordinance 37 of 1998 determines the position of the high-water mark, the Walvis Bay and Offshore Islands Act squarely places the town and port of Walvis Bay and specified offshore islands under the jurisdictional reach of Namibia. Section 3(1) of the Marine Resources Act states that the southern and northern limits of the territorial sea and exclusive economic zone shall be as determined by the President by proclamation in the *Gazette*, which boundaries may be described in such proclamation with reference to a map compiled for that purpose.

Secondly, the Namibian parliament has also legislated on fisheries resources as a business activity. The Merchant Shipping Act 57 of 1951, as amended, provides for the licensing and registration of fishing vessels, except for foreign flag vessels. In addition, the National Fishing Corporation of Namibia Act 28 of 1991 has established the National Fishing Corporation of Namibia Ltd, which is a company formed with the object of exploiting marine resources, and promoting the establishment, development and efficiency of other businesses engaged in the fishing industry.

As it is central to the management of marine fisheries resources, the provisions of the MRA are now examined in greater detail.

**b) *Marine Resources Act of 2000***

The Marine Resources Act, which entered into force on 1 August 2001, is the entry point to the vast complex of principles and rules that regulate, restrict and enable the exploitation of marine resources in Namibia. One drawback of such a relatively complex piece of legislation is that at times it is not fully understood by MFMR staff or fishers.<sup>155</sup> The Marine Resources Act repealed the Sea Fisheries Act<sup>156</sup> and the Sea Birds and Seals Protection Act,<sup>157</sup> and significantly improved on the previous legislation.<sup>158</sup> The Sea Fisheries Act was repealed as a result of some gaps observed and experienced, as the fishing industry matured and its dynamics altered over time.<sup>159</sup> The Marine Resources Act retained all the essential elements of the previous legislation including the conservation of marine resources on a sustainable basis.<sup>160</sup> The scope of the Marine Resources Act has been broadened and covers all marine biological resources, incorporates the

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155 Bergh and Davies, *supra*, note 91, p.295. These authors also point out on the same page that, for instance, a lack of understanding by legal personnel of the potential gains made by illegal fishing resulted in very low fines for serious violations of the MRA, resulting in turn in high gains for the companies concerned.

156 Act 29 of 1992. Section 64(4) of the Marine Resources Act stipulates that any person, who at the commencement of the Marine Resources Act, is or was deemed to be the holder of a right of exploitation under the Sea Fisheries Act shall be deemed to have been granted a right under the Marine Resources Act valid until such date as is indicated in the right of exploitation.

157 Act 46 of 1973. Section 64(5) of the Marine Resources Act stipulates that any person, who at the commencement of the Marine Resources Act, is the holder of a permit under the Sea Birds and Seals Protection Act must be deemed to have been granted a right under the Marine Resources Act valid until such date as the Minister may determine.

158 Act 29 of 1992. See also Food and Agriculture Organization of the United Nations (FAO). (2001). *Fisheries enforcement: Related legal and institutional issues: National, sub-regional or regional perspectives*, p.17. Rome: Food and Agriculture Organization of the United Nations.

159 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49, p.15.

160 Ibid.

161 Act 47 of 1973.



Seabirds and Seals Protection Act,<sup>161</sup> and includes Namibia's involvement and participation in international and regional fisheries activities in order to ensure compatibility and consistency with international obligations, while ensuring that Namibia's interest in relevant areas is adequately represented and protected.<sup>162</sup>

In enacting the MRA 27 of 2000, the intention of the Namibian parliament was to 'provide for the conservation of the marine ecosystem and the responsible utilization, conservation, protection and promotion of marine resources on a sustainable basis' and 'to provide for the exercise of control over marine resources'.<sup>163</sup> Section 1 of the Act defines the key terms, concepts and premises. 'Marine resources' means all marine organisms, including, but not limited to, plants, vertebrate and invertebrate animals, monerans, protists (including seaweeds), fungi and viruses, and also includes guano and anything naturally derived from or produced by such organisms.

Geographically, the Act applies to the management, protection and utilization of marine resources in Namibia and Namibian waters, that is, inland waters, the internal waters, the territorial sea, the exclusive economic zone, the seabed up to the high water mark, and private waters.

The Minister of Fisheries and Marine Resources is the main administrator of the Act and wields considerable powers in its administration.<sup>164</sup> Thus far, no structural weakness in the Act has been found by observers,<sup>165</sup> although the complexity of its provisions has adversely affected its implementation.<sup>166</sup> The most

important provision of the Act from a political, administrative and legal point of view is section 2 of the Act, which empowers the Minister to determine from time to time the general policy with regards to the conservation and utilization of marine resources in order to realize the greatest benefit for all Namibians both present and future. Sections 32-42 provide the Minister with extensive powers of rule making and adjudication in order to implement such policies.

Section 45(1) establishes the Marine Resources Fund and states that the previous Sea Fisheries Fund established under the repealed Sea Fisheries Act<sup>167</sup> shall continue to exist under the name Marine Resources Fund, into which shall be paid moneys collected from levies, moneys appropriated by the Namibian parliament, interest on investments, moneys which may accrue from any other source, and interest on late payments. The fund is administered by the Permanent Secretary,<sup>168</sup> but the Minister is obliged to use the moneys available in the fund to defray the expenses of research, development, training and education relating to marine resources.<sup>169</sup> The Minister, on the other hand, may, from moneys available in the fund, arrange for the undertaking of research, development, training and education relating to marine resources by any competent institution of the State or any person.<sup>170</sup>

Section 46(1) establishes the Fisheries Observer Fund which is nourished from the same resources as the Marine Resources Fund. and also administered by the Permanent Secretary.<sup>171</sup> The Minister is obliged to use the moneys available in the fund to finance the activities of the Fisheries Observer Agency.<sup>172</sup>

162 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49, p.15.

163 Long title of the Marine Resources Act.

164 The Minister is however entitled to delegate some of his powers, except his power to make regulations and subject to conditions as the Minister may determine, to any staff member of the MFMR or to any person employed by a local authority: Section 63.

165 FAO, *supra*, note 158, p.20.

166 Bergh and Davies, *supra*, note 91, p.295.

167 Section 23, Sea Fisheries Act, 29 of 1992.

168 Section 45(4) and section 45(5).

169 Section 45(5).

170 Section 45(3).

171 Section 46(3) and section 46(4).

172 Section 46(2).

### 3. Institutional and organizational structures

The MFMR consists at present of four directorates and one subdivision. It is responsible for two parastatals. The four directorates are:

- a) the Directorate of Resource Management (responsible for research activities);
- b) the Directorate of Operations (in charge of operations and administration);
- c) the Directorate of Policy, Planning and Economics (responsible for the development of the fisheries sector);<sup>173</sup> and
- d) the Directorate of Aquaculture (responsible for the development of aquaculture).<sup>174</sup>

The MFMR subdivision is the SADC Sector Coordinating Unit, which is responsible for the development of the fisheries sector in the SADC region.

The two parastatals are:

- The National Fishing Corporation of Namibia Ltd (Fishcor), the government's fishing and fish-processing, and product value-adding group; and
- The Namibia Maritime and Fisheries Institute (NAMFI), the government's fisheries institution of learning and training.

Also of importance is the Marine Resources Advisory Council (MRAC).

The functions of the different parts of the Ministry are as follows:

#### *a) Directorate of Resource Management*

This directorate exists to provide the information and advice needed to manage the sustainable use and conservation of living aquatic resources. The main objectives of the directorate are to:

1. provide advice on the status of commercially important marine fish stocks and recommendation on their appropriate yield to enable total allowable catches (TAC) to be determined;
2. provide advice so that policy on harvesting activity and techniques can be formulated. The formulation of the policy is achieved by providing appropriate management measures in relation to species and fish size limitations, closed seasons, closed areas, and limitations on the types and effectiveness of fishing gear; and
3. provide advice on the inter-relationship of the environment and the impact this has on fish stocks.

Research development in the fisheries sector has involved, amongst others, using the services of expert consultants to assist government fisheries scientists.<sup>175</sup>

In organizational structural terms, most of the primary research on fisheries resources is conducted by state-run research institutes, primarily the National Marine Information and Research Centre (NatMIRC) within the Directorate of Resource Management of the MFMR.<sup>176</sup> This research is largely funded by levies on commercial catches which are paid into the Marine Resources Fund.<sup>177</sup> In recent times research has also been supported by the use of commercial vessels to assist with resource surveys.<sup>178</sup>

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173 Added to the MFMR's structure in 1998.

174 Added to the MFMR's structure after 1998.

175 Government of the Republic of Namibia, *supra*, note 14, p. 161.

176 Boyer and Oelofsen, *supra*, note 86, p.337.

177 Read with section 44(3) of the Act, which empowers the Minister of Fisheries and Marine Resources to power to impose levies to be paid into the Marine Resources Fund.

178 Boyer and Oelofsen, *supra*, note 86, p.337. 'A Marine Resources Fund levy is imposed per tonne of landed catch to finance fisheries research and training initiatives': Nichols, *supra*, note 39, p.324.

