New Developments in the Protection of the Marine Environment: Potential Effects of the Rio Process

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I. Introduction

About two-thirds of the earth's surface are covered by the oceans, which play a dominant role in the bio-geochemical processes of the earth. Oceans decisively influence the global energy system, climate and weather. Most of the earth's life, expressed as biomass, exists within the immense volume of the oceans. The world oceans' yield is about 80–90 million tons per year[1], 95 per cent of which comes from the exclusive economic zones (EEZs), where fishing is primarily up to the coastal States concerned. These stocks of the oceans' marine living resources provide a livelihood to millions of people in coastal areas[2]. They are, however, growingly endangered by over-exploitation. Moreover, the management of the oceans and their living resources is constrained by critical uncertainties about the exact role of marine environment in maintaining the global life support system[3].

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[1] According to recent FAO statistics, in 1992 marine fishing showed a total catch of 82.5 million tons, well below the 1989 peak of 86.5 million tons; FAO press release FAO/3592, 14 April 1994.

[2] 19 countries landed 80 per cent of the marine catch, while 15 countries consumed about 80 per cent of it. In value terms, 46 per cent of fish traded internationally came from developing countries. These FAO figures are taken from the 1994 Law of the Sea Report of the Secretary-General; UN doc. A/49/631, 14 November 1994, para. 133.

[3] Compare UN doc. A/CONF.151/PC/42/Add.6, 3 July 1991, paras. 3 et seq., 22; A. Barcena, Some Reflections on a New Approach to Ocean and Coastal Management, in: The Marine Environment and Sustainable Development: Law, Policy, and Science,

Today, the marine environment is seriously affected by various human activities, both on land and at sea. Apart from some living resources, the high seas seem to be less imperiled by the impacts of pollution than the EEZs and the territorial waters, which increasingly suffer from degradation caused by oil discharges, oil spill accidents, dumping of wastes and pollution originating from land-based sources. The latter result particularly from the rapid growth of coastal settlement and concentration of industrial development along the coasts[4].

These facts already indicate that the protection of the marine environment, as well as the conservation and sound management of the marine living resources are most important for keeping our whole ecosystem in balance and preserving, also for the sake of future generations[5], the elementary bases of human life.

Agenda 21[6] is a comprehensive legally non-binding "programme of action" adopted at the 1992 Rio Conference. Its Chapter 17.1 starts by saying that "(t)he marine environment – including the oceans and all seas and adjacent coastal areas – forms an integrated whole that is an essential component of the global life-support system, and a positive asset that presents opportunities for sustainable development". This programmatic statement seems to prove that the participant States at the Rio Conference were fully aware that the protection of the marine environment is a very important element of the envisaged process of setting in motion a global partnership for sustainable development[7].

Proceedings, The Law of the Sea Institute, Twenty-fifth Annual Conference 1991 (1993), 21 et seq., at 23 et seq.

[4] Compare D. Brubaker, Marine Pollution and International Law (1993), at 10 et seq.; Barcena (note 3), at 24 et seq.

[5] Compare particularly E. Brown Weiss, In Fairness to Future Generations: International Law, Common Patrimony and Intergenerational Equity (1989); id., Conservation and Equity between Generations, in: T. Buergenthal (ed.), Contemporary Issues in International Law, Essays in Honor of L.B. Sohn (1984), 245 et seq.; Agora: What Obligation does Our Generation Owe to the Next? An Approach to Global Environmental Responsibility (A. D'Amato/E. Brown Weiss/L. Gündling), AJIL 84 (1990), 190 et seq. Many of the newly adopted marine protection agreements, mostly in their preambles, affirm this moral obligation to meet the interests of future generations. Exclusive reference to future generations has been made in the preamble of the UN General Assembly's Resolution 48/80 of 16 December 1993 (Question of Antarctica) stating that there is "need for concerted international cooperation in order to protect and safeguard Antarctica and its dependent ecosystems from external environmental disturbances for future generations".

[6] See its text in: Agenda 21 & the UNCED Proceedings, ed. by N.A. Robinson, Vol. IV (1993), 1 et seq.

[7] This is fully in line with the conviction of the UN General Assembly, laid down in the preamble of its Resolution 48/190 of 21 December 1993, "that the Rio Declaration on

The drafters of Chapter 17 of Agenda 21 are right to state that Chapter XII of the 1982 United Nations Convention on the Law of the Sea[8] has laid down a system of pertinent rights and duties of States providing the basis upon which henceforth the protection and sustainable development of the marine environment and its resources have to be pursued[9]. To that end "new approaches to marine and coastal area management and development, at the national, subregional, regional and global levels, approaches that are integrated in content and are precautionary and anticipatory in ambit" are required.

The main purpose of the following study is to examine whether the documents adopted at the Rio Conference may have any impact on the further development of marine environmental law. In particular Chapter 17 of Agenda 21 shows possible new ways and strategies for a better management and protection of the oceans and their living resources, although it certainly does not contain any legally binding norms modifying, further developing or implementing the rules already offered by the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and a number of other international conventions at the universal and regional levels. It is impossible to present and discuss here all rights and duties of States flowing from these instruments. Therefore, our survey will be confined to their most important regulatory approaches and strategies pursued in view of conserving the marine living resources and combating marine pollution (II.). This will be followed by a more detailed analysis of the Rio documents concerning marine environmental protection and development, particularly Chapter 17 of Agenda 21 (III.). Finally, the relevant proposals made at Rio will be evaluated in view of their political wisdom, their innovative character and their possible role in the process of strengthening the conservation of the marine living resources and the protection of the marine environment (IV.).

Environment and Development contains fundamental principles for the achievement of sustainable development, based on a new and equitable global partnership".

[8] See the text of this Convention, signed on 10 December 1982 and having entered into force on 16 November 1994, in: ILM 21 (1982), 1261, at 1308 et seq.

[9] Also in this sense e.g. P.W. Birnie/A.E. Boyle, International Law and the Environment (1992), at 252 et seq., quoting the Report of the UN Secretary-General on the Promotion and Preservation of the Marine Environment, UN doc. A/44/461 (1989).

II. The Current State of the Law

1. Universal level: Relevant UNCLOS rules

Quite a number of international conventions deal with the protection of the marine environment and the oceans' living resources at the universal level[10]. However, among these instruments the UN Law of the Sea Convention of 1982 (UNCLOS) is certainly the most important one upon which Chapter 17 of Agenda 21 is based. Therefore, it will be the primary focus of the following survey.

Compared with the Geneva Conventions on the Law of the Sea of 1958, which contain only a few rudimentary rules regarding marine environmental protection[11], UNCLOS, particularly in Part XII, provides a very comprehensive legal regime for the management and protection of the oceans and their living resources. It reflects "a fundamental shift from power to duty"[12] in the sense that it imposes a number of obligations on States which reject the formerly valid principle that pollution is an implicit freedom of the seas[13]. However, it should be emphasized that, as a rule, UNCLOS does not contain any substantive environmental law, but does little more than provide a system of norms which determines who is competent for the issuing of pertinent substantive rules and who is to enforce these rules[14]. Thus, there is a need to agree upon further instruments for implementing the UNCLOS framework.

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[10] Among them are such prominent conventions as the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (Brussels 1969); the International Convention on Civil Liability for Oil Pollution Damage (Brussels 1969), as amended by Protocols 1976 and 1984 (1984 Liability Convention); the International Convention on the Prevention of Marine Pollution by Dumping of Wastes (London 1972); the Protocol Relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil (London 1973); the International Convention for the Prevention of Pollution from Ships – MARPOL – (London 1973) and Protocol 1978; the International Convention on Oil Pollution Preparedness, Response and Cooperation (London 1990).

[11] See in particular Articles 24 and 25 of the 1958 Geneva Convention on the High Seas (UNTS Vol. 450, 82) under which the contracting parties are required to regulate oil pollution from ships, pipelines and seabed operations, to prevent nuclear pollution and to cooperate with international organizations in preventing pollution.

[12] A.E. Boyle, Marine Pollution under the Law of the Sea Convention, AJIL 79 (1985), 347 et seq., at 350.

[13] See Birnie/Boyle (note 9), at 253.

[14] See in particular R. Wolfrum, Die Internationalisierung staatsfreier Räume (1984), at 635; H. Hohmann, Precautionary Legal Duties and Principles of Modern International Law (1994), at 209 et seq.

Part XII of UNCLOS addresses a number of special aspects of pollution originating from ships (Articles 211, 217–221), activities (Articles 208, 209, 214, 215), land-based sources (Articles 207, 213), dumping (Articles 210, 216) and through the atmosphere (Articles 212, 222). These special provisions are headed by some "general rules" (Articles 192–206) which must be observed in all fields of marine environmental protection and preservation. In addition to Part XII, UNCLOS deals, particularly in Part V (exclusive economic zones: Articles 56, 61, 62) and Part VII (high seas: Articles 116–120), with the States' rights and duties concerning the conservation and management of the marine living resources.

This set of UNCLOS rules is, in part, only a codification of the then existing rules of customary and conventional international law; in part, it appears as a further development of these norms. Thus, for instance, Articles 192 and 193 of UNCLOS reflect the traditional antagonism between the competing interests of States in environmental protection and resource utilization by seeking a compromise with close reference to already accepted customary rules. However, there are other provisions which elaborate pre-existing customary rules in more detail (such as Article 194)[15] or even go substantially beyond, partly following the pattern established by other international conventions and instruments.

