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Protection and Preservation in International Watercourses

C. O. Okidi

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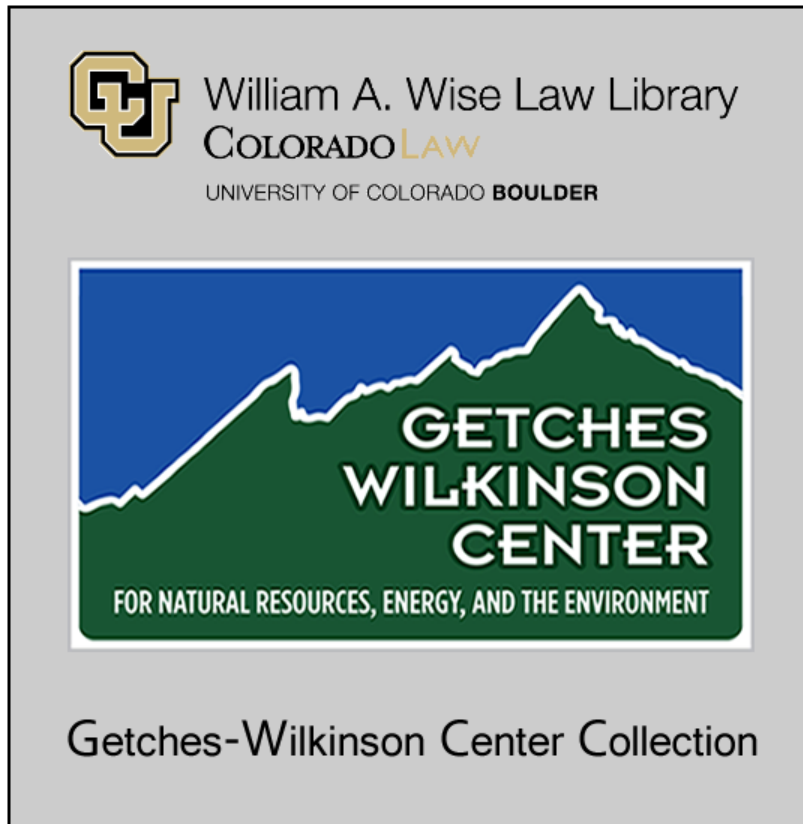
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PRELIMINARY DRAFT

PROTECTION AND PRESERVATION
IN INTERNATIONAL WATERCOURSES

By

C.O. Okidi
School of Environmental Studies
Moi University
P.O. Box 3900
ELDORET
Kenya

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This paper is prepared as commentaries on the draft articles prepared by the United Nations International Law Commission's Rules of the Non-Navigational Uses of International Watercourses. Primarily, we are concerned with Article 20 which addresses the question of "Protection and Preservation". However, since "pollution" is actually a central component of the dangers to preservation, Article 21 gains a frontline salience in our discussion. Several terms used in the definition of pollution are thus, central to concept of protection, and will receive a fairly detailed treatment.

It occurred to us that in these commentaries a significant question is how the draft articles are seen in the context of the existing corpus of international law. Therefore, in the second section we attempt a quick overview of the evidence of recognized international law as it relates to preservation and protection of international watercourses, especially the question of transboundary or extraterritorial environmental injuries. Selected subjects such as general principles, in the doctrinal sense and arbitral decisions are discussed. Provision in bilateral or multilateral treaties is a significant evidence of acceptance of a rule in international law. But we are also aware of the hundreds of such treaties on the subject of international water courses. ⁽¹⁾ The purpose of the paper is simply to illustrate the point by taking selected cases. Our bias is to select treaties outside North America and Europe. Declarations and resolutions of international fora constitute significant wave of opinion on matters of international law and representative ones with a bearing on the law of international watercourses are discussed. Finally we take proper note of the non-governmental learned societies which have made notable contributions to the development of international law of water resources. But here only selective cases are examined and only with respect to the specific issue of protection and preservation.