The Marine Resources Act further establishes the Fisheries Observer Agency<sup>179</sup> whose functions<sup>180</sup> are (a) to enable fisheries observers to perform their tasks; (b) to provide appropriate expertise and facilities for training fisheries observers; and (c) to make fisheries observers available on a commercial basis to organizations outside Namibian waters pursuant to an agreement to which Namibia is party.

#### ***b) Directorate of Operations***

This directorate is responsible for monitoring, control and surveillance (MCS). The MCS system is the regulatory component of fisheries management within the 200 nautical mile EEZ. The main objectives are to:

- Restrict fishing activity to those that are entitled;
- Ensure that fishing activity is conducted within legal and administrative guidelines with the assistance of the MCS system; and
- Ensure that revenue from landings is correctly calculated.

#### ***c) Directorate of Policy, Planning and Economics***

The purpose of this directorate is to manage the development of the fisheries sector both nationally and internationally. The main objectives are to:

- Ensure that fisheries activity contributes to Namibia's socio-economic development goals;
- Create a conducive environment in which the fisheries sector can grow to its full potential; and
- Ensure that Namibia is properly represented internationally and that national fisheries interests are protected; administer fisheries legislation and regulations; manage the collection of fees generated by fishing activities; manage the collection and preparation of information and fisheries statistics.

#### ***d) Directorate of Aquaculture***

This directorate's main responsibilities are to:<sup>181</sup>

- Ensure the responsible and sustainable development of aquaculture to achieve socio-economic benefits and environmental sustainability;
- Facilitate an efficient, coordinated administrative and institutional framework for aquaculture;
- Ensure that the genetic diversity and integrity of the aquatic ecosystem is maintained; and
- Promote responsible aquaculture production practices.

#### ***e) SADC Sector Coordinating Unit***

The coordination of the SADC sector for marine fisheries and resources lies in the hands of Namibia, under the auspices of the MFMR. The MFMR established the unit to provide the region with leadership and guidance in the formulation, evaluation, management and implementation of specific policies, programmes and projects for the development of the sector.

#### ***f) Namibia Maritime and Fisheries Institute (NAMFI)***

The NAMFI is a rapidly developing maritime training institution aiming to be the leading fisheries training institute in the SADC region. It provides quality training in the maritime and fisheries field regionally.

#### ***g) Marine Resources Advisory Council (MRAC)***

Part V of the Marine Resources Act provides for the establishment, constitution and operation of the MRAC.<sup>182</sup> The MRAC is appointed by the Minister in consultation with the fishing industry and comprises<sup>183</sup> five experts in matters relating to marine resources, one member of the MFMR, and five representatives of the fishing industry.<sup>184</sup> It is worth noting that these representatives are appointed for their expertise and experience in the industry (and not to

179 Section 8.

180 Section 9.

181 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49, p.3.

182 Section 24, Marine Resources Act.

183 Section 25(2).

184 Section 25(1).

represent their own interests). The institutions represented therein are trade unions, the state conservation Ministry, financial institutions and the University of Namibia.<sup>185</sup> Environmental organizations are not represented in the Council.

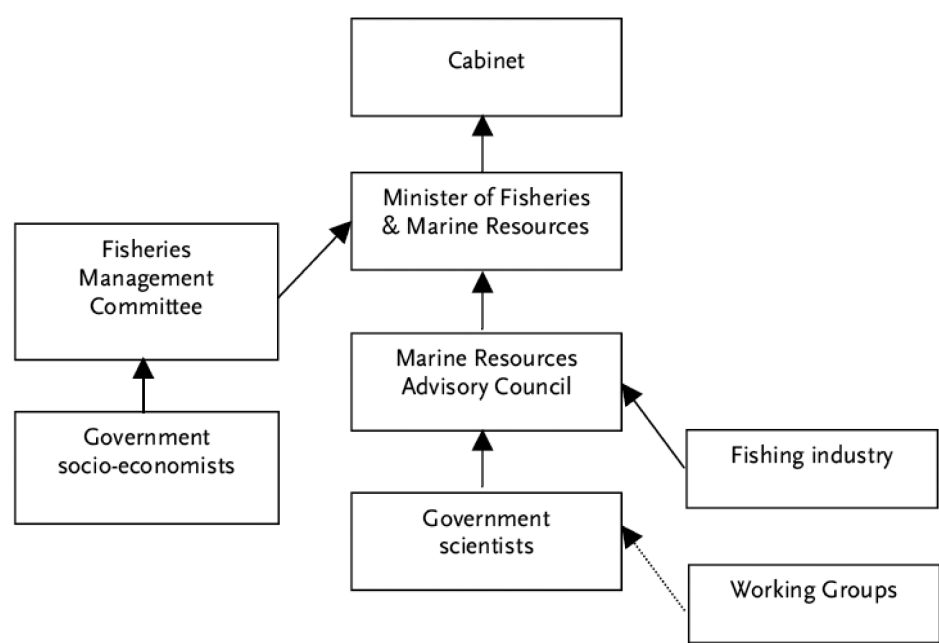
The function of the MRAC is to advise the Minister of Fisheries and Marine Resources on: (1) any matter on which the Minister is required to consult the MRAC under the MRA; and (2) any matter which the Minister refers to the MRAC for investigation and advice.<sup>186</sup> Scientific recommendations for harvesting of all major resources are presented to the MRAC, which in turn makes recommendations to the MFMR after considering socio-economic factors and the

industry’s perception of the status of the resource.<sup>187</sup> The Minister, after consultation with the Ministerial Fisheries Management Committee and other senior managers within the MFMR (and often the scientists responsible for making recommendations), submits management recommendations to Cabinet for final endorsement.<sup>188</sup>

The Act also contains provisions on MRAC committees,<sup>189</sup> and on the disqualification,<sup>190</sup> terms of office,<sup>191</sup> vacation of office,<sup>192</sup> meetings<sup>193</sup> and remuneration of MRAC members.<sup>194</sup>

The creation of the MRAC symbolizes the government’s firm commitment to work together with

**Figure 3. The structural relationship of the MRAC with other state institutions or organs**



Source: Boyer and Oelofsen, *supra*, note 86, p.337.

185 Boyer and Oelofsen, *supra*, note 86, p.337.  
 186 Section 24.  
 187 Boyer and Oelofsen, *supra*, note 86, p.337.  
 188 Ibid.  
 189 Section 30.  
 190 Section 26.  
 191 Section 27.  
 192 Section 28.  
 193 Section 29.  
 194 Section 31.  
 195 Boyer and Oelofsen, *supra*, note 86, p.338.

the fishing industry. This practice has been referred to as 'co-management', 'cooperation', or more frequently 'consultation'. This is in stark contrast to the mid-1990s, when state and scientists were at loggerheads, with the former accused of being unduly confident and the latter of being overly cynical.<sup>195</sup> To date,

working groups have been established for the Orange roughy, Hake, Monkfish, Horse mackerel and Rock lobster fisheries, while the other major fisheries (sardine, tuna, crab, recreational and subsistence fisheries) are involved in the management process in less formal ways.<sup>196</sup>

#### 4. Instruments promoting fisheries

##### *a) Structural policies*

The Namibian fishing industry is in general not subsidized.<sup>197</sup> Government policy is to avoid creating tax breaks and market interventions that could encourage unsustainable fishing practices.<sup>198</sup> The government believes that subsidy policies pursued by other nations have caused over-capitalization, which has distorted trade unfairly and eventually led to illegal fishing and overfishing.<sup>199</sup> Namibia instead prefers a system of taxation, applied specifically through the quota fees. This was one of the main attractions of implementing a rights-based system.<sup>200</sup> On the one hand, the application of a rights-based system has led to healthier stocks, improved compliance and an efficient industry that supports proper fisheries management and earns healthy profits.<sup>201</sup> On the other hand, limiting access to the resource and fishing mortality for each participant has provided a basis for extracting some of the profits.<sup>202</sup>

##### *b) Market organization*

Market organization of the kind found in the EU does not exist in Namibia. The reason is that, on the one hand, there is sufficient supply of fish for the Namibian market, and, on the other, the situation is not one of overproduction, but rather the problem of developing fishing capacity and effort.

Namibian fisheries are mostly exploited for export, targeting the major world markets. Fish consumption

in Namibia is minimal, making the Namibian market completely insignificant.<sup>203</sup>

The process of marketing fish involves three main actors: (i) the government, (ii) the Confederation of Fishing Associations and (iii) companies.

##### *(i) Government*

The Namibian government plays an active role in the setting of standards and mechanisms for fisheries in the fish market. The Ministry of Trade and Industry is responsible for establishing the necessary business environment for marketing Namibian products on the international market and therefore plays a key role in adapting Namibia to the new international trade regime. The Directorate of International Trade in the Ministry of Trade and Industry is the national focal point for Namibia's trade and external trade relations. Its main activities are geared towards the formulation and management of Namibia's foreign trade policy, and towards increasing the country's exports through trade promotion.

The Directorate oversees Namibia's membership of regional and international trade bodies; assists and facilitates the participation of Namibian companies in trade fairs, exhibitions and trade missions; coordinates import and export procedures; and provides information on trade-related issues.