There are some other very important provisions among the "general rules" of Part XII of UNCLOS. Article 197, for example, formulates a general duty of States to cooperate on a global or regional basis "in formulating and elaborating international rules, standards and recommended practices and procedures ... for the protection and preservation of the marine environment". Although formulated in rather broad terms, such an obligation to cooperate in the field of international norm-setting can hardly be found in earlier customary international law regarding marine environmental protection. Moreover, Articles 204–206 lay ground for developing appropriate means and methods of monitoring the risks or effects of pollution and assessing the potential detrimental impacts of activities on the marine environment. In today's international practice such types of mechanisms are essential pre-requisites for taking any adequate preventive action in this field.

[15] Hohmann takes the view that UNCLOS "represents the first agreement to recognize the general duty to prevent, reduce and control marine pollution from all sources through the use of the best practicable means" (Article 194 para. 1), ibid., at 205 et seq.

a) Living resources

The high seas have long been recognized as an area beyond domestic jurisdiction (*res communis*). However, in contrast to the sea-bed area and its mineral resources (compare Article 136 UNCLOS), the high seas and their living resources have not been declared a "common heritage of mankind"[16]. It follows from this that the Articles 116–120 of UNCLOS try rather to balance competing interests of the fishing States in utilization than to satisfy the State community's interest in conserving marine fauna. The provisions do not only stress that all States have the right to allow their nationals to engage in fishing (Article 116), but also lay down some obligations regarding conservation and management of the high seas' living resources[17]. However, according to the relevant provisions each State is not bound to observe any substantive conservation standards, but has only to take, individually or in cooperation with other States, such measures for its respective nationals as may be necessary for the conservation of the high seas' living resources (Article 117). This obligation to cooperate is further specified in Article 118[18]. The only substantive standard which each State has to take into account "in determining the allowable catch and establishing other conservation measures" is defined in Article 119, according to which populations of harvested species have to be maintained or restored "at levels which can produce the maximum sustainable yield". This criterion shows that the approach of Article 119 is primarily utilitarian and not so much conservational.

In the last decades the extent of the high seas' legal regime has been considerably diminished through the estabishment of maritime areas controlled by coastal States. The territorial seas have, first of all, been in-

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[16] This contrasts with Article 136 of UNCLOS which determines that the area at or beneath the sea-bed and its mineral resources are the common heritage of mankind.

[17] Compare generally B. Kwiatkowska, The High Seas Fisheries Regime: At a Point of No Return?, International Journal of Marine and Coastal Law 8 (1993), 327 et seq.

[18] Most recently, the FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, approved on 24 November 1993 (see its text in ILM 33 (1994), 968), tries to achieve its object through specifying flag States' responsibility in respect of fishing vessels entitled to fly their flags and operating on the high seas. Thus, this Agreement appears to be an elaboration on the States' duties outlined in Articles 117 and 118 of UNCLOS. Moreover, the FAO Conference is currently preparing a draft of the "General Principles" of the International Code of Conduct for Responsible Fishing. Compare to the FAO Agreement and the draft of the Code of Conduct the 1994 Law of the Sea Report of the Secretary-General (note 2), paras. 136 et seq., 148 et seq.

creasingly extended from three up to twelve nautical miles (compare Article 3 of UNCLOS). In principle, coastal States may exercise their sovereign rights freely in this area except for their duty to protect and preserve the marine environment according to the general rules of Articles 192–194 of UNCLOS. In addition, new 200-mile exclusive economic zones (EEZs) have been established (compare Articles 55–75 of UNCLOS). To these areas the doctrine of freedom of fishing, which still pertains to the high seas, no longer applies[19].

Within the EEZs the coastal States may exercise their sovereign rights for the purpose of exploiting, conserving and managing the natural (living or non-living) resources (Article 56 para. 1 (a))[20], as well as their jurisdiction with regard to the protection and preservation of the marine environment (para.1 (b))[21]. Most significantly, the coastal State has to determine the allowable catch (Article 61 para. 1), to protect marine living resources against over-exploitation (para. 2), and to maintain or restore populations of harvested species at levels which can produce the "maximum sustainable yield" in its EEZ (para. 3). In doing so, the State concerned has to observe the "relevant environmental and economic factors, including the economic needs of coastal fishing communities and the special requirements of developing countries" (id.). Further, the coastal State has to take care that the populations of "species associated with or dependent upon harvested species" will not be seriously threatened (para. 4)[22].

Nevertheless, there may be some doubt whether Article 61, in its entirety, provides a sound compromise between economic interests and conservation needs[23]. This scepticism is removed neither by Article 61 para. 2, demanding, as appropriate, cooperation between the coastal State and competent international organizations, nor by Article 62 para. 1,

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[19] See Birnie/Boyle (note 9), at 521.

[20] Compare in particular R. Wolfrum, The Protection of the Marine Environment after the Rio Conference: Progress or Stalemate?, in: U. Beyerlin/M.Bothe/R. Hofmann/E.-U. Petersmann (eds.), Recht zwischen Umbruch und Bewahrung, Festschrift für Rudolf Bernhardt (1995), 1003 et seq., at 1005 et seq.

[21] In practice, coastal States have often argued that one of the main reasons to establish an EEZ was to provide for a more effective control of marine pollution.

[22] Even more serious problems arise from the fact that "highly migratory species" and "straddling stocks" do not keep within the exclusive economic zone but move from one jurisdictional area to the other. See in particular E. Meltzer, Global Overview of Straddling Stocks and Highly Migratory Fish Stocks: The Nonsustainable Nature of High Seas Fisheries, Ocean Development and International Law 25 (1994), 255 et seq.

[23] Compare however Wolfrum (note 20), at 1008: "... article 61 UNCLOS follows, although not to the full extent, an ecosystem approach".

which obliges the coastal State to promote optimum utilization of the living resources in the EEZ; thus, for example, other fishing States may have access to the EEZ under certain conditions[24].

There may be some differences as to the substance and density of conservation-oriented obligations imposed on States by UNCLOS, depending on where the exploiting activities are undertaken. In the high seas all fishing States have to take conservation measures individually or in cooperation with other States, whereas in the EEZ and, even more so, in the territorial sea it is primarily up to the sovereign coastal State to provide for the necessary conservation of the marine living resources; thus, the scope and modalities of the conservation policy are more or less at the discretion of the coastal State.

Ultimately, the UNCLOS regime on marine living resources, in its entirety, appears to be rather exploitation-oriented and thus utilitarian in character[25]. At first glance, Article 194 para. 5 of UNCLOS, according to which States have to take 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", seems to contradict this finding. However, only in cases where the marine ecosystem and the living resources are already imperilled are States bound to take the necessary conservation measures[26]. Thus, the policy approach pursued by Article 194 para. 5 is regrettably by no means "precautionary and anticipatory"[27].

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[24] Compare e.g. Birnie/Boyle (note 9), at 521 et seq. There is a certain discrepancy between "maximum sustainable yield" (Article 61 para. 3) and "optimum utilization" (Article 62 para. 1). Compare e.g. O. Jalbert, Straddling Stocks, Protection of the Environment and Drug Control: Unsolved Problems of Coastal States' Powers and Obligations, in: R. Wolfrum (ed.), Law of the Sea at the Crossroads: The Continuing Search for a Universally Accepted Régime (1991), 411 et seq. Part VI of UNCLOS dealing with the continental shelf does not contain any obligation to conserve shelf resources (sedentary species). The latter are also exclusively controlled by the coastal States concerned. See for more details e.g. Birnie/Boyle (note 9), at 519 et seq.

[25] Also in this sense Wolfrum (note 20), at 1009. According to J.I. Charney (The Marine Environment and the United Nations Convention on the Law of the Sea, The International Lawyer 28 (1994), 879 et seq., at 901) the UNCLOS rules "establish a substantial and necessary foundation for a wise and effective resource management system for the living resources of the seas". From an ecological perspective, this view seems to be too optimistic.

[26] Compare once again Wolfrum, ibid.

[27] Compare Chapter 17.1 of Agenda 21. The precautionary principle is dealt with more closely below II.1. c).

b) Pollution from different sources

A.E. Boyle may be right to stress that under UNCLOS it is no longer a States' "power to control, still less a freedom to pollute, that characterizes the legal regime of the marine environment, but a new framework based on obligations of control, regulation, enforcement, cooperation and responsibility"[28]. However, the "regulatory density" of the pertinent UNCLOS rules varies considerably from one type of marine pollution to the other.

Deliberate or accidental, pollution from vessels[29] is rather extensively regulated in Article 211 (prevention, reduction and control of pollution from vessels) and Articles 217–221 (enforcement measures of the flag State, coastal State and port State for ensuring compliance). Perhaps most important is the fact, that Article 211, in its regulatory approach, is more determined by the purpose of preventing harm of this type than reacting to damages caused by polluting vessels. However, it is apparent that Article 211 does not establish any binding substantive standards. States are rather only obliged to agree upon such international rules and standards, as well as to adopt their own preventive laws and regulations conforming to generally accepted international instruments. Thus, the mentioned provision provides only a general framework of States' obligations to be filled by more elaborate norms.