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In the end we hope that this paper makes some contribution to the on-going debates on progressive development and codification of the law of international watercourses.

II THE PROBLEM AND USE OF TERMS

The central subject before the ILC is water : its quality and quantity, as they exist in international courses. That is to say Wadis, for instance, will be significant only to the extent that the intermittent flow is expected to resume. And the significance of water derives from the uses to which it is put by nature. Water is indispensable for human life as well as the life of the flora and fauna which inhabit therein. To man, the obvious significance of water arises from the fact that it sustains human life. As Laylin and Bianchi once observed : "A man dying of thirst cannot be revived with monetary compensation for his water, even when tendered in advance". (2) It is in this context that the Muslim teaching stress that "No Moslem should work for water, such is the general principle laid down by the Prophet who made water perfect, indispensable and priceless element of purification to obtain a state of grace.....Anyone who gives water to a living creature will be rewarded". (3)

Thus, water is indispensable for sustainance of life of all living things, including plants. Agriculture, on which human life depends for food, relies on water and there are still no substitutes. Therefore, there must be water exist in certain quantities to sustain the life today and for all future times.

To sustain the life, the water must be of a certain quality. Salt water in the oceans, which constitute approximately 97 percent⁽⁴⁾ of the water on earth, is certainly not the kind Laylin and Bianchi or the Moslem faith are refering to. Its salinity is such that it will

sustain only some unique kinds of life : human beings will not drink it and it will not be used in general agricultural productivity. Therefore, the ILC task is concerned with a limited but invaluable resource amounting to about three percent of the water on earth. True, this amount may be varied slightly by the hydrologic cycle which involves the complex processes of evaporation and precipitation. Nevertheless, the fact that human population on earth is increasing and, consequently, the consumptive uses will, perforce, increase relative to the fixed quantities, there is a necessity for concerted measures to ensure that water, the unique substance, whose amounts are fixed, are protected. It is to be noted that the increasing human population is invariably accompanied by increased water demand for agriculture and industries, both of which are heavy consumptive users of water and which threaten the quantities as it now exists.

Of critical significance is the quality of the water, because this applies whether the quantities are diminishing or an equilibrium between the utilization and replenishment through hydrologic cycle is maintained. We are told that pure water does not exist in nature; (5)

the quality of natural water carries natural solvents and suspended impurities which are produced by biogeochemical processes relating to the catchment area. Thus, the impurities will include sediments, and decaying animal, vegetable particles and similar microorganisms. In a pristine setting these have not caused an alarm of degradation, even though the water quality is often improved by treatment, before consumption.

The situation has drastically changed with pressure on quality being increased by the effluents from agriculture, industries and domestic or municipal settlements. Most of these, which are in the form of substances or energy, are either persistent, toxic or capable of bioaccumulation within the environment. (6) These are no longer exclusive problems of the highly industrialized countries that

they were once known to be. Municipal, industrial and agricultural wastes are reaching alarming proportions in many countries with some exploding to public protests and confrontations, (7) a sign that many environmental quality thresholds have been outstripped. Recent studies under the aegis of the United Nations Environment Programme say, for instance, that in Eastern African region urgent measures are necessary to ensure effective treatment of solid waste in the region if public health is to be protected. (8)

What, then, is the place of "protection" and "preservation" as used in Article 20 of the draft articles? Neither term has been defined. However, the commentaries which follow suggest that the concept of protection relates to the measures which designed to prevent negative interferences with the fresh water ecosystems while preservation relates to measures to maintain the freshwater in a pristine or unspoiled condition. (9) This notion concurs with the concept of preservation as defined in the Draft Covenant on Environmental Conservation for Sustainable Use of Natural Resources, prepared by the IUCN's Commission on Environmental Law. (10)

It says :

"Preservation" means to set aside and protect selected natural resources, such as unique biological or geological formations, endangered or threatened species, representative biomas or other natural and cultural sites of importance, so as to maintain their natural characteristics in a manner unaffected by human activities to the fullest extent possible"

Thus, preservation is not feasible without protective measures.