196 Ibid.

197 Ibid.

198 Government of the Republic of Namibia, *supra*, note 14, p.159.

199 Nichols, *supra*, note 39, pp.324 and 325.

200 Nichols, *supra*, note 39, p.325.

201 Ibid.

202 Ibid.

203 See fieldnote 2.

204 See fieldnote 2.



The ministry therefore emphasizes the importance of continuing the work of developing the Namibian Quality Infrastructure. Namibia benefits from bilateral and multilateral market access agreements entered into between Namibia and its counterparts in Africa, the Americas and the European Union. Namibia is considered the child of the international trade world and its products are generally well received on most major markets.<sup>204</sup> Namibian Hake is sold in Europe, Orange roughy in the USA, tuna and Rock lobster in Japan, Horse mackerel in West Africa etc.

In an attempt to boost domestic consumption of Namibian fish and fish products, the government initiated the Namibia Fish Consumption Promotion Trust with technical assistance from the Government of Japan. The main objective was to try and improve the consumption of fish throughout the country.

#### *(ii) Confederation of Fishing Associations*

In Namibia the fishing industry is divided into several sectors. Each sector targets different species. These species are, of course, harvested, processed and marketed in different ways. For this reason each sector

has an association, which is a voluntary association of members who have concessions in the given sector. These associations are not legal entities and do not have any powers of enforcement.<sup>205</sup> These associations are facilitating bodies aimed at presenting a coordinated single voice.

The sectoral associations come together as the Confederation of Fishing Associations. This association is the main representative of the entire industry. The confederation is tasked with the protection of the interests of the fishing industry.

#### *(iii) Companies*

Apart from the governmental efforts mentioned above, the primary task of ensuring markets for fish produce lies with the fish companies.<sup>206</sup> Companies have on numerous occasions exhibited their produce on foreign trade fairs, exhibitions and trade missions. They have taken the government's initiative seriously and, in an effort to support local fish consumption, have sponsored the drive to make fish available in rural areas by reducing the price to local consumers.

## **5. Instruments of fisheries management**

Namibia has a fisheries management system that incorporates many of the accepted best practices as outlined in the major international fisheries conventions.<sup>207</sup> Its legal basis initially was the Sea Fisheries Act of 1992 and is now the Marine Resources Act of 2000. The government has powers to direct fisheries and trigger income from fisheries for its expenditures. These management tools are largely in line with the relevant international agreements.

#### ***a) Powers and practices to direct fisheries***

The management tools used apply to all fisheries. There are no small vessels apart from those used for catching fish for private consumption, recreational purposes and the daily supply of local restaurants. Most of these

vessels are mid-water trawlers<sup>208</sup> which are a sub-industry within the fisheries industry.

#### *(i) Management measures*

The Act outlines the procedures for applying for fishing rights and allocating fishing quotas. It sets out the procedures and criteria for licensing fishing vessels and controlling fishing efforts. The Act empowers the Minister to take the necessary management measures, including setting TACs, limiting fishing effort, fishing-gear specifications, protection of juvenile fish through management measures such as a minimum allowable mesh size, grid selectivity device, minimum fish sizes to be landed, restrictions on bycatch, closure of areas and fishing seasons and transboundary activities.

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205 See fieldnote 1.

206 See fieldnote 5.

207 Sumaila et al., *supra*, note 24. Examples of these practices are given in our discussion of the Marine Resources Act in II. 2 above.

208 This conclusion is based on the findings from interviews carried out amongst the stakeholders.

The management measures which may be imposed by the Minister according to Section 47 – apart from prohibiting the use of explosives, poisons or noxious substance to kill or disable any marine animal, and the ban on using driftnets<sup>209</sup> – include specifying: (a) the place and time of harvesting operations; (b) the characteristics and quantity of harvestable marine resources; (c) the methods and gear that may be used; and measures to limit the amount of the harvesting capacity.<sup>210</sup> The measures or regulations adopted or made pursuant to Section 47 are protected by Section 52(4)(b), which imposes a fine not exceeding N\$ 500,000 on any person who contravenes Section 47.

Thirdly, the Act states that all fishing gear on board a vessel shall be dismantled or stowed when in Namibian waters,<sup>211</sup> if the vessel does not have a licence to harvest marine resources or if the vessel has a licence but is in an unauthorized area.<sup>212</sup> The Act punishes any departure from this provision with a fine not exceeding N\$ 500,000.<sup>213</sup>

Fourthly, the Act prohibits transshipment and landing unless they are authorized by licence or ministerial authorization and are executed in accordance with the conditions of that licence or authorization,<sup>214</sup> or unless marine resources are transhipped between and landed in the territorial sea or internal waters of Namibia by vessels that are not fishing vessels.<sup>215</sup> Contravention of the prohibition on transshipment and landing constitutes a criminal offence, which is punishable on conviction with a fine not exceeding N\$ 1,000,000.<sup>216</sup>

Finally, the Act confers upon the Minister – by notice in the *Gazette* describing the boundaries of any area of Namibian waters, state land and land subject to the jurisdiction of a traditional authority – the discretion to declare (or indeed to ‘undeclare’)<sup>217</sup> that area a marine reserve for the protection or regeneration of marine resources.<sup>218</sup> Prior to the declaration of a marine reserve, the Minister is obliged to consult with the interested persons, to establish management objectives and to specify the activities to be conducted within the reserve and such other requirements as may be appropriate for achieving such objectives.<sup>219</sup> These requirements may include specifying which marine resources may be harvested and which not, harvesting conditions, and conditions of access to the marine reserve.<sup>220</sup> Any person who, without permission, dredges or extracts sand or gravel, pollutes, or constructs any structure, or in any way disturbs, alters or destroys the natural environment in a marine reserve is liable to a fine not exceeding N\$ 500,000.

In addition, the Minister may require a person harvesting marine resources from the fisheries to have observers aboard any fishing vessel<sup>221</sup> whilst the fisheries inspectors control the harvesting of marine resources, especially when the harvest is landed.<sup>222</sup> The inspectors are also tasked with the duty of patrolling the coastal zone and sea with patrol vessels. Regular surface aerial surveillance patrols are conducted.<sup>223</sup> Allowable landed size and daily bag limits apply to recreational fishery and routine inspections are conducted to ensure compliance by recreational anglers.<sup>224</sup> The different management measures are discussed below.

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209 Section 47(1) and 47(2).

210 Section 47(3) read section 47(4).

211 Section 49(1).

212 Section 49(2). Section 52(4)(c) punishes with a fine not exceeding N\$ 500,000 any person who allows his or her vessel to be in any area which he or she is not authorized to harvest.

213 Section 52(3)(l).

214 Section 50(1)(a)-(c).

215 Section 50(2).

216 Section 52(3)(e).

217 Section 51(4).

218 Section 51(1).

219 Section 51(2).

220 Section 51(2)(a)-(c).

221 Section 7(2)(a), Marine Resources Act.

222 Section 5.

223 FAO, *supra*, note 45.

224 *Ibid.*

The prerequisites for the commercial harvesting of marine resources are provided for in Section 32, which generally states that no person shall, in Namibia or in Namibian waters, harvest any marine resource for commercial purposes, except under a right, an exploratory right or a fisheries agreement. Failure to comply with this general provision is an offence which is liable on conviction to a fine not exceeding N\$ 1,000,000.<sup>225</sup>

In the case of a marine resource which has been made subject to a quota, no person shall harvest such a resource for commercial purposes, except within the quota or permitted bycatch under a right, an exploratory right or a fisheries agreement.<sup>226</sup>

The Minister is empowered to suspend, cancel or reduce rights, quotas and licences.<sup>227</sup> The conditions precedent to the suspension, cancellation or reduction of rights, quotas and licences, are that the holder of a right be it an exploratory right, a quota or a licence, must have furnished information which is untrue or incomplete in connection with his or her application; must have contravened or failed to comply with a provision of, or a condition imposed under, the Act; or must have been convicted of an offence under the Act.<sup>228</sup>

#### (ii) *Fishing rights*

It is a prerequisite under Namibian law that in order to harvest marine resources for commercial purposes, a person must hold a right.<sup>229</sup> This right is allocated to a person according to the species they intend to harvest for commercial purposes. The Minister may by notice in the *Gazette* announce a period during which

applications may be made for rights to harvest fishing resources and the conditions on which such resources may be harvested.<sup>230</sup> Fishing without the necessary right is an offence punishable by a fine of up to N\$ 1,000,000.<sup>231</sup>

If the Minister has fixed a TAC quota for a fishery, the fishing right must be supplemented by an individual quota.<sup>232</sup> According to section 39 (2) the Minister “may, by written notice to the holders of a right for which quotas are allocated, determine the date by which applications for the allocations of such quotas may be received”. This seems to mean that right holders who were entitled to unlimited fishing lose this right and must apply for a quota.

Section 33(4) bears out the essentially political nature of the processing of applications for fishing rights by the Minister. In terms of that provision, when considering an application, the Minister may have regard to the following factors: (a) whether the applicant (or the company applying) is a Namibian citizen (or owned by Namibians);<sup>233</sup> (b) the advancement of persons previously disadvantaged by discriminatory laws or practices before Namibian independence;<sup>234</sup> (c) the ability of the applicant to exercise the right in a satisfactory manner;<sup>235</sup> (d) regional development within Namibia;<sup>236</sup> cooperation with other countries, especially those of the SADC;<sup>237</sup> (e) whether the applicant has successfully performed under an exploratory right in respect of the resource applied for;<sup>238</sup> (f) contribution of marine resources to food security;<sup>239</sup> and (g) socio-economic concerns.<sup>240</sup> In addition thereto, Section 33(6) stipulates that if at any time before the expiry of a right, the holder of that

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225 Section 52(3)(a). In addition thereto, the Act punishes any violation of the conditions of a right, exploratory right, fisheries agreement, quota or licence: Section 52(4)(a).