Specifications can be found in some other universal conventions, particularly in the London International Convention for the Prevention of Pollution by Ships (MARPOL) of 2 November 1973 (with Protocol of 1978 and Annexes)[30]. Its substantive rules laid down in the 1978 Protocol and particularly in the Annexes of MARPOL are certainly included in the generally accepted "international rules and standards" to be established by States under Article 211 of UNCLOS[31].

Article 210 of UNCLOS is also preventive in character and encompasses any pollution by dumping[32]. In principle, it is shaped like Article 211, but its regulation is less elaborate. As far as dumping by foreign

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[28] Boyle (note 12), at 351.

[29] Compare Birnie/Boyle (note 9), at 263 et seq.; D. Bodansky, Protecting the Marine Environment from Vessel-Source Pollution: UNCLOS III and Beyond, Ecology Law Quarterly 18 (1991), 719 et seq.

[30] Text in UNTS Vol. 1340, 61, 184; UNTS Vol. 1341, 3, 140; BGBl. 1982 II, 2. The MARPOL Convention replaces the London International Convention for the Prevention of Pollution of the Sea by Oil of 1954.

[31] See Birnie/Boyle (note 9), at 263 et seq.; Brubaker (note 4), 119 et seq.

[32] Compare Birnie/Boyle (note 9), at 320 et seq.

vessels within the areas under the jurisdiction of the coastal State is concerned, "it shall not be carried out without the express prior approval" of the latter (Article 210 para. 5). Relying in that way on the sovereignty of the coastal State does not appear to be an ecologically sound solution. The enforcement jurisdiction of dumping regulations is once again shared by the flag State, the coastal State and the port State (Article 216).

As to the three remaining types of pollution, i.e. pollution from seabed exploration and exploitation (Articles 208 and 209), from land-based sources[33] (Article 207) and from or through the atmosphere (Article 212), the relevant UNCLOS provisions are principally shaped like those mentioned above. However, their regulation is only very rudimentary in nature. States were, at the time, apparently not able to agree upon more substantial norms at the universal level. Today these marine pollution problems are dealt with by a number of regional conventions much more substantially.

c) Evaluation

The UNCLOS rules' system on marine environment provides a general framework of States' powers and duties which has to be elaborated by way of negotiating further treaty norms. Only very few substantive rules can be identified in UNCLOS. Nevertheless, UNCLOS has brought some fundamental improvements to marine environmental protection.

First, UNCLOS lays much more emphasis on preventing and reducing environmental harm than on redressing damages by referring to State responsibility. This might suggest that the pertinent UNCLOS rules are determined by the precautionary principle[34]. However, even today this principle is at best an emerging principle of customary international environmental law according to which States are obliged

[33] Compare ibid., at 304 et seq.

[34] See in general L. Gündling, The Status in International Law of the Principle of Precautionary Action, in: D. Freestone/T. Ijlstra (eds.), The North Sea: Perspectives on Regional Environmental Cooperation (1990), 23 et seq.; G. Handl, Environmental Security and Global Change: The Challenge to International Law, in: G. Handl (ed.), Yearbook of International Environmental Law (YIEL) 1 (1990), 3 et seq., at 22 et seq.; E. Hey, The Precautionary Principle in Environmental Law and Policy: Institutionalising Caution, Georgetown International Environmental Law Review 4 (1992), 303 et seq.; D. Freestone, The Road from Rio: International Environmental Law after the Earth Summit, Journal of Environmental Law 6 (1994), 193 et seq., at 210 et seq.; Hohmann (note 14), at 189 et seq., 333 et seq.

not only to prevent known or foreseeable environmental harm, but also to cope with environmental risks in case of scientific uncertainty, provided that the risk is at least plausible[35]. Thus, it appears that UNCLOS follows a preventive approach[36] which does not meet the specific demands of the precautionary principle. The latter was unknown at the time when UNCLOS was agreed upon. Nevertheless, the shift from remedial to preventive action was certainly a decisive step forward.

Second, the UNCLOS rules repeatedly stress the need for international cooperation to bring together coastal States, flag States and port States, as well as international maritime organizations, in a joint effort to protect and conserve the marine environment.

Seen from a genuine ecological perspective, UNCLOS shows some structural deficiencies and shortcomings which result from its prevailing strategy to balance the conflicting interests of environmental protection and resource utilization. Thus, even the general obligation of States to protect and preserve the marine environment under Articles 192 and 194 of UNCLOS apparently contrasts with the rule laid down in Article 193 providing that States have the sovereign right to exploit their natural resources "in accordance with their duty to protect and preserve the marine environment"[37]. Although conditioned in that way, the concept of these rules as a whole reflects clearly the underlying utilitarian approach which also determines all other UNCLOS marine environmental rules, particularly those regarding exploitation and management of the marine living resources[38].

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[35] See in particular Hohmann, ibid., at 334; A. Gosseries, Marine Pollution in the North Sea: The Position in International Law, European Environmental Law Review 1994, 53 et seq., at 60.

[36] Hohmann, ibid., prefers the notion "protective principle" which is, however, rather misleading.

[37] However, Birnie/Boyle (note 9), at 255, are right to state that Article 192 is somewhat more strongly expressed than Principle 21 of the 1972 Stockholm Declaration. R. Lagoni (Die Abwehr von Gefahren für die marine Umwelt, in: Berichte der Deutschen Gesellschaft für Völkerrecht 32 (1992), 87 et seq., at 123) even takes the view that the general obligation of Article 192 is one that deserves the *erga omnes* status.

[38] According to the 1994 Law of the Sea Report of the Secretary-General (note 2), para. 134, the FAO recently "urged the introduction of a precautionary approach to fisheries management, which could discontinue the current management approach aimed at the highest possible catch irrespective of its composition and value. FAO recommended instead the reduction of the fleet sizes and catch targets and the adoption of safer biological thresholds that were more likely to sustain fish stocks, given the high level of uncertainty regarding the state of marine resources".

Moreover, it is at least doubtful whether the relevant UNCLOS rules adequately take care of the ecological interests of the whole international community of States, which is faced today with immense threats to the global environment. UNCLOS is still too much influenced by the idea of traditional international environmental law, i.e. to settle, on the basis of equal treatment and respect for State sovereignty, environmental utilization conflicts between individual States by means of regulation and coordination.

2. Conventions at the regional level

The conditions of regional seas and their coastal areas vary considerably from each other, at least in part, in regard to their geographical, ecological and socio-economic features. This may suggest that the marine environment of each regional sea should be subject to a specific legal regime best suited to its particularities. Moreover, States belonging to a certain region often appear to be better prepared to reach a common understanding than States at the universal level. Actually, there is a large number of relevant regional conventions concerning marine environmental protection which cannot be reviewed here in detail[39]. Only a few of the relevant regional conventions will be looked at here more closely with regard to the question whether there are already any such instruments able to fill the gaps left by the UNCLOS rules' system regarding substantive standards, as well as adequate mechanisms and procedures of inter-State cooperation.

a) Living resources

As to conservation of marine living resources, first of all some UNEP regional conventions are worth mentioning, particularly the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution of 16 February 1976, followed, *inter alia*, by the Geneva Protocol Concerning Mediterranean Specially Protected Areas of 3 April 1982[40]; the Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region of 24 March 1983, followed, *inter alia*, by the Kingston Protocol Con-

[39] Compare Birnie/Boyle (note 9), at 257 et seq.; Hohmann (note 14), at 280 et seq.

[40] Barcelona Convention: UNTS Vol. 1102, 28; ILM 15 (1976), 290; Geneva Protocol: Journal Officiel de la Rep. Française 1986, 15783.

cerning specially Protected Areas and Wildlife of 18 January 1990[41]; the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region of 21 June 1985, followed on the same day, *inter alia*, by the Nairobi Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region[42]; and the Noumea Convention for the Protection of the Natural Resources and Environment of the South Pacific Region of 25 November 1986[43].

These conventions adopt a step-by-step approach: First, States agree upon a framework convention setting up a rather rudimentary body of norms[44]; then the Parties to the Convention have to cooperate in the formulation and adoption of supplementing protocols. Looking at these protocols more closely, it becomes apparent that they confine themselves to specifying the States' obligation flowing from Article 194 para. 5 of UNCLOS to take measures "necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species ..."[45]. Only Article 3 para. 3 of the Kingston Protocol of 1990 goes beyond that aim by demanding that "(e)ach State Party, to the extent possible, consistent with each Party's legal system, shall manage species of fauna and flora with the objective of preventing species from becoming endangered or threatened". Regrettably, this duty is very broadly formulated. The 1986 Noumea Convention seems to be more progressive in this respect. It stresses in its Article 5 para. 4, that the Parties have, *inter alia* to take measures "... to promote sustained resource management and to ensure the sound development of natural resources". However, the Convention is silent as to the States' obligations flowing from this concept. Moreover, up to now most of the UNEP

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[41] Cartagena Convention: ILM 22 (1983), 227; Kingston Protocol: Tractatenblad 1990, No. 115 (Prot.); 1992, No. 95 (Annexes).

[42] Nairobi Convention: text in H. Hohmann, Basic Documents of International Environmental Law, Vol. 2 (1992), 1032; Nairobi Protocol: ibid., 1044.

[43] ILM 26 (1987), 38.