But, evidently, preservation of water has two components: the quantitative and qualitative aspects. Quantitative preservation of water resources would imply the requirement that man totally desist from abstraction and consumptive utilization of water. Yet we are aware that for it to be valuable, water must be available for agricultural, domestic and industrial uses. There is rarely a substitute to water in most of these uses and that is part of the reason why it is valued enough to warrant its preservation. Therefore, preservation in Article 22 must not have been meant to include the protection from quantitative use, which is dealt with elsewhere in the draft articles particularly in connection with equitable apportionment.

Preservation must, therefore, have been meant to apply to the qualitative aspects of the watercourse. The critical objective of the preservation is to maintain "the ecosystems of the international watercourses". The Rapporteur's commentary submits that the term "ecosystem" is precise and, therefore, preferable to "environment". It ought to be pointed out that other closer terms are "catchment" and "drainage basin" both of which are commonly used to refer to the area which contributes water towards a common terminus. For instance, Article II of the Helsinki Rules uses the term drainage basin which is described in the ensuing 'comment' as "an indivisible hydrologic unit which requires comprehensive consideration....."

The term "ecosystems", however, presents the picture of the dynamic inter-relationship among the flora and fauna as well as the geophysical elements which sustain them.

It is, indeed, this phenomenon of the biogeophysical relationship within the international watercourses which is also the basis of the physical and biological unity of the watercourses. Activities, events or changes in the upper reaches of the watercourse invariably affect the lower parts or interests of the riparians. Such is the

case, for instance, in the Rhine where ".....waste salts from the Alsatian region in France, industrial pollution around Basel in Switzerland and German industry in the various tributaries of the Rhine....." all become a critical problem of The Netherlands and Belgium.

(12) Conversely, a dam downstream may cause backwater effect which might cause environmental injuries, such as flooding to the upper riparians. Such was the case, for instance with the High Dam at Aswan in Egypt whose back water effect caused flooding at Wadi Halfa in Sudan. Similarly, the control of sluices at Owen Falls dam is the likely cause of flooding around the shores of Lake Victoria from early 1960s.⁽¹³⁾ By the same token, pollution of one part of a lake will, due to the physical unity of the water, affect other parts, as is amply demonstrated by the condition of the Great Lakes between Canada and the United States. (14)

The nature of these problems make it evident that individual initiatives for preservation and protection, while essential, is invariably inadequate. Joint action is imperative. But joint action is also essential for it enables the watercourse states to take advantage of the economic and infrastructural benefits accruing from multipurpose planning. In Africa, for instance the widespread problems of maldistributed rainfall and poor agricultural productivity has necessitated the control and transfer of waters of various rivers to facilitate irrigated agriculture. A multipurpose arrangement would enable the countries to harness the rivers for hydroelectric power generation. For agriculture, it has been pointed out that at present Africa cultivates approximately 24 percent of its available agricultural land. On hydropower, while Africa possess about one third of the world's potential power it currently generates only 2 percent.⁽¹⁵⁾ In which case, joint efforts towards preservation and protection could reasonably be packaged for multiple purposes with high value economic incentives.

It seems that the most critical threat against preservation of the international watercourses is pollution. As a term which infers deleterious consequences and possible liability on the part of the perpetrator, pollution ought to be precisely defined so that its control can clearly contribute to the protection of the watercourses and allied ecosystems.

Article 21 addresses the tasks of prevention, reduction and control of pollution. Paragraph 1 defines pollution of an international watercourse to mean

.....any detrimental alteration in the composition or quality of the waters of an international watercourse which results directly or indirectly from human conduct.

We shall get back to this definition in a moment.