226 Section 32(2) and Section 35(5). Contravention of section 32(2) is also a criminal offence, punishable with a fine not exceeding N\$ 1,000,000: Section 52(3)(b).

227 Section 41.

228 Section 41(1)(a)-(d).

229 Sections 32 and 33.

230 Sections 33(2) and 33(3).

231 Section 52 (3) (a).

232 Section 39 (1).

233 Section 33(4)(a)-(c).

234 Section 33(4)(e).

235 Section 33(4)(d).

236 Section 33(4)(f).

237 Section 33(4)(g).

238 Section 33(4)(i).

239 Section 33(4)(k).

240 Section 33(4)(j).

right has met the prescribed criteria that would have permitted a longer term at the time of granting the right, or no longer fulfils the prescribed criteria for the term that was granted, the Minister may vary the period of validity of the right to the period for which the holder qualifies, and when so varying the period, may also vary any condition attaching to the right or impose any additional condition.

Fishing rights, or rights of exploitation, are the central element of the fisheries management regime.<sup>241</sup> The main purpose of fishing rights is to limit entry to

the fisheries sector in order to protect the fisheries resources and to ensure the 'responsible utilization, conservation, protection and promotion of marine resources on a sustainable basis'.<sup>242</sup>

The duration of these rights, which can range from 7-20 years, depends on a number of criteria.<sup>243</sup> The longer rights are issued to companies who, *inter alia*, are Namibian or majority-owned by Namibian citizens,<sup>244</sup> employ Namibians, have a proven track record in the industry and have demonstrated a long-term commitment by investing in the fishing sector.<sup>245</sup>

**Table 7. Number and duration of existing harvesting rights as of December 2004**

Fishery	Duration of right					Total
	Four years	Seven years	Ten years	15 years	20 years	
Hake	0	10	6	22	0	38
Monkfish	0	2	2	5	0	9
Horse mackerel	0	0	11	1	0	12
Large pelagic	0	1	6	12	0	19
Red crab	0	1	2	0	0	3
Rock lobster	0	0	1	20	0	21
Line fish	1	1	2	8	0	12
Orange roughy	0	0	5	0	0	5
Pilchard	0	7	5	10	0	22
Mulletts	0	0	0	13	0	13
Seals	0	2	1	1	0	4
Guano	0	1	0	0	0	1
<b>Total</b>	<b>1</b>	<b>25</b>	<b>41</b>	<b>92</b>	<b>0</b>	<b>159</b>

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*. Windhoek: Ministry of Fisheries and Marine Resources, p.20.

### (iii) *Exploratory rights*

An application is also necessary for exploratory rights,<sup>246</sup> which the Minister may grant to no more than one person to harvest a marine resource in respect of which no right has been granted to another person so as to allow that person to explore the commercial viability and biological sustainability of that resource.<sup>247</sup> The

central concepts here are the commercial viability and biological sustainability of the marine resource to be explored and in respect of which an exploratory right is granted. Exploratory rights can also be granted to harvest a resource for which a person has not been granted a right so as to allow that person to research the commercial viability of a harvesting method not

<sup>241</sup> Nichols, *supra*, note 39, p.321.

<sup>242</sup> Long title, Marine Resources Act. See also Paul Nichols. *op.cit.* (2004), p.321.

<sup>243</sup> Nichols, *supra*, note 39, p.321.

<sup>244</sup> Section 33(4)(a)-(c), Marine Resources Act.

<sup>245</sup> Boyer and Oelofsen, *supra*, note 86, p.336.

<sup>246</sup> Section 34(2).

<sup>247</sup> Section 34(1)(a).

ordinarily used for the harvesting of that particular resource in Namibian waters.<sup>248</sup> The Minister may approve the application, subject to such period and conditions as he or she may determine,<sup>249</sup> and require any applicant to carry out an environmental impact assessment.<sup>250</sup> Upon the expiry of an exploratory right, the Minister shall determine whether the resource or harvesting method is commercially viable and biologically sustainable, and if he or she determines that it is, no further exploratory right may be granted in respect of that resource or harvesting method.<sup>251</sup> If such viability or sustainability is unclear, the Minister may extend the exploratory right once only for a year; and if the lack of clarity is due to poor execution of the exploratory right, a further exploratory right may be granted to another applicant.<sup>252</sup> However, if before the expiry of the exploratory right it becomes clear that the resource or harvesting method is commercially viable and biologically sustainable, the Minister may terminate the exploratory right and announce a period during which applications for rights may be filed under Section 33(1) of the Marine Resources Act.<sup>253</sup>

#### *(iv) Fishing agreements*

The MRA confers on the President the power to enter into, and publish, a fisheries agreement with a member country of the SADC, providing for such country to harvest marine resources in Namibian waters<sup>254</sup> and in respect of which the Minister may make such regulations as he or she may consider necessary or expedient for the carrying out and for giving effect to the provisions of any such agreement or any amendment of such agreement.<sup>255</sup> Although the text of the law is not absolutely clear in this respect it can be interpreted to mean that only persons authorized by the contracting foreign state are entitled to fish in

Namibian waters, and that they have to apply for an individual quota which is based on the TAC determined by the agreement.<sup>256</sup>

#### *(v) Vessel licences*

In addition to the right to harvest marine resources the fisherman must obtain a licence for the vessel. The MRA provides that a holder of a right or a person who wishes to use a fishing vessel for commercial purposes within Namibia's EEZ or a person who wishes to use a Namibian flag vessel for harvesting any marine resource outside Namibian waters, shall apply for a licence to the Permanent Secretary of the MFMR.<sup>257</sup> Thus, any vessel used in Namibian waters must be licensed no matter what flag they fly, while for vessels used outside Namibian waters a licence is only required for vessels flying the Namibian flag.

The Act creates an offence where any person who, being the owner, the lessee, the charterer or the master of a vessel uses the vessel without the required licence.<sup>258</sup>

The Minister may issue a licence in respect to that fishing vessel, subject to such conditions and valid for such period as the Minister may determine.<sup>259</sup>

However, the Minister may reject an application for a fishing vessel licence if he or she is convinced that: (a) the information furnished in the application is incorrect and incomplete;<sup>260</sup> (b) the vessel in question is not intended for use as a fishing vessel; (c) the approval of the application will not be in the interest of that sector of the fishing industry; (d) the issue of the licence would be inconsistent with an international agreement to which Namibia is a party; or (e) the approval might threaten the biological sustainability

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248 Section 34(1)(b).

249 Section 34(4).

250 Section 34(3).

251 Section 34(5).

252 Section 34(6).

253 Section 34(7).

254 Section 35 and 36.

255 Section 37.

256 Section 35 (2), read with section 39 (3).

257 Section 40(1).

258 Section 52(1) and section 52(2), read with section 32 and 40(1)-(2). On conviction such person is liable to a fine not exceeding N\$ 2,000,000.

259 Section 40(3).

260 If any change has occurred in the information submitted by a licensee or if the vessel for which a licence has been issued ceases to be used, the licensee shall within 21 days inform the MFMR Permanent Secretary of that fact: Section 40(5).



of a particular marine resource.<sup>261</sup> By implication<sup>262</sup> a licence will also be refused if the licensee does not hold a right, an exploratory right or an agreement to fish. Failure to possess a right and a quota for fishing a resource (provided a quota is required) even renders

the licence to use the vessel invalid.<sup>263</sup>

Licensing of vessels is a tool used to regulate the industry. A total of 334 vessels were licensed for commercial fishing in 2004.<sup>264</sup>

**Table 8. Number of licensed vessels by fishery, 2000-2004**

Fishery	2000	2001	2002	2003	2004
Small pelagic	30	26	25	20	16
Demersal trawlers	111	128	114	100	125
Long-liners	24	38	10	8	17
Mid-water	26	24	20	26	24
Deep-water	5	3	6	5	5
Large pelagic	56	68	71	49	73
Line-fish	26	22	26	19	16
Crab	2	2	2	3	2
Rock lobster	29	29	38	42	34
Monkfish			23	21	22
<b>Total</b>	<b>309</b>	<b>340</b>	<b>335</b>	<b>279</b>	<b>334</b>

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*. Windhoek: Ministry of Fisheries and Marine Resources, p.21.