[44] The relevant duties imposed on States sometimes lack almost any substance. Thus, for instance, according to Article 4 para. 1 of the Nairobi Convention of 1985 the Contracting Parties are bound "to ensure sound environmental management of natural resources, using for this purpose the best practicable means at their disposal, and in accordance with their capabilities".

[45] This restrictive approach is not fully in line with the confirmation laid down in the preambles of most of these UNEP conventions that the Parties to them are "conscious of their responsibility to preserve their natural heritage for the benefit and enjoyment of present and future generations".

regional framework conventions and/or their protocols show a rather poor record of ratification and implementation. Ultimately, the UNEP regional conventions, at least currently, do not really contribute to an effective conservation of marine living resources[46].

Perhaps more promising than the framework approach of the UNEP instruments is a strategy according to which States identify particular issues of environmental protection and gradually regulate each of them in a separate treaty. However, such a piece-meal approach only deserves support if the parties to the treaty concerned are substantially ready to solve the given problem. Moreover, international marine environmental law thereby runs the risk of being splitted.

The Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific of 24 November 1989[47] may stand as a promising example for this kind of treaty-making. According to Article 2 of this Convention the Parties are obliged to prohibit driftnet fishing by their own nationals and national vessels within the South Pacific. Furthermore, they undertake not to assist or encourage the use of driftnets within the South Pacific, to restrict port access for driftnet fishing vessels and to prohibit the possession of driftnets on board any fishing vessel within their fishery zones (Article 3)[48].

It should be noticed that the United Nations General Assembly also became aware of the threat to marine living resources posed by driftnet fishing on the high seas[49]. Apparently inspired by the relevant South Pacific Convention of 1989, it recommended, in Resolution 44/225 of 15 March 1990[50], that all members of the international community "take immediate action ... to reduce progressively large-scale pelagic driftnet fishing activities in the South Pacific region with a view to the cessation of such activities by 1 July 1991, as an interim measure ..."[51]. In a later Resolution 46/215 of 20 December 1991[52], the General Assembly even called upon all members of the international com-

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46 Also in this sense Birnie/Boyle (note 9), at 262 et seq.

47 ILM 29 (1990), 1449. The Convention entered into force on 17 May 1991.

48 Compare G.J. Hewison, High Seas Driftnet Fishing in the South Pacific and the Law of the Sea, Georgetown International Environmental Law Review 5 (1993), 313 et seq.

49 Compare W.T. Burke/M. Freeberg/E.L. Miles, United Nations Resolutions on Driftnet Fishing: An Unsustainable Precedent for High Seas and Coastal Fisheries Management, Ocean Development and International Law 25 (1994), 127 et seq.

50 Text in ILM 29 (1990), 1555.

51 Para. 4 (b) of the Resolution, ibid. at 1558.

52 Text in ILM 31 (1992), 241.

munity to ensure "that a global moratorium on all large-scale pelagic drift-net fishing is fully implemented on the high seas of the world's oceans and seas ... by 31 December 1992"[53]. It may be asked whether these General Assembly resolutions on a particular aspect of overexploitation of the high seas' living resources have complemented the framework rules established by Articles 192 and 119 of UNCLOS[54]. However, both resolutions are, due to their nature, legally non-binding. They are therefore not able to specify directly the obligations imposed on States by the UNCLOS provisions mentioned above. Nevertheless, they may set in motion a process of creating a universally binding rule banning at least one unacceptable fishing technique. In that way, they may contribute to strengthening and providing the respective conservation duties of States with substance.

Ultimately, the South Pacific Driftnet Fishing Convention of 1989 proves that progressive regional instruments may have important repercussions on the process of developing global norms, particularly by means of, at least in some respects, specifying and further developing the relevant UNCLOS rules' system.

b) Pollution from different sources

As to regional instruments for preventing and eliminating marine pollution, there are a number of conventions covering the North Sea and the north-east Atlantic. Most of them were signed prior to UNCLOS. Among them are:

- the Bonn Agreement for Co-operation in Dealing with Pollution of the North Sea by Oil of 9 June 1969, replaced by the Bonn Agreement for Co-operation in Dealing with Pollution of the North Sea by Oil and Other Harmful Substances of 13 September 1983[55];
- the Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft of 15 February 1972 followed by two protocols of 1983 and 1989[56];

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[53] Para. 3 (c) of the Resolution, ibid. at 242.

[54] Certainly, they do not interpret these norms. At best they concretize them.

[55] Bonn Agreement 1969: UNTS Vol. 704, 3; BGBl. 1969 II, 2066. Bonn Agreement 1983: Command Papers (Cmnd) 9104 Misc. 26 (1983).

[56] Oslo Convention: UNTS Vol. 932, 3; ILM 11 (1972), 262; BGBl. 1977 II, 165. Protocol of 2 March 1983: Cmnd 8942 Misc. 12 (1983); BGBl. 1986 II, 999. Protocol of 5 December 1989: Cmnd 1039 Misc. 10 (1990); BGBl. 1994 II, 1356.

– the Paris Convention for the Prevention of Marine Pollution from Land-Based Sources of 4 June 1974, as amended by the protocol of 26 March 1986[57];

– the Lisbon Agreement on Co-operation for Combating Pollution in the Northeast Atlantic of 17 October 1990[58].

As to other regional sea areas, three conventions are worth mentioning:

– The Helsinki Convention for the Protection of the Marine Environment of the Baltic Sea Area of 22 March 1974[59], which adopts a comprehensive approach to the different sources of marine pollution and sets particularly stringent dumping standards. It will cease to apply upon entry into force of the new Convention on the Protection of the Marine Environment of the Baltic Sea Area, signed on 9 April 1992[60].

– The already mentioned Barcelona UNEP Convention for the Protection of the Mediterranean Sea of 16 February 1976, which renders only a framework of general rules that are specified by more detailed provisions laid down in four protocols of 1976, 1980 and 1982.

– The Bucharest Convention on the Protection of the Black Sea against Pollution, signed on 21 April 1992[61], which appears to be, at least in comparison to the 1992 Paris Convention and the 1992 Helsinki Convention (to be treated below), rather weak in substance.

Certainly very important is the Paris Convention for the Protection of the Marine Environment of the North-East Atlantic of 22 September 1992[62] which, upon its entry into force, will replace the Oslo Convention of 1972 and the Paris Convention of 1974. According to its preamble the new Convention aims at addressing all sources of pollution of the marine environment, taking into account the precautionary principle and strengthening regional cooperation.

The Convention consists of 34 articles and four annexes, which form an integral part of the Convention (Article 14). The Convention itself imposes rather general obligations on State Parties regarding pollution

57 Paris Convention: ILM 13 (1974), 352; BGBl. 1981 II, 870. Protocol of 26 March 1986: ILM 27 (1988), 626; BGBl. 1989 II, 171.

58 ILM 30 (1991), 1229.

59 ILM 13 (1974), 544; BGBl. 1979 II, 1229.

60 BGBl. 1994 II, 1397.

61 ILM 32 (1993), 1101.

62 See its text in ILM 32 (1993), 1072; BGBl. 1994 II, 1360. For a more detailed discussion of this Convention see E. Hey/T. Ijlstra/A. Nollkaemper, The 1992 Paris Convention for the Protection of the Marine Environment of the North-East-Atlantic, International Journal of Marine and Coastal Law 8 (1993), 1 et seq.; J. Hilf, The Convention for the Protection of the Marine Environment of the North-East-Atlantic – New Approaches to an Old Problem? (in this issue).

from land-based sources (Article 3), by dumping (Article 4), from offshore sources (Article 5) and from other sources (Article 7); in addition, the Parties have to assess the quality of the marine environment and its development, as well as to evaluate the effectiveness of the measures taken and planned (Article 6). More substantial are the States' obligations laid down in the four annexes relating to pollution from land-based sources (I), pollution by dumping or incineration (II), pollution from offshore sources (III) and assessment of the quality of the marine environment (IV).

The Paris 1992 Convention, according to its preamble, aims at achieving "sustainable management" of the maritime area. It therefore stresses that any human activities should be performed in such a manner "that the marine ecosystem will continue to sustain the legitimate uses of the sea and will continue to meet the needs of present and future generations". At the same time, however, it fully recognizes the need for preventing and eliminating marine pollution. Thus, like the Rio Conference documents issued some months ago, the Convention is guided by the principle of "sustainable development" advocating a compromise between the conflicting interests of resource utilization and environmental protection. In this respect it is most remarkable that the Convention does not subordinate the latter concern to the former. Thus, in Article 2 para. 2 (a) and (b), it obliges the Contracting Parties to apply the precautionary principle and the polluter-pays principle. According to the first principle the States Parties must not interfere with the marine environment even if there is no conclusive evidence of a causal relationship between the activities and the harmful effects[63]. For the purpose of implementating the precautionary principle the State Parties are bound to adopt programmes and measures of preventive environmental protection, which have to comply with the criteria of "best available techniques" and "best environmental practice" (Article 2 para. 3)[64].

As to the substantive rules of the Convention, Article 4, read together with Annex II, seems to be crucial. It prohibits, regrettably with some exceptions, the dumping of all wastes. This prohibition includes the dumping of low and intermediate level radioactive substances; however the United Kingdom and France may, under certain circumstances, en-

[63] Compare above II.1.c).

[64] These criteria are set forth in more detail in Appendix 1 to the Paris Convention. Compare also Annex I, Article 1 para. 2, in conjunction with Appendix 2 to the Convention.

gage in the dumping of these substances after the expiration of a 15-year moratorium, i.e. after 1 January 2008 (see Annex II, Article 3)[65].

The Convention also brings about some important procedural and institutional innovations. Among them are the explicit authorization of the Paris Commission to take legally binding decisions (Article 13); the guarantee that third persons may have access to information (Article 9); a reporting system, including an outlined Commission procedure in case of non-compliance (Articles 22 and 23); and the possibility for the Paris Commission to decide, under certain circumstances, on regional differentiation (Article 24).

The likewise important 1992 Helsinki Convention for the Protection of the Marine Environment of the Baltic Sea Area is in many respects similar to the new Paris Convention[66]. It also refers to the precautionary principle (Article 3 para. 2), the polluter-pays principle (Article 3 para. 4), environmental impact assessment (Article 7), and access to information (Article 17). It is particularly noteworthy that the Helsinki Convention, like the Paris Convention, does not rest satisfied with an abstract acknowledgement of the precautionary principle, but substantiates it by promoting the "best environmental practice and "best available technology" (Article 3 para. 3)[67].

The Helsinki Convention seems to pursue a policy which is even more ecology-oriented than the Paris Convention. Thus, in the Convention's preamble, the Contracting Parties declare "their firm determination to assure the ecological restoration of the Baltic Sea, ensuring the possibility of self-regeneration of the marine environment and preservation of its ecological balance". Moreover, according to Article 15 the Parties "shall individually and jointly take all measures with respect to the Baltic Sea Area and its coastal ecosystems influenced by the Baltic Sea to conserve natural habitats and biological diversity and to protect ecological processes. Such measures shall also be taken in order to ensure the sustainable use of natural resources within the Baltic Sea Area". This clause appears to be most remarkable. First, it places much more emphasis on nature conservation than the relevant UNCLOS rules. Second, it covers, contrary to the 1992 Paris Convention, not only the maritime area, but also

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[65] See generally E. Hey, Hard Law, Soft Law, Emerging International Environmental Law and Ocean Disposal Options for Radioactive Waste, Netherlands International Law Review 1993, 405 et seq., at 426 et seq.

[66] Compare P. Ehlers, Das neue Helsinki-Übereinkommen – Ein weiterer Schritt zum Schutz der Ostsee, Natur und Recht 15 (1993), 202 et seq.

[67] These criteria are more closely elaborated in Annex II to the Helsinki Convention.

the respective coastal ecosystem "influenced" by the sea[68]. In this respect it is close to Agenda 21, which demands an "integrated management and sustainable development of coastal and marine areas"[69].

c) Evaluation

Particularly, the two last-mentioned conventions suggest that the gaps left by the UNCLOS framework rules respecting the protection of the marine environment seem to be best filled up by more elaborate rules established by regional conventions. This finding is certainly not surprising. The larger the number of contracting States, the more risk there is that they will engage in low-level compromises which are hardly adequate to meet the problems to be solved. States parties belonging to one and the same region are, as a rule, better prepared to manage problems which they have in common. If they are not able to come to an understanding in substance at a given time, they are aware of their duties as neighbours and, therefore, more inclined to take part in certain procedures of cooperation than States at the universal level.

The Paris Convention and the Helsinki Convention, both concluded in 1992, are very promising attempts to establish procedures and mechanisms of cooperation for implementing and further developing the conventional rules, as well as even monitoring compliance with them. As to their substantive rules, they do not yet bring about satisfying solutions, but mark at least a very useful point of departure. In this respect, it is remarkable that both conventions do not only abstractly refer to the precautionary principle, but impose, with a view to its realization and implementation, some concrete obligations on the States parties concerned. Ultimately, both Conventions may serve as models for treaties to be henceforth concluded with regard to other maritime areas. Thus, regional conventions will probably be the best suited instruments for substantiating and further developing the pertinent UNCLOS rules.

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[68] Contrary to the Helsinki Convention, the new Paris Convention applies only to the maritime area with the inclusion of internal waters (Article 1 (a)).

[69] Agenda 21, Chapter 17.1 et seq. Compare also below III.2.b)aa).

III. Rio Documents and Marine Environmental Protection

1. UNCED preparatory process

The United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro from 3–14 June 1992, the twentieth anniversary of the Stockholm Conference on the Human Environment. Its focus was on sustainable development, i.e. integration of environment and development concerns aiming at the fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future[70]. This suggests that UNCED has paid particular attention to the object of promoting "sustainable development" of the oceans and their coastal areas. However, this issue was only one of several others in the UNCED preparatory process[71].

From the very beginning, the Preparatory Committee made the attempt to respond in an integrated manner to the various problems of marine environmental protection and marine resource management. Thus, the Preparatory Committee took the position "that for planning purposes both coastal and maritime areas, which include EEZs, should be considered as a whole in view of their functional, biophysical and socio-economic interrelationship"[72]. It concluded therefore that "integrated management of coastal and marine areas is now recognized as a necessary tool for development and environmental protection"[73]. Moreover, the Preparatory Committee advocated "an integrated approach at national, regional and international levels"[74], as well as the establishment of "proactive and anticipatory regimes that avoid conflict, prevent environmental damage and economic loss, in contrast with the current reactive approach"[75]. Finally, it stressed the need of establishing, through UN coordination, new integrated arrangements, or strengthening coordinating arrangements at the national, regional and international levels[76]. As we will see below (III.3.), Agenda 21, in its final text, follows along these lines.

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[70] Compare Agenda 21, in its Preamble to Chapter 1.1.

[71] See for an excellent survey on this process P.W. Birnie, The Law of the Sea and the United Nations Conference on Environment and Development, in: Ocean Yearbook 10 (1993), 13 et seq. Compare also A. Barcena, UNCED and Ocean and Coastal Management, Ocean & Coastal Management 18 (1992), 15 et seq.

[72] UN doc. A/CONF.151PC/30, 30 January 1991, para. 17.

[73] Ibid.

[74] UN doc. A/CONF.151PC/42/Add. 6, 3 July 1991, para. 9.

[75] Ibid., para. 8.

[76] Ibid., para. 60 et seq.

2. Rio documents except for Agenda 21

Among the documents signed or adopted at the Rio Conference, the Convention on Climate Change, the Convention of Biological Diversity and the Rio Declaration deal only marginally with the issue of marine environmental protection[77].

The framers of the Convention on Climate Change of 9 May 1992[78] certainly recognized the repercussions of climate change on the marine ecosystems, but renounced including specific rules for conserving the latter. The only relevant substantive provision is Article 4 para. 1 (d) and (e) of the Convention, according to which the Parties shall "(p)romote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems", as well as "develop and elaborate appropriate and integrated plans for coastal zone management".

The rules of the Convention on Biological Diversity of 5 June 1992[79] in principle apply also to marine living resources. At least, the Convention defines "biological diversity" as "the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part" (Article 2). However, the Convention aims primarily at the sustainable use of terrestrial living organisms. It therefore lacks any specific rules with regard to marine living resources.

The legally non-binding Rio Declaration on Environment and Development[80] contains a catalogue of general principles and guidelines. Although not referring specifically to the marine environment, it determines how States ought to "protect the integrity of the global environmental and developmental system"[81], which may certainly be understood as including the whole marine ecosystem. Thus, all endeavours of States to protect and preserve the marine environment have to strive for achieving sustainable development which requires, according

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[77] The Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, adopted at Rio on 13 June 1992 (text in ILM 31 (1992), 881), is not relevant here.

[78] ILM 31 (1992),849.

[79] Ibid., 818.

[80] Ibid., 874.

[81] See the Preamble of the Rio Declaration.

to Principle 4 of the Rio Declaration, that "environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it". Moreover, States are called upon, in order to protect the environment, to apply broadly the precautionary approach "according to their capacities" (Principle 15) and take into account the polluter-pays principle (Principle 16).

The only Rio document dealing directly and intensively with marine environmental protection is Agenda 21, which is, like the Rio Declaration, legally non-binding. Nevertheless, Chapter 17 of Agenda 21, entitled "Protection of the oceans, all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources", contains a broad spectrum of relevant actions recommended to be taken by States. This "programme of action" will now be looked at more closely, particularly in view of its possible new approaches to, and impacts on, the further development of marine environmental law.

2. Agenda 21: Chapter 17

a) General function and structure of Chapter 17

Chapter 17 is, like all of Agenda 21, a "dynamic programme" to be "carried out by the various actors according to the different situations, capacities and priorities of countries and regions in full respect of all the principles contained in the Rio Declaration on Environment and Development. It could evolve over time in the light of changing needs and circumstances. This process marks the beginning of a new global partnership for sustainable development"[82].

As envisaged in the UNCED preparatory process, Agenda 21, including Chapter 17, is fully inspired by the idea of "sustainable development"[83], which necessarily demands the pursuit of an integrated ap-

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[82] Agenda 21, Chapter 1, subpara. 1.6.