*(vi) Total allowable catches (TAC)*

The setting of TACs is one of the main management measures by which to prevent overexploitation of Namibian fish stocks.<sup>265</sup> TACs may be set for any marine resource in Namibia.<sup>266</sup> They are presently set for seven species, namely Sardine, Hake, Horse mackerel, Red crab and Rock lobster, Orange roughy and Monkfish.<sup>267</sup> When determining a TAC, the Minister must base his decision on the best scientific evidence available of the size and structure of stocks and invite the advice of the MRAC.<sup>268</sup>

Once a TAC has been set for a fishing season, it is distributed among the right-holders in each fishery in the form of individual quotas. The Minister may determine the date by which applications for quotas must be received and the conditions to which such quotas shall be subject.<sup>269</sup> He may allocate quotas to individual holders of a right to harvest marine resources,<sup>270</sup> and finally notify in writing the applicants of his or her decision on their respective applications.<sup>271</sup> The aggregate of quotas allocated in respect of any marine resource may not exceed the TAC set for that resource.<sup>272</sup>

261 Section 40(4).

262 Cf. section 40(1).

263 Section 40(2). This legal effect however appears to be too strict and impracticable.

264 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49, p.21.

265 Nichols, *supra*, note 39, p.322.

266 Section 38(1).

267 Nichols, *supra*, note 39, p.322.

268 Section 38(2).

269 Section 39(3) and section 39(4).

270 Section 39(4).

271 Section 39(5).

272 Section 39(6).

**Table 9. Total allowable catches set by fishery, 2000–2004**

	Pilchard	Hake	Horse mackerel:		Red crab	Rock lobster	Orange roughy	Monk
			Mid water	Pelagic				
2000	25,000	194,000	410,000	50,000	2,000	350	2,400	n/a
2001	10,000	200,000	410,000	50,000	2,100	400	1,875	13, 000
2002	0	195,000	350,000	40,000	2,200	400	2,400	12, 000
2003	20,000	180,000	350,000	40,000	2,000	400	2,650	12,500
2004	25,000	195,000	350,000	40,000	2,200	420	2,600	12,000

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*. Windhoek: Ministry of Fisheries and Marine Resources, p.21.

The setting of TACs has caused a lot of problems within the industry as the Minister slashed the TAC of certain fish species as a measure aimed at protecting fish stocks. The following case may highlight the practical problems arising in this regard. In 2006, tough new restrictions were announced.

The TAC for Hake was set below 130,000 tonnes for the 2006-2007 season and it was not to be revised unless the average size of the Hake improved. This meant a reduction of the TAC by 50,000 tonnes from the original 180,000 tonnes for the previous season. This was necessitated by the fact that too many juveniles were being caught and scientists reported no well defined Hake nurseries. Further, the Minister announced that a trawling ban from the previous season was to remain and also introduced a two-month closed season in September and October every year. In addition, a new regulation was implemented that required fishers who caught Hake that were smaller than 36 cm in length to stop fishing and move at least 10 nautical miles away from the area they were fishing in. Finally, other species' TACs, such as the Orange roughy, were also reduced to almost half of the 2005 season's level.

These management measures aimed at resource preservation was not received well by all in the industry. Some felt that such measures were catastrophic for the

industry.<sup>273</sup> Others felt that the government was caught between a rock and a hard place and the measures were necessary for long-term sustainability.<sup>274</sup> The majority in the industry felt that it was hard to find a balance between saving the industry and protecting the resource. Some felt that government scientists were inconsistent in their predictions of the availability of the resource. If they previously predicted a healthy state of affairs for the year 2015, now they had a turn-around prediction which culminated in reduced TAC being allocated.<sup>275</sup> This was seen as amounting to economic sabotage and totally unnecessary, and leading to the industry losing some of its important markets because it could not deliver sustainably as a result of catastrophic quotas.<sup>276</sup>

#### *(vii) Transferability and register of quotas*

In order to protect the fisheries resources and maintain sustainable operations,<sup>277</sup> section 42 MRA forbids the transfer of rights, exploratory rights, quotas, and licences, to another person except with the approval of, and subject to the conditions determined by, the Minister, but such approval may only be granted if the quota, if any, or a portion thereof, connected with the right or exploratory right is also transferred to the same person.

Section 43 complements section 42 by requiring the Permanent Secretary of the MFMR to keep a register showing the prescribed particulars of every

273 See fieldnote 6.

274 See fieldnote 1.

275 See fieldnote 6.

276 Ibid.

277 Nichols, *supra*, note 39, p.321.

right, exploratory right, quota and licence. Similarly, section 48 obliges every person holding a right, an exploratory right, a quota, a licence or other authorization to keep records, and furnish the Permanent Secretary with information as required.

*(viii) Monitoring, control and surveillance*

Namibia's MCS system has evolved over the years into what is today widely regarded by the international community as a very effective system. A crucial element has been the financial, human and material support from the Namibian Government. The costs to government and industry of MCS and other management activities have been kept commensurate with the value of the sector.

The major features of Namibia's MCS programme are described below.

*On-board observer programme* – Fisheries observers have the power to collect and record biological and other scientific information related to the harvesting of marine resources,<sup>278</sup> and the Minister may require a person harvesting under a right or a fisheries agreement to carry a fisheries observer aboard any fishing vessel, to admit or allow him or her to any land and any premises used for harvesting marine resources, as well as records, documents and marine resources found there.<sup>279</sup> Coverage rates range from 70% to 100%, depending on the fishery in question.<sup>280</sup> The establishment of the Fisheries Observer Agency by the MRA<sup>281</sup> should improve current capacities in this regard.<sup>282</sup>

*Sea, air and shore patrols* – Systematic sea patrols aim to ensure compliance with fishing conditions by licensed vessels through regular at-sea inspections.<sup>283</sup>

Air patrols detect and deter unlicensed fishing vessels and monitor the movement and operations of the licensed fleet.<sup>284</sup> Shore patrols ensure compliance by both recreational and commercial fishers with conservation measures for inshore resources.<sup>285</sup> In legal terms, fisheries inspectors are empowered by the MRA, at any time and without a warrant and in respect to Namibian flag and foreign flag vessels, to *inter alia*:<sup>286</sup>

- (a) board, inspect and stop any vessel, its fishing gear, cargo and stores, any marine resources aboard and any document or other item required to be kept under the Marine Resources Act;<sup>287</sup>
- (b) enter and stop for a routine check any premises, or any vehicle, in which marine resources or any fishing gear are kept or are being transported;<sup>288</sup> or
- (c) if they have reasonable grounds to suspect that an offence has been committed under the Act, to stop and inspect any vehicle which is reasonably suspected of carrying marine resources which have been harvested or fishing gear which has been used.<sup>289</sup>

*Monitoring of landings* – Complete monitoring of all landings at the two commercial fishing ports, Walvis Bay and Lüderitz, by onshore inspectors ensures compliance with quota limits and fee payments. The MRA prohibits transshipment and landing unless they are authorized by a licence or ministerial authorization and are executed in accordance with any conditions in the licence or authorization,<sup>290</sup> or unless marine resources are transhipped between and landed in the territorial sea or internal waters of Namibia by vessels that are not fishing vessels.<sup>291</sup> All marine resources must

278 Section 7(1)(b), Marine Resources Act.

279 Section 7(2).

280 Nichols, *supra*, note 39, p.326.

281 Section 8, Marine Resources Act.

282 Nichols, *supra*, note 39, p.326.

283 Ibid.

284 Ibid.

285 Ibid.

286 Sections 5(1) and (3), Marine Resources Act.

287 Section 5(1)(a).

288 Section 5(1)(b)-(c).

289 Section 5(2).

290 Section 50(1)(a)-(c).

291 Section 50(2).

be landed at a Namibian port. This, together with the absence of an artisanal fisheries sector, helps to ensure comprehensive monitoring of catches.<sup>292</sup>

*Vessel reporting* – All vessels are required to supply EEZ exit and entry reports, as well as daily catch and effort reports via radio and in the form of vessel log-sheets.<sup>293</sup> Namibia is well advanced in implementing a national satellite-based vessel monitoring system (VMS).<sup>294</sup> Once fully operational, the system will benefit fisheries management in real-time monitoring of vessel movement and activities.<sup>295</sup> The system that has been chosen is already in use in South Africa and Mozambique.<sup>296</sup> The government has shown support for the idea of collaboration in the development of a cost-effective, regional VMS.<sup>297</sup>

*(ix) Flag ship control in the high seas*

The 1993 FAO Compliance Agreement to which Namibia acceded in August 1998 obliges contracting parties to ensure high-seas fisheries control on vessels flying their flag. Indeed, as was noted above, a person who wishes to use a Namibian flag vessel for harvesting any marine resource outside Namibian waters, shall apply for a licence to the Permanent Secretary of the MFMR.<sup>298</sup> The Minister may refuse an application for a fishing licence if he or she is satisfied that the issue of the licence would be inconsistent with an international agreement to which Namibia is a party,<sup>299</sup> or the approval might threaten the biological sustainability of a particular marine resource.<sup>300</sup>

However, Namibian fisheries legislation does not contain specific legal requirements as set forth in the

1993 FAO Compliance Agreement such as those dealing with high-seas permit registers, high-seas conservation and management measures or port-state control in case of a suspected high-seas foreign fishing vessel of a flag-state party to the 1993 FAO Compliance Agreement entering voluntarily its ports.<sup>301</sup>

**b) Fees and levies**

Fees are instrumental in fisheries management and the Minister is given the power, after consultation with the MRAC and the approval of the finance minister, to determine fees which shall be payable.<sup>302</sup> The role of fees is twofold: firstly, to earn revenue for the government, and secondly to create incentives that work towards the goals of the management system, both conservation and Namibianization.<sup>303</sup>

The Minister may, after consultation with the MRAC and with the approval of the Minister of Finance, by notice in the *Gazette*,<sup>304</sup> determine fees which shall be payable in respect of the harvesting of marine resources. A fee may be based upon quotas allocated; the level of effort for harvesting a particular marine resource or the amount or value of the resources harvested; and may vary according to species, area or disposition of harvesting, and the Namibian beneficial control of the fishing company or vessel.<sup>305</sup> The most important are quota fees, which are payable on allocated quota.<sup>306</sup> Bycatch fees – a feature of the Namibian management system not found in many other countries – are applied in order to deter rights holders from targeting species other than those for which they have been issued a quota.<sup>307</sup> Such fees provide an incentive to avoid catching non-target

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292 Nichols, *supra*, note 39, p.326.