[83] See generally with regard to this concept R.M. M'Gonigle, "Developing sustainability" and the Emerging Norms of International Law: The Case of Land-based Marine Pollution Control, Canadian Yearbook of International Law 28 (1990), 169 et seq.; Handl (note 34), at 24 et seq.; H. Hohmann, Environmental Implications of the Principle of Sustainable Development and Their Realization in International Law, in: S.R. Chowdhury/E.M.G. Denters/ P.J.I.M. de Waart (eds.), The Right to Development in International Law (1992), 273 et seq.; Hey (note 65), at 434 et seq.; E.G. Primosch, The Spirit of Sustainable Development within Authoritative Decision-Making Processes, Austrian Journal of Public International Law 47 (1994), 81 et seq.

proach: No measure in favour of environmental protection and conservation of natural resources shall be taken which does not, at the same time, promote socio-economic development and vice versa[84]. The programme of action of Chapter 17 reflects this close interrelationship between environment and development and tries to find adequate compromise solutions. Whether both components of the concept of "sustainable development" have been soundly balanced in Chapter 17 cannot be answered without looking more closely at the individual proposals made there (see III.2. b) below).

Chapter 17 expressly declares that the relevant UNCLOS rules provide the international legal basis upon which protection and sustainable development of the marine and coastal environment and its resources are to be pursued. According to its non-legal nature, Chapter 17 does not establish new binding provisions for filling out the UNCLOS rules' framework, but confines itself to placing an elaborate catalogue of different ways and means at the disposal of all actors engaged in promoting environmental protection and development at national, regional and international levels.

As a rule, Chapter 17 identifies various programme areas and establishes detailed programmes concerning a large number of concrete actions and measures to be taken. Moreover, it contains several clauses which demand that States take, individually or in cooperation with other actors, concrete steps in order to reach certain aims. In addition, formulas such as the following may be found: "States commit themselves, in accordance with their policies, priorities and resources, to prevent ... degradation of the marine environment"[85], and "in carrying out their commitment to deal with degradation of the marine environment ... States should take action... and take account of the Montreal Guidelines ..."[86]. Tullio Treves stresses that these clauses of Chapter 17 do not state any rules of conduct[87]. Certainly, they do not entail any legally binding obligations,

[84] This kind of interpretation is in accordance with Principle 1 of the Rio Declaration: "Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature."

[85] Agenda 21, Chapter 17, subpara. 17.22.

[86] Ibid., subpara. 17.24.

[87] See T. Treves, The Protection of the Oceans in Agenda 21 and International Environmental Law, in: L. Campiglio [et al.] (eds.), The Environment after Rio, International Law and Economics (1993), 161 et seq., at 162.

but they are normative in the sense of bringing about political and moral commitments of States to take recommended action[88].

Although Chapter 17 refers several times to UNCLOS, it does not totally fit within the latter's regulatory system. For instance, UNCLOS identifies different sea areas and subjects each of them to a separate legal regime. We will see that Chapter 17 does not follow this differentiating approach (see III.2.b) below).

Chapter 17, already in its first paragraph, stresses the need for pursuing approaches "that are ... precautionary and anticipatory in ambit", but regrettably it does not say what these words precisely mean[89]. Nevertheless, in this respect the programme of action of Chapter 17 appears to be, at least *prima facie*, more progressive than the relevant UNCLOS rules. However, only a closer look at the programmes and measures recommended in Chapter 17 can reveal whether they really implement the precautionary principle.

b) Main programme areas and recommended actions

The programme of action in Chapter 17 of Agenda 21 distinguishes seven programme areas:

- Area A: Integrated management and sustainable development of coastal areas, including exclusive economic zones;
- Area B: Marine environmental protection;
- Area C: Sustainable use and conservation of marine living resources of the high seas;
- Area D: Sustainable use and conservation of marine living resources under national jurisdiction;
- Area E: Addressing critical uncertainties for the management of marine environment and climate change;
- Area F: Strengthening international, including regional, cooperation and coordination;
- Area G: Sustainable development of small islands.

[88] Such political or moral commitments are not without any legal relevance. Thus, States having taken recommended action may at least hardly be blamed for illegal conduct in this regard. Compare W. Heusel, "Weiches" Völkerrecht (1991), at 283 et seq.

[89] Some guidance for interpretation can be found in Principle 15 of the Rio Declaration.

aa) Sustainable development of coastal areas (Area A)

Programme Area A is entitled "Integrated management and sustainable development of coastal and marine areas, including exclusive economic zones". According to its integrated approach, this Programme Area comprehends the terrestrial shorelines of a certain breadth, the territorial seas and even the EEZs as a functional unit. Designing integrated management and sustainable development programmes for an area as large as possible may be appropriate with regard to functional aspects[90]. It contrasts, however, with the different legal regimes approach of UNCLOS which to this extent reflects the traditional law of the sea. Thus, currently the rights and duties of coastal States in the relevant marine areas, particularly in the EEZs, differ considerably from those in the land coastal areas. Because of their inconsistency with the relevant UNCLOS rules systems, the relevant Chapter 17 provisions regarding Programme Area A can hardly be expected to promote the creation of new norms specifying the respective UNCLOS framework provisions. In this respect it is doubtful whether the integrated approach of Programme Area A will finally prove to be so wise.

Moreover, the envisaged integrated management and development of coastal and marine areas is only acceptable under international law if the utilization rights and the nature conservation duties will remain in sound balance. However, there is some fear that in the future coastal States could win undue influence on the management of the marine living resources to the detriment of the world comunity's interests in areas even beyond the 200-mile limit of the coastal States' EEZs[91]. At least, there should be mechanisms of international cooperation to control the national efforts of coastal States to promote integrated management and sustainable development in the said areas[92].

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[90] However, most of the proposals made in view of Programme Area A are focused on the coastal area in the narrow sense of the term; only a few relate to EEZs. Thus, the framers of Chapter 17 themselves have not consequently realized this integrated concept.

[91] See for this finding particularly Treves (note 87), at 163. Compare particularly to the concept of Chile's Presential Sea F. Orrego Vicuña, The 'Presential Sea': Defining Coastal States' Special Interests in High Seas Fisheries and Other Activities, German Yearbook of International Law 35 (1992), 264 et seq.; id., Coastal States' Competences over High Seas Fisheries and the Changing Role of International Law (in this issue); Kwiatkowska (note 17), at 340 et seq.; J.G. Dalton, The Chilean Mar Presencial: A Harmless Concept or a Dangerous Precedent?, International Journal of Marine and Coastal Law 8 (1993), 397 et seq.

[92] However, Chapter 17.10 of Agenda 21 stresses only that it is the role of international cooperation and coordination "to support and supplement" those efforts of coastal States.

bb) Marine living resources (Areas C and D)

Chapter 17, subparas. 17.44 et seq., relate to sustainable use and conservation of marine living resources of the high seas (Programme Area C). Subpara. 17.44 starts by stating that the rights and duties of States with respect to conservation and utilization of those resources are set forth by the relevant UNCLOS provisions[93]. Although it identifies a number of severe problems in the current practice of managing high seas fisheries and stresses the urgent need for taking conservation measures[94], it does not substantially amend or further develop the already existing global UNCLOS rules. It is striking that subpara. 17.46 pursues an even more utilitarian approach than UNCLOS. This subparagraph reads as follows:

"States commit themselves to the conservation and sustainable use of marine living resources on the high seas. To this end, it is necessary to

(a) Develop and increase the potential of marine living resources to meet human nutritional needs, as well as social, economic and development goals;

(b) Maintain or restore populations of marine species at levels that can produce the maximum sustainable yield as qualified by relevant environmental and economic factors, taking into consideration relationships among species ...".

This strongly utilization-oriented stipulation does not find a sufficient counterweight in the rather weak and conservation-oriented acknowledgment, laid down in the same subparagraph, that there is a need for preserving and restoring endangered marine species, as well as preserving habitats and other ecologically sensitive areas. This imbalance results from a regrettably one-sided reading of the concept of sustainable development[95]. It is hardly cured by subpara. 17.47, which clarifies that "(n)othing in the subparagraph 17.46 above restricts the right of a State or the competence of an international organization, as appropriate, to prohibit, limit or regulate the exploitation of marine mammals on the high seas more strictly than provided for in that paragraph ...".

In addition, States are called upon to take effective action to ensure that high seas fisheries are managed in accordance with the UNCLOS provi-

[93] Reference to relevant UNCLOS rules or other norms of international law is also made in Chapters 17.49, 17.51 and 17.52.

[94] Chapter 17.45 points out that "(t)here are problems of unregulated fishing, overcapitalization, excessive fleet size, vessel reflagging to escape controls, insufficiently selective gear, unreliable databases and lack of sufficient cooperation between States. Action by States whose nationals fish on the high seas as well as cooperation at the bilateral, subregional, regional and global levels, is essential particularly for highly migratory species and straddling stocks ...".

[95] It is certainly not by chance that subpara. 17.46 uses the term "sustainable use" instead of "sustainable development".

sions. In this context, the only concrete recommendation addressed to States is to "(n)egotiate, where appropriate, international agreements for the effective management and conservation of fishery stocks" (17.49), as well as to convene an intergovernmental conference under United Nations auspices with a view to promoting effective implementation of the UNCLOS provisions on straddling and highly migratory fish stocks (id.). Based on Resolution 47/192 of the United Nations General Assembly[96], the recommended conference was convened in 1993. In the meantime, an organizational meeting and three sessions dealing with substantive matters have been held[97].