293 Ibid.

294 Ibid.

295 Ibid.

296 Ibid.

297 Ibid.

298 Section 40(1), Marine Resources Act.

299 Section 40(4)(d).

300 Section 40(4)(e).

301 FAO, *supra*, note 158, p.21.

302 Section 44(1), Marine Resources Act.

303 Nichols, *supra*, note 39, p.324.

304 Which may prescribe penalties (Section 44(7)) and shall state the time and manner of payment of the fee or levy and may provide for the payment of interest, at a rate specified, on late payments (Section 44(6)).

305 Section 44(2), Marine Resources Act.

306 Nichols, *supra*, note 39, p.324.

307 Ibid.

species, but not so punitive as to encourage dumping.<sup>308</sup> Finally, licence fees are charged for all fishing vessel licences issued to vessels that fish within Namibia's waters.<sup>309</sup>

The Minister may also, after consultation with the MRAC and with the approval of the Minister of

Finance, by notice in the *Gazette*, impose levies for the harvesting of any marine resource, to be paid into the Marine Resources Fund.<sup>310</sup> A levy may be based upon and vary according to the factors used for the determination of the fee, as well as the potential benefit from the activities to be funded by the levy and the contribution made to such activities.<sup>311</sup>

### III. The national management system as applied in relation to the impact of the 'North'

#### 1. Fishing by EC/North American/Japanese fleets

##### a) *Bilateral access agreements*

The EU, Namibia's main export market, is highly interested in improving its access to Namibian fishing grounds. Since the EU is negotiating an 'Economic Partnership Agreement' (EPA) with Namibia, including a Free Trade Agreement (FTA), there are European ambitions to include fisheries in free trade.<sup>312</sup> It is argued that an FTA with the EU could help Namibia to improve its access to modern technology and to integrate the fishing industry better into the global value chain. Namibia is reluctant to include fisheries in free trade since it fears that its national empowerment, monitoring and sustainability policies will be undermined.<sup>313</sup>

Namibia and Morocco are considered very good examples of how the development of a domestic fishing industry is entirely possible without the EU. Indeed, it may even be highly advantageous for a country in both economic and financial terms. In 1990, after independence, Namibia expanded its domestic fishing industry and refused to conclude an access agreement

with the EU.<sup>314</sup> Around five years ago, Morocco opted not to renew its agreement with the EU – a decision which has greatly benefited domestic production.<sup>315</sup>

Therefore, Namibia has not concluded any bilateral access agreements with the EU, the USA or Japan for their vessels to have access to Namibian waters because it is trying very hard to protect its fisheries resources after they were heavily plundered in the years before independence by Distant Water Fishing Nations.<sup>316</sup> After five years of negotiations (1995-2000) between the EC and Namibia, and extensive consultations with its fishing industry, the Namibian government decided not to pursue further discussions on the EC proposals for an EC/Namibia fisheries agreement.<sup>317</sup> Foreign interests are entitled to apply for fishing rights under the Marine Resources Act in the normal way. They are treated in the same way as Namibian interests except that a preference is shown to Namibian-controlled ventures regarding rights, quotas and quota fees, and joint ventures between Namibian and foreign interests are welcomed.<sup>318</sup>

308 Ibid.

309 Ibid.

310 Section 44(3).

311 Section 44(5).

312 Meyn, M. (2005). 'Namibianisation', *Exports and Domestic Value Addition in the Namibian Fishing Industry. Chances and Risks of Including Fisheries into a Free Trade Agreement with the EU*. NEPRU Research Report No.33. Windhoek: NEPRU. Also available from <http://www.nepru.org.na/>.

313 Ibid.

314 Available from [http://www.rural-development.de/fileadmin/rural-development/volltexte/2005/02/en/ELR\\_engl\\_38-40.pdf](http://www.rural-development.de/fileadmin/rural-development/volltexte/2005/02/en/ELR_engl_38-40.pdf).

315 Ibid.

316 This inference is drawn from information obtained from <http://www.intfish.net/treaties/bilaterals/c-index.htm#European%20Union>, with regard to fisheries agreements signed by different countries of the world. The only agreement mentioned on this site relating to Namibia is the agreement between Namibia and South Africa on the prevention of illegal fishing.

317 Available from <http://www.delnam.cec.eu.int/Reports/Reports/country%20strategy%20report%202002.htm>.

318 Ibid.



However, Namibia as a coastal state that exports fish to other markets especially the EU is party to some partnership agreements. One example of such an agreement is the Cotonou Agreement. The agreement is aimed at the reduction and eventual eradication of poverty, while contributing to sustainable development and to the gradual integration of the African, Caribbean and Pacific Group of States (ACP countries) into the world economy.<sup>319</sup>

The provisions of the Cotonou Partnership Agreement (CPA) define the terms and conditions for the export of ACP fish and fishery products to the EU. This includes specifying the rules of origin that must be met in order to benefit from these special arrangements. The current market-access provisions of the CPA are based on the non-reciprocal trade preferences extended to ACP countries under the earlier Lomé Conventions.<sup>320</sup> These allow ACP countries to export their fish products to the EU without having to pay the import taxes applied to fisheries exports from other countries. These ACP tariff preferences apply until the end of 2007.<sup>321</sup> Namibia has been a particular beneficiary of the tariff preferences extended under the

Cotonou Agreement, expanding considerably its exports in those areas where tariff preferences are enjoyed. The following Namibian fish products enjoy duty-free access to EU markets: fresh or chilled fish; frozen Albacore tuna; frozen Hake; and frozen fish; fresh or chilled fish fillets; frozen fish fillets; frozen fish meat and prepared sardines.<sup>322</sup> The EU is seeking to replace the current unilateral preferences with new reciprocal arrangements that would begin in January 2008.<sup>323</sup>

***b) Illegal foreign fishing and related legal issues with reference to judicial decisions***

After Namibia attained its independence it adopted a fisheries management regime which was aimed at rebuilding stocks which had been plundered by illegal foreign fishing in previous years. The management regime included an MCS system. Under this system, as observed earlier, systematic sea, air and shore patrols are conducted in an effort to detect illegal fishing. From independence to the present date, Namibian courts have built up a substantial number of precedents on illegal foreign fishing. This can be seen from the number of case studies below.

## **2. Trade in Namibian fish with the North**

***a) Namibian laws regulating sales of fish to other countries***

Namibia has no laws that regulate sales of fish to other countries, but it has a Standards Act 33 of 1962 which sets out compulsory standards specifications on different food products that are exported to other countries. The export of fish is based on the principle of equivalence. This means that the standards specifications have to be equivalent to the laws of the importing state.

***b) Legal requirements of fish importing states related to quality control***

The EU has a number of laws that govern the quality of food products that they import from other countries. In particular, there is a quality management system

that the EU requires every fish processing company to implement, called the Hazard Analysis Critical Control Point (HACCP).

***c) Voluntary quality and sustainability control schemes in fish-importing countries***

Due to restrictions of jurisdiction, ensuring sustainable fisheries is not a matter of law in states importing Namibian fish. However, civil society groups have played a significant role in promoting sustainable seafood products, primarily by raising public awareness of the issue and continually placing it on the agenda of governments and regional fisheries management organizations. The NGOs involved in this area are typically international ones such as WWF or Greenpeace. However, some of the NGOs most active

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319 Available from [http://en.wikipedia.org/wiki/Cotonou\\_Agreement#Aims](http://en.wikipedia.org/wiki/Cotonou_Agreement#Aims).

320 Ibid.

321 Ibid.

322 Available from [http://www.epawatch.net/documents/doc126\\_1.doc](http://www.epawatch.net/documents/doc126_1.doc).

323 Ibid.

in fisheries issues are found in the USA and Europe. US foundations such as the Pew Charitable Trusts and the Packard Foundation are driving forces in providing funding for sustainable-fisheries-related causes. Which fisheries are defined as sustainable is determined in general by those same NGOs, with the assistance of respected marine biologists and ecologists.

NGOs in the USA, Europe and Oceania are aiming directly at the consumer in their efforts to promote sustainable seafood products by encouraging the consumer to buy fish only from sustainable fisheries or sustainable aquaculture. A small but growing amount of this type of activity also appears to be occurring in Asia, most notably in Japan and Hong

Kong. The main market-based activities of NGOs have been (i) organized boycotts of specific species; (ii) consumer guides with recommendations on which species to purchase; (iii) ecolabelling programmes; and most recently (iv) pressuring retailers not to carry particular species that NGOs have deemed 'unsustainable.' Running through all these activities is consumer education regarding, for example, the relative environmental impacts of various types of fishing practice, the status of various stocks, and bycatch/habitat impacts. Notwithstanding the importance that consumer education (whether with information or misinformation) plays in markets for sustainable fish, this discussion will focus on targeted market measures, namely boycotts, seafood guides and ecolabelling.