As to marine living resources under national jurisdiction (Programme Area D), the proposals laid down in Chapter 17 are also primarily utilitarian in character. They are, if not identical with, at least very similar to those with regard to Programme Area C[98]. Special attention is paid to the specific problems and interests of developing countries. Thus, subpara. 17.76 emphasises that the ability of developing countries to fulfill the objectives of conservation and sustainable use of marine living resources "is dependent upon their capabilities ... . Adequate financial, scientific and technological cooperation should be provided to support action by them to implement these objectives". Subpara. 17.82 encourages all coastal States to "ensure that, in the negotiation and implementation of international agreements, the interests of local communities and indigenous people are taken into account, in particular their right to subsistence"[99]. Here, once again, the predominant aim is not to conserve marine living resources for genuine ecological purposes, but to develop and increase these resources' potential in order to meet the nutritional needs of people in coastal areas.

cc) Marine environmental protection (Areas B and E)

Programme Area B of Chapter 17 treats problems of marine environmental protection in the narrow sense of the term. Contrary to Programme Area A, it is in line with the UNCLOS rules' system as to its regulatory approach and aims. Subpara. 17.21 describes the strategies which ought to be pursued by States as follows:

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[96] UN doc. A/RES/47/192.

[97] Compare UN doc. A/48/479, 7 October 1993.

[98] See particularly subparas. 17.74 (a), (c), (e), (f) and 17.75 of Chapter 17.

[99] Compare also subparas. 17.79 (b), (c), and 17.87 (a), (b).

"A precautionary and anticipatory rather than a reactive approach is necessary to prevent the degradation of the marine environment. This requires, *inter alia*, the adoption of precautionary measures, environmental impact assessments, clean production techniques, recycling, waste audits and minimization, construction and/or improvement of sewage treatment facilities, quality management criteria for the proper handling of hazardous substances, and a comprehensive approach to damaging impacts from air, land and water".

This comprehensive strategy certainly shows some promising ways and means to eliminate or reduce the various sources of marine pollution in the future. It appears, *prima facie*, to be inspired by a genuine ecological way of thinking. However, it should be noticed that the two sentences quoted above are immediately followed by a third which stresses that "(a)ny management framework must include the improvement of coastal human settlement and the integrated management and development of coastal areas". Thus, the ecological design of the programme has been significantly modified by adding a utilization component. This means that no measure should be taken by States in favour of the marine environment which entails detrimental effects on the development of the coastal areas concerned[100].

Based on a more elaborate determination of the objectives to be pursued (subparas. 17.22 and 17.23), a large number of management-related activities are recommended to be undertaken by States, particularly those to prevent, reduce and control degradation of the marine environment resulting from land-based and sea-based activities. Most emphasis is laid on problems of pollution from land-based sources, which is only rudimentarily dealt with in Article 207 of UNCLOS. *Inter alia*, States are called upon to cooperate in order to "(c)onsider updating, strengthening and extending the Montreal Guidelines for the Protection of the Marine Environment from Land-Based Sources, as appropriate"[101], to "(i)nitiate and promote the development of new regional agreements, where appropriate", and to "(d)evelop means of providing guidance on technologies to deal with the major types of pollution of the marine environment from land-based sources, according to the best scientific evidence" (subpara. 17.25). Furthermore, the UNEP Governing Council is invited to convene an intergovernmental meeting on that problem (subpara.

[100] Subpara. 17.24 also stresses the close interrelationship between measures taken according to Programme Area B and those taken according to Programme Area A.

[101] See the text of these UNEP Montreal Guidelines of 24 May 1985 in Hohmann (note 42), Vol. 1 (1992), 130.

17.26)[102]. Finally, a certain focus is put on sewage problems (subpara. 17.27).

As to marine pollution from other sources, the provisions regarding Programme Area B cannot be presented here in detail. They repeatedly refer to existing universal and regional instruments and stress that the latter should be widely ratified and implemented by States[103]. Moreover, "States, acting individually, regionally or multilaterally, and within the framework of IMO and other relevant international organizations, whether subregional, regional or global, as appropriate, should assess the need for additional measures to address degradation of the marine pollution" from shipping and dumping (subpara. 17.30).

Regrettably, almost all clauses regarding Programme Area B which demand the States to take concrete steps for protecting the marine environment are very weakly formulated. Nevertheless, they may be taken as guidance by States which are politically ready to start activities in this respect.

Programme Area E of Chapter 17 bears testimony to the awareness of its framers that the marine environment cannot be protected in isolation from other environmental media, particularly climate and atmosphere. Here, admission is made that there are many uncertainties about climate change and, particularly, a rise in sealevel which threatens small islands and low-lying coasts[104]. Nevertheless, Programme Area E urges States, notwithstanding their understanding that response strategies should be based on sound data, to undertake in the meantime "precautionary measures ... to diminish the risks and effects, particularly on small islands and on low-lying and coastal areas of the world" (subpara. 17.97). Thus, it clearly pursues a precautionary approach. Consequently, subpara. 17.100 demands, *inter alia*, that States should consider "(c)ooperating

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[102] Based on the decision 17/20 of 21 May 1993, UNEP's Governing Council held a meeting of government designated experts in June 1994 where possible amendments of the 1985 Montreal Guidelines were discussed; further, an intergovernmental conference will be convened in late 1995 in Washington with the aim of adopting a programme of action for pollution from land-based sources and identifying means of implementation. Compare A. Nollkaemper, Land-based Pollution (Rivers/Air), in: YIEL 4 (1993), 161 et seq. (161), and the 1994 Law of the Sea Report of the Secretary-General (note 2), paras. 64 et seq. with further references.

[103] Particular reference is made to the Convention on Oil Pollution Preparedness, Response and Cooperation of 30 November 1990 (ILM 30 (1991), 733).

[104] Compare J.C. Pernetta/D.L. Elder, Climate, Sea Level Rise and the Coastal Zone: Management and Planning for Global Changes, Ocean & Coastal Management 18 (1992), 113 et seq.

with a view to adopt special measures to cope with and adapt to potential climate change and sealevel rise, including the development of globally accepted methodologies for coastal vulnerability assessment, modelling and response strategies particularly for priority areas, such as small islands and low-lying and critical coastal areas".

dd) Sustainable development of small islands (Area G)

The findings and recommendations made in this section of Chapter 17 are also centred on the specific problems which small island developing States typically face, particularly those caused by global warming and sealevel rise. Therefore, according to subpara. 17.127 States commit themselves to "(a)dopt and implement plans and programmes to support the sustainable development and utilization of their marine and coastal resources, including meeting essential human needs, maintaining biodiversity and improving the quality of life for island people". Consequently, subpara. 17.128 stipulates that small island developing States, with the assistance as appropriate of the international community and on the basis of existing work of national and international organizations, should, *inter alia*, "(b)ased on precautionary and anticipatory approaches, design and implement rational response strategies to address the environmental, social and economic impacts of climate change and sealevel rise, and prepare appropriate contingency plans". Most important is subpara. 17.130 which proposes relevant "regional and interregional cooperation and information exchange, including periodic regional and global meetings on sustainable development of small islands developing States with the first global conference ... to be held in 1993".

Actually, responding to the United Nations General Assembly's Resolution 47/189[105], regional technical meetings on sustainable development of small island States (covering the Indian and Pacific Oceans, as well as the Atlantic, Caribbean and Mediterranean) took place in Vanuatu and in Trinidad and Tobago, in July 1993. The first Global Conference on this issue was convened from 26 April to 6 May 1994 in Barbados. According to the UN Secretary-General's 1993 Report on the Law of the Sea, the Global Conference was seen "as the first major test of the implementation of Agenda 21, with the islands serving as potential pilot scale examples of

[105] UN doc. A/RES/47/189, 10 March 1993. Compare also Resolution 48/193; UN doc. A/RES/48/194, 21 January 1994.

sustainable development"[106]. In their Declaration of Barbados of 6 May 1994[107], the convening States, *inter alia*, stressed that "(t)hrough regional and subregional cooperation, small island developing States and the international community should encourage strong functional cooperation in the promotion of sustainable development by sharing information and technology, strengthening institutions and building capacity"[108]. According to the Declaration this should be effectuated, *inter alia*, by the following: adequate, predictable, new and additional financial resources; facilitating the transfer of environmentally sound technology; and promoting fair, equitable and non-discriminatory trading arrangements and a supportive international economic system[109].

ee) Institutional aspects (Area F)[110]

Subpara. 17.115 recognizes that "(i)mplementation of strategies and activities under the programme areas relative to marine and coastal areas and seas require effective institutional arrangements at national, subregional, regional and global levels, as appropriate". It further emphasises that there is need "to improve coordination and strengthen links" among the numerous national and international institutions and "to ensure that an integrated and multisectoral approach to marine issues is pursued at all levels". However, the proposals made in this respect are rather weak[111]. According to subpara. 17.117 it is up to the General Assembly to provide for regular consideration, within the UN system, at the intergovernmental level of general marine and coastal issues, and to request the Secretary-General and executive heads of United Nations agencies and organizations, *inter alia*, (1) to strengthen coordination among the competent institutions within the UN system, (2) to promote greater cooperation

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[106] UN doc. A/48/527, 10 November 1993, para. 99. On preparations to, and the provisional agenda of, the Global Conference see Report of the Preparatory Committee for the Global Conference on the Sustainable Development of Small Island Developing States, UN doc. GAOR, 48th session, Suppl. No. 36(A/48/36).

[107] See Report of the Global Conference on the Sustainable Development of Small Island Developing States, Bridgetown, Barbados, 26 April–6 May 1994, UN doc. A/CONF.167/9, 2 et seq.

[108] Part II of the Declaration, ibid., at 4.

[109] Ibid.

[110] Subpara. 17.118 which deals with trade policy measures for environmental purposes is a foreign body in Programme Area F. Compare Treves (note 87), at 170 et seq.

[111] In addition to these specific proposals made with regard to Area F of Chapter 17 the general recommendations laid down in Chapter 38 ("International Institutional Arrangements") of Agenda 21 have to be considered.

between UN agencies and subregional and regional coastal and marine programmes, and (3) to develop a centralized system to provide for information on legislation and advice on implementation of relevant legal agreements. Furthermore, States should consider, as appropriate, strengthening, and extending where necessary, intergovernmental regional cooperation, the Regional Seas Programmes of UNEP, regional and subregional fisheries organizations and regional commissions; States should also consider introducing, where necessary, coordination among relevant UN and other multilateral organizations at the subregional and regional levels (subpara. 117.119).

IV. Evaluation of the Rio's Impacts

Chapter 17 aims, like all of Agenda 21, at the protection and sustainable development of the marine and coastal environment and its resources (subpara. 17.1). Owing to its non-legal character, Chapter 17 does not immediately contribute to the further development of "international law on sustainable development"[112]. Nevertheless, it may indirectly influence, by recommending a variety of programmes of action and a large number of practicable measures to be taken by States, the process of developing new rules of international law.

1. To start with a few more special observations, Chapter 17 pursues a threefold integrated approach which, in the view of its framers, appeared to be best suited to achieve the aim of sustainable development of the oceans and their living resources:

First, it recognizes the need for combating cross-media pollution by means of medium-transcending strategies. This is certainly a wise response to the large number of global environmental problems involving more than a single environmental medium.

Second, in Programme Area A, Chapter 17 subjects marine and coastal areas which were separated from each other under current international law to a common regime of action. This may be the policy best suited to achieve the aim of combating social and economic underdevelopment of people living in coastal areas. However, this approach considerably contrasts with that of UNCLOS, which strictly separates not only maritime

[112] According to the will of the framers of Agenda 21 this notion (see subpara. 39.1 (a)) is meant to replace that of "international environmental law". "Sustainable development" may have "begun to act as a de facto constraint on environmental decision-makers, both internationally, as well as domestically" (Handl [note 34], at 27), but is still not yet recognized as a binding rule of international customary law.

areas from land areas, but also territorial waters from continental shelves and EEZs. For reasons of continuity and clarity the separated-legal-regimes approach which governs today's international marine environmental law should not be relinquished in favour of the idea of an integrated management of maritime and coastal land areas. This is all the more advisable as Chapter 17 itself has transformed the abstract policy goal of integrated management only in very few respects into practicable proposals with regard to Programme Area A.

Third, Chapter 17 points to the urgent need for further developing and intensifying inter-State cooperation at universal, regional and subregional levels. In doing so, it avoids showing any preference to one of these levels; in particular, it does not underestimate regional efforts. Regrettably, it neither gives any guidance on how measures taken by States at one level should be coordinated with those at any other level, nor establishes any mechanisms or institutions which could help States to integrate their individual efforts at any level whatsoever into a joint framework of action. Such mechanisms or institutions are however an indispensable prerequisite for effectively achieving the aims laid down in Chapter 17.

2. An institution which could perhaps exercise an integrative function is the ECOSOC Commission on Sustainable Development (CSD)[113]. The Commission was established by States at the Rio Conference as an intergovernmental body for ensuring effective follow-up to the Conference, particularly by enhancing international cooperation at all levels. There is hope that the CSD, notwithstanding its currently deficient powers, will grow into a body which is also able, at least to a certain degree, to control implementation of, and monitor compliance with, the programme of action in Chapter 17. Regrettably, as regards this most significant concept of international compliance-control, Chapter 17 is silent. However, in this respect R. Wolfrum probably is right to stress that "Agenda 21 should not be judged ... against new regional developments achieved among industrialized States"[114].

Apart from inter-State cooperation, there is also urgent need to harmonize and coordinate all actions taken by various agencies and bodies

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[113] Compare e.g. L.A. Kimball, Institutional Developments, in: YIEL 3 (1992), 180 et seq.; P.H. Sand, International Environmental Law after Rio, European Journal of International Law 4 (1993), 377 et seq., at 386 et seq.; U. Beyerlin, Rio-Konferenz 1992: Beginn einer neuen globalen Umweltrechtsordnung?, ZaöRV 54 (1994), 124 et seq., at 143 et seq.).

[114] Wolfrum (note 20), at 1016.

within the United Nations system[115], as well as to provide for consultation mechanisms which enable UN agencies and other international institutions to achieve joint action. Chapter 17, in Programme Area F, stresses that the General Assembly and the Secretary-General of the United Nations should offer some institutional help in this respect; however, its relevant proposals are very broadly formulated.

3. Evaluation of Chapter 17 also requires more general remarks on this provision's underlying concept of "sustainable development" as well as the employment and implementation of the concept.

First, "sustainable development" reflects, as already mentioned above, conflicting interests: environmental protection vs. development. It may be argued that any concept containing such an immanent conflict of interests already suffers from a severe "congenital defect". However, today the concept of "sustainable development" has grown into an important political maxim and may, in the long run, even become a principle of international law from which certain individual rules of State behaviour may flow[116]. Thus, this concept has to be taken seriously. In particular, there is a need to identify reliable criteria for soundly balancing the said conflicting interests.

In principle, both components of "sustainable development", i.e. environmental protection and development, are equally fundamental. Thus, both should be treated on the basis of full equivalence. However, it must be stressed that all efforts of States to achieve the aim of sustainable development will be in vain if the global environment is degraded and natural resources are exhausted to such a degree that any development measures must run idle. Therefore, the preservation and re-establishment of the fundamental natural bases for any satisfactory human life necessarily must be of primary concern. This conclusion does not mean that, as a rule, developmental needs have to give way to environmental ones. But any development measure must be compatible with the essentials of environmental protection, and vice versa. Taking into account the alarming signs of our degraded and, in part, even destroyed ecosystem today, it will not be sufficient to keep the status quo of our global environment, but it will be indispensable to improve environmental protection without any further delay. Thus, a more substantial conservation and recreation,

[115] Compare Resolution 48/174 of the UN General Assembly of 21 December 1993. Its para. 2 i.a. stresses the need for close cooperation between the UNEP and the CSD in implementing the UNCED recommendations, in accordance with the relevant provisions of Chapter 38 of Agenda 21.

[116] Compare Handl (note 34), at 26 et seq.

at least of the elementary rudiments of our ecosystem, appears to be an essential prerequisite for any successful development policy.

Measured against these theoretical conclusions, the programme of action laid down in Chapter 17 suffers from severe deficiencies. Its proposals, particularly those concerning the Programme Areas A, C and D, appear to give more weight to developmental interests than to those of environmental protection. In many respects, these proposals are even more utilization-oriented than the pertinent UNCLOS rules[117]. Thus, they will hardly operate as a catalyst for filling up the gaps left by UNCLOS in a way that could strengthen environmental protection. Although the measures recommended to States by Chapter 17 concerning Programme Area B appear to be more ecology-oriented, they bring about just as little progress as the initial commitment of Chapter 17 to the precautionary principle. This commitment *prima facie* suggests that the relevant programme of action aims at achieving a high quality of environmental protection. However, this suggestion is deceptive. Only the proposals concerning Programme Area E, subpara. 17.97, and Programme Area G, subpara. 17.128, seem to be genuinely defined by the idea that States may be demanded to take action even in cases where an environmental risk is not yet reliably proved. All other proposals are hardly more than emanations from the preventive principle, which is close to the precautionary principle, but certainly less effective than the latter[118].

Judged as a whole, Chapter 17 will not considerably stimulate the process of establishing new legally binding international norms providing for more effective environmental protection. On the contrary, it could even mislead States into pursuing henceforth a more utilization-oriented policy. Certainly, the adoption of Agenda 21 by States does not diminish the state of environmental protection already guaranteed by today's international law. However, what counts is only the improvement of the achieved.

Despite its short-comings, Chapter 17, like Agenda 21, stands for a progressive step in inter-State relations. Never before have industrialized and developing States, notwithstanding their differing ideological views and socio-economic conditions, as well as their disparate interests, adopted such a comprehensive and detailed programme of action which demands, at universal, regional and subregional levels, joint efforts of all groups of States in view of the common aim of sustainable development.

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[117] Compare Treves (note 87), at 166.

[118] See above II.1.c).

It is not astonishing that this understanding was only reached by way of compromise. Thus, the industrialized States were urged to meet the socio-economic needs and interests of the developing States. That they accepted a number of solutions in favour of rather short-sighted developmental aspects may be regretted. However, there is still hope that in time all groups of States may become aware of the fact that, in the long run, any effort to achieve progress in socio-economic development must fail if there is no satisfactory protection of our global environment.