#### IV. Case studies on fisheries management: focus on enforcement

While the legal infrastructure in Namibia is quite well developed, the question is whether Namibian authorities have been able to ensure the enforcement

of their laws and measures. The following case studies throw light on this issue.

##### 1. Preventing foreign vessels from illegal fishing in the Namibian EEZ

During 1990 and 1991, 11 Spanish trawlers and one Congolese trawler were arrested for illegal fishing and successfully prosecuted; most of the vessels were confiscated by the Namibian courts. These actions sent a clear message to the international fishing community that Namibia was serious about establishing sovereignty over its new EEZ. Three of the cases will be reported in greater detail. There were a few more incidents of poaching noted after the efforts in the early 1990s, and it cannot be denied that a significant amount of poaching still goes on, but it appears that, in general, improved monitoring, control, surveillance and enforcement has deterred poachers and improved compliance.<sup>324</sup>

###### *a) Case study 1: S v Curras 1991 NR 208 (HC)*

This case study is an example of a judicial decision of the Namibian High Court on illegal foreign fishing in which the court imposed a fine of N\$ 400,000 or imprisonment for six years for failure to pay the fine, and also ordered the seizure of the vessel and all its contents.

In this case the accused was a 39-year-old male of Spanish nationality. He was charged with contravening s 22A (4) (b) read with ss 1, 6, 16, 17, 18, 22A and 24(1) of the Sea Fisheries Act 58 of 1973 (RSA), as amended, and further read with ss 1, 4, 5, 7 and 8 of the Territorial Sea and Exclusive Economic Zone Act 3 of 1990 (Nm) and ss 90 and 250 of the Criminal Procedure Act 51 of 1977 (RSA), being the master or captain of the fishing vessel, *Friopesca Uno*, a vessel of Spanish registration.

During and about the period 22 September 1990–November 1990, the accused wrongfully and unlawfully used the said vessel as a fishing boat and/or factory as envisaged by s 1 of Act 58 of 1973 within the exclusive economic zone and within the area of jurisdiction of the Namibian High Court without a permit granted in respect of the said vessel.

The accused was convicted of illegal fishing in the Namibian waters with a foreign vessel without a permit.

<sup>324</sup> Nichols, *supra*, note 39, p.327.

The court accordingly sentenced the accused to pay a fine of N\$ 400,000 and for failure to pay such a fine, to go to prison for six years. The court also ordered the ship, the *Friopesca Uno*, with all its equipment and contents to be declared forfeited to the State under the terms of s 17 of the Sea Fisheries Act. The fish were also forfeited to the state under the terms of s 6 (6) (a) of the Sea Fisheries Act. The court further concluded that it would be unjust for the owners or charterers and the accused to benefit from the unlawful fishing venture.

This case study is testimony that the implementation of the management regime started shortly after the attainment of independence. It is clear that in trying to send a very strong warning to other would-be foreign fishers, the illegal foreign fishers were quickly dealt with by the Namibian courts. This is also testimony of how serious the government of Namibia was in implementing the fisheries management system in order to allow stocks to grow and to build a strong and lucrative Namibian fishing industry.

**b) Case study 2: *S v Martinez 1996 NR 1(HC)***

In this case the accused, the captain of a Spanish fishing vessel, was charged with contravention of s 22A (4) (b) (which made it an offence to use a fishing vessel registered in a foreign state within a fishing zone without a permit), alternatively s 8(1) (which prohibited the use of a fishing vessel without the necessary licence having been issued), read with ss 1, 6, 8, 16, 17, 18 and 24 (1) of the Sea Fisheries Act 58 of 1973 (RSA) and further read with ss 1, 4, 5, 7 and 8 of the Territorial Sea and Exclusive Economic Zone of Namibia Act 3 of 1990 (Nm) and ss 90 and 250 of the Criminal Procedure Act 51 of 1977 (RSA). The charges related essentially to the unlawful fishing activities of the accused within Namibia's EEZ and that approximately 183 tons of fish with a value of R 810,500 had been caught inside the EEZ.

The accused was subsequently convicted and he testified in mitigation that he expected to receive as remuneration 2% of the value of the catch in Spain, or approximately R 22,000. The State requested the court to impose a fine of R 22,000 under the terms of s 16(2) (a) of the Sea Fisheries Act (which section provided that where any person was convicted in terms of the Act, the court shall determine the monetary value of

any advantage which such person may have gained in consequence of the offence, and impose a fine equal to the amount so determined) in addition to any other penalty the court may impose.

The court however held that as to the issue of the imposition of a fine under the terms of s 16(2) (a), the word 'may' obviously referred to an advantage which had accrued in the past, the object of the provision being to prevent a convicted person from profiting by his spoils, and also that inasmuch as the accused had been arrested before any advantage had accrued to him from his unlawful catch, he could not be punished under the terms of s 16 (2) (a).

The court held further as far as the seizure and forfeiture of the ship, its contents, and the fish caught were concerned, that a blanket seizure of contents where the contents were very varied and where some were attached to the ship and could only be detached with difficulty was not an adequate seizure in terms of s 6 (1) (c) of the Sea Fisheries Act: such contents should have been itemized to enable the court to exercise proper discretion. The court also held that as there had been no valid seizure of contents under s 6(1) (c), there could be no forfeiture thereof under the terms of s 6(6) (a) of the Act, but further that the same considerations did not necessarily apply for fish – there was no difficulty in identifying such fish and an itemization thereof was not necessary: accordingly the forfeiture of the fish could not be set aside.

The court then, taking all the above factors into consideration, sentenced the accused to a fine of R300,000 or four years' imprisonment.

**c) Case study 3: *S v Pineiro & Others 1999 NR 13 (13)***

The events that led to this case took place in the Atlantic Ocean in March 1991. The first applicant had sailed from Spain in the vessel CP in February 1991 to fish off the Falkland Islands. En route he received instructions to sail to the west coast of South Africa to await instructions regarding the transshipment of fish already caught. In a position approximately 100 miles from the South African coast and south of the boundary separating the South African fishing zone from Namibia's EEZ, 'he waited' until 21 March 1991.

On that day a helicopter flew overhead and an inspector of Namibian Sea Fisheries and two soldiers came on board. The first applicant refused to sign a letter admitting that he had been fishing off the Namibian coast. He was then ordered to sail to Lüderitz, but he refused to do, contending that he was in South African waters. He was later relieved of his captaincy. On the evening of 22 March two South African Navy warships came alongside and he informed them that he could go to a South African port but not to Lüderitz. Notwithstanding this, he was ordered by the South African navy to proceed to Lüderitz which he did under their escort.

On arrival at Lüderitz on 25 March, he and the other Masters and their respective officers were placed in police custody in police cells. On 28 March, they appeared in the magistrate's court of that town, on a charge of contravening s 22A (4) (b) of the Sea Fisheries Act (58 of 1973). An application for bail was refused and they remained in custody. First applicant maintained that neither the Sea Fisheries inspector nor the Namibian soldiers had been entitled to take him and his crew into custody and to seize his ship while they were in the South African fishing zone and he said that such custody and seizure were unlawful.

The 11 accused were subsequently convicted of fishing without permission in Namibia's EEZ in contravention of s 22 of the Sea Fisheries Act 58 of 1973. Before they were sentenced, a Spanish bank (*Caja de Ahorros de vigo*) applied to establish its interests in the two fishing vessels used in the commission of the offence. The fishing vessels concerned were the *Cabu Primero* and the *Cotorredondo Cuatro*. From the evidence presented it appeared that the bank held registered first mortgage bonds over the vessels.

The accused were subsequently sentenced and the court also confiscated the vessels *Cabu Primero* and *Cotorredondo Cuatro*. This forfeiture was ordered under the terms of s 17 of Act 58 of 1978. The court consequently ordered that such forfeiture be subject to the bank's rights under the registered first mortgage bond. The State thereupon applied to reserve certain questions of law arising from the forfeiture of the vessels. The court held that the questions arising from the enquiries in terms of s 17 of the Sea Fisheries did not arise on the trial of any person as intended by s 319 of the Criminal Procedure Act 51 of 1977 and therefore the State is not entitled to reserve a question of law in respect thereof and the State's application was accordingly refused.

## 2. Monitoring and surveillance of catches

Monitoring and surveillance is the task and name of a department which is part of the Ministry Directorate of Operations. The directorate operates from both ports, namely Walvis Bay and Lüderitz. As earlier mentioned, the MCS system is the regulatory component of fisheries management within the 200 nautical mile EEZ.

As a matter of general observation, evaluation of the success of the system in relation to the three strategic objectives<sup>325</sup> concluded that: a) the first objective, to restrict fishing activity to those entitled to do so, has been relatively satisfactorily achieved; b) the second objective, to ensure that fishing activity is conducted within legal and administrative guidelines, has been partially achieved, and c) the third objective, to ensure

that the revenues from landings are correctly calculated, has not been achieved.

As far as the first and second objectives are concerned, evidence supports that compliance has generally improved over the last decade, although levels vary considerably across fisheries. Regular inspections by the patrol vessels have reduced the number of violations. Analysis of the demersal fishery yielded very low violation rates, which were supported by survey results on perceived compliance levels. This fishery gave a strong correlation between economic return from the fishery and the level of violations, supporting the theory that financial viability of the fishery affects the behaviour of fishers. The mid-water fishery on the other hand, a fishery of less social and economic importance

325 See above Section II.3 ('Institutional and organizational structures') under MFMR's Directorate of Operations.

to Namibia, is faced with unacceptably high levels of non-compliant behaviour. This fishery also provided evidence that an increase in economic return coincided with a decrease in violations. This, a predominantly foreign fishery (often using flags of convenience), was also the least compliant. The pelagic fishery that has gone through severe financial difficulties in the last years has kept a steady level of recorded violations, with no evidence of a link between the economic return of the fishery and the violation level. Results indicated that progress in improving the compliance level across all fisheries is hampered by the low deterrence value of the fines imposed and the delay between crime and punishment.

The third objective, ensuring that revenue from landings is correctly calculated, has not been successfully implemented. Evidence indicated that the calculation of revenue was very unreliable and that in 1999, N\$ 700,000 was lost in bank interest, while the loss due to inaccurate reconciliation and underreported catches was impossible to estimate, but may have been considerable.

The cost of MCS over the last two years was 41% and 42% of the industry revenue: this was considered an acceptable level, as was the distribution of cost across MCS components. However, serious concern was raised over the future cost.<sup>326</sup> A fisheries expert made the following recommendations for the MCS operations:<sup>327</sup>

- (a) Setting compliance targets to streamline logistical operations and planning;
- (b) Improving the performance of MCS platforms to increase cost effectiveness;
- (c) A more analytical approach to balancing enforcement and voluntary compliance in order to unlock potential increases in compliance;
- (d) Shortening the decision-making process to promote more immediate reactions to serious violations;
- (e) Increasing fines to ensure that crime does not pay;
- (f) Creating an MCS information system to facilitate cross verification and improved planning; and finally, and most importantly,
- (g) Redesigning working practices and information systems used to calculate landings in order to ensure that catch limits are not exceeded and that revenue is correctly calculated.

In addition, the low level of sanctions against serious offences was seen as reducing the value of the penalty system as a punishment measure. It is vital that crime does not pay and that the penalty meted out is greater than the potential economic gain from the crime. Correcting this imbalance may boost the deterrent effect of penalties enough to allow a reduction in other more costly areas of MCS operations.

## V. Conclusions

The Namibian management regime has in many cases been successful, especially if one takes into account that they inherited totally devastated fisheries. The swift and speedy prosecution of foreign vessels found fishing illegally in Namibian waters was a deterrent to many and showed that the new regime meant business.

Domestic legal instruments are adequate and are generally adhered to, and the fish stocks are responding relatively well to the management regime, but there are instances where, despite conservative management,

the status of the resource is worse than before. The reasons for this are multifaceted. It can be attributed to adverse environmental conditions affecting fisheries. It can also be an indication that the scientific predictions of the availability of stocks are flawed and, hence, the reliance on them to determine TACs results in excessive or over-use of the resource.

Generally, the industry respects and applauds the efforts of the government in trying to balance biological sustainability and economic survival of the industry.

<sup>326</sup> See above Section I. 5 ('Public perception of basic fisheries issues').

<sup>327</sup> Bergh and Davies, *supra*, note 91, p.312.



Many agree that this is not an easy task, and at times clashes between the industry and the government cannot be avoided. They, however, appreciate the open and friendly cooperation between the two.

The basic issues as identified above are a reflection that a dynamic system is at play and conflicts are bound to arise where human beings and resource use are concerned.

Namibia takes environmental protection and sustainable use of natural resources seriously to the extent of it being one of the few countries whose constitution specifically provides for this.

The Marine Resources Act<sup>328</sup> is hailed as encapsulating one of the best management practices in the world. Hence, it ensures that Namibia complies with most of its international obligations. Further, in terms of Article 144,<sup>329</sup> all international agreements duly entered and ratified by Namibia become part of domestic law and, hence, can be enforced in domestic courts. The down-side to this, however, is that Namibia has become a signatory to many international agreements and it is proving to be difficult to adhere to all their prescriptions. If this means that it will enable us to use resources in a sustainable manner, then it is worth the difficulty.

As mentioned earlier, Namibian products are popular amongst foreign markets as a result of the quality and the high standards maintained. Namibia in general readily accepts most of the sanitary and phytosanitary measures (SPS) requirements imposed on exported goods to importing countries. Namibian fisheries companies vigorously implement the Hazard Analysis Critical Control Point (HACCP) as a measure to meet stringent quality control measures required by importing markets such as the European Union.

The Monitoring, Control and Surveillance measures are laudable and are to a large extent effective. However, there is always room for improvement. The implementation of the Vessel Monitoring System (VMS) and the installation of Automatic Location

Communicators (ALC) on each vessel operating within Namibian waters is good news. Some sceptics are quick to point out that these will be costly to maintain. The benefits derived for the industry and the sustainability of the marine resources by far outweigh the cost factor. It will improve MCS and is a necessary tool to fulfil Namibia's international obligations. The fact that the installation of the ALCs is a compulsory precondition prior to a vessel being allowed to fish will ensure compliance.

Some further suggestions for reform might include the following:

- The Marine Resources Act 27 of 2000 is seen by many as a complex piece of legislation and this hampers compliance because its interpretation is not clear even to those that have to implement its provisions. The provisions must be clarified.
- Failure to replenish and reconstruct stocks of certain species is a cause of concern even with the existence of a conservative management system. There are extra-legal causes for the failure of the stocks of certain species, such as Sardine and Hake, to recover. The MCS system needs to be improved by the setting of realistic compliance levels, improving the efficiency and effectiveness of MCS operational platforms and dealing with future financial implications.
- There is clear concern from the industry questioning the accuracy and reliability of estimations of stocks used to determine TAC. The scientific basis used by the ministry should be transparent, accessible and verifiable by all the actors in the industry. The general view is that there is a need for better consultation between government and industry in the setting of TACs to avoid distrust of government by industry.
- As pointed out and discussed above, the government is losing out as a result of unreliable revenue calculation methods. This is due to weaknesses in the manual calculation method used

328 Act 27 of 2000.

329 Constitution of Namibia.

at factories by fisheries inspectors. A further impediment is the inaccurate reconciliation process and cumbersome work routine when data is collected and registered. Fisheries inspectors at factories are a very important element in the verification of landings. If they are ineffective, it leaves the system dependent on the industry figures and no independent verification of actual landings.

- As mentioned earlier, one of the objectives of the MFMR is to redistribute revenue amongst the formerly disadvantaged and to Namibianize the industry. The government has failed to reinvest revenue generated from fisheries in other forms of productive capital, and as such misses an opportunity to build national wealth.
- There is a further need for government to rethink the manner in which the empowerment of the previously disadvantaged is achieved. A capital-

intensive industry such as this requires availability of resources.

- Namibia, with its abundance of fish and marine resources, imports fish products from other nations, while not providing protection measures for the local market against heavily subsidized fish coming in from other countries. Even though fish consumption in Namibia is insignificant, it nonetheless is a market that should be enjoyed by locals and not overtaken by imported goods.
- The absence of a Namibian Bureau of Standards leaves us at the mercy of the South African Bureau of Standards. This body is widely recognized and respected for its exceptionally high standards, but any respectable country cannot allow its standards to be determined by foreign nationals who, in most cases, are not privy to domestic circumstances.

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## Field itinerary

### Fieldnote 1

Ms D van Bergen  
Chairperson  
Confederation of Fishing Associations  
September 2006

### Fieldnote 2

Mr Kallie Jacobs  
Director  
Erongo Marine Enterprises  
September 2006

### Fieldnote 3

Mr Johannes Van Zyl  
Chairman  
Large Pelagic Association and Hake Long Line  
Association  
September 2006

### Fieldnote 4

Dr Kirsten Manastemy  
Quality System Consultant  
September 2006

### Fieldnote 5

Dr Hashali Hamukuaya  
Executive Secretary  
SEAFO  
September 2006

### Fieldnote 6

José Ruiz  
Managing Director  
Overberg Fishing  
September 2006

### Fieldnote 7

Messrs Makuti and Kakujaha  
The Municipality of Walvis Bay  
September 2006

### Fieldnote 8

Mr Bobo Kathindi  
Managing Director  
Etale Fishing  
September 2006

### Fieldnote 9

Hermanus Kasper  
Business Personality  
Special Interest in Fisheries  
March 2007

### Fieldnote 10

Mr Steven Ambambi  
Deputy Director  
Directorate of Operations  
March 2007

## Fisheries resources

Marine resources

Freshwater resources

Aquaculture Act

Inland Resources Act

Sea areas

Fishing business

Merchant Shipping Act

National Fishing Corporation of Namibia Act

Sea Shore Ordinance

Walvis Bay and Offshore  
Islands Act

Territorial Sea and  
Exclusive Economic Zone Act

Marine Resources Act