What is required of the watercourse states, by way of general obligation is expressed in paragraph 2. as "..... to prevent, reduce and control pollution that may cause appreciable harm to other watercourse states or to their environment....." The ensuing commentary observes, and we concur in this, that to "prevent" relates to new pollution while to "reduce" and "control" relate to existing pollution. Thus, in an effort to preserve the international watercourses the most critical obligation is to prevent the pollution from occurring, in the first place. Restoration of the water quality or the control of harm caused to the ecosystem is a notoriously difficult problem often without total success, as the experience in the Great Lakes or in the Rhine will have shown. Current or prevailing economic pressures are often given priority over the necessities of correcting past mistakes. ⁽¹⁶⁾ Most of the pollutants from industries,

municipal sewage or farmlands will, as observed in the commentaries, be toxic, persistent and/or bioaccumulative. The latter characteristics suggest that removing the pollutants once they are in the watercourse or ecosystem is either technically impossible or economically prohibitive, especially for the developing countries.

It is for these reasons that the article should be looked at critically, not so much in the context of the developed or industrialized countries but particularly with the exigencies of development in the less developed and less industrialized countries. One of the prerequisites of development is provision of clean drinkable water for human and animal needs. The other item on the priority list is food protein of which fish protein is one of the cheapest. But the fishery sector also has the potential of providing an avenue for diversification of an economy via employment creation. It is fair to assert that these sectors which have no substitute, will be more important to development than any industrial establishment. It seems axiomatic that sound public policy should require watercourse states to prevent pollution from occurring in the first place.

At this point it is significant to have a close look at the definition itself before we return to the general obligations. The central element in the definition is that there must be a "detrimental change". The commentary explains (17) that pollution must be established as a "purely factual" matter. The establishment of the fact is therefore, an ex post facto. In our view this phraseology is suitable for a regime whose concern is with fixing of liability for an established fact, namely that pollution has occurred.

For this reason, it is important to read the definition with paragraph (2) which specifies the obligation of the watercourse states as being prevent, reduce or control pollution of the watercourse that may cause appreciable harm. But then, the definition of pollution itself already means "detrimental alteration" meaning that appreciable harm is implied in the definition itself. It is a tautological drafting which may be both misleading and frustrating the search for the point at which fixing liability would be proper. It would appear that the awkward drafting arose from an unnecessary attempt to avoid use of the term "introduction" which the commentary notes has been accepted in several existing learned and intergovernmental reports. (18) The advantage of the term "introduction" in defining pollution is that it refers to the conceptual interface of the action which may be called pollution; the point where the potential pollutant reaches the water medium. Thus, if the obligation is to prevent, first and foremost, then the preventive measure should be at that interface, not to wait until the facts are established, with all its possibly invidious results. Prevention of pollution would thus refer to preventing the "introduction" Thus, we find the term "introduction" used in the 1971 definition of marine pollution by the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) (19) and subsequently modified significantly and adopted in the 1982 Law of the Sea Convention. (20)

The use of the word introduction would also complement the provision of Article 21 (3) where the watercourse states undertake, "at the request of any of them, to consult with a view to establishing lists of substances, the introduction of which into the waters of an international watercourse is to be prohibited, limited, investigated or monitored". This practice, adopted for a

number of pollution control agreements, such as the Oslo and London Conventions on Dumping Convention, among others, identifies the substances with different levels of toxicity, persistence and bioaccumulation. (21) Those identified to be highly dangerous to the ecosystem get prohibited while substances with different classifications receive corresponding levels of regulation as in that paragraph.

The useful analogy from the Oslo and London Conventions is that once the classification and lists are completed the stage of enforcement must, of necessity begin with the "introduction" into the watercourses because the determination of whether or not the substances would cause detrimental alteration is settled. Whoever introduces those substances into the watercourses is contravening the law and is liable to suffer the consequences. The "limited" substances would presumably be those which may be discharged but only under permit as with Annex II under the Oslo and London Conventions. Again, the offence would be introduction in a manner contrary to the conditions in the permit.

The definition has also omitted the mention of the type of polluting agent, e.g. substance or oil. Yet in paragraphs (3) which is designed to identify the pollutants by the degree of their danger the critical provision is "establishing lists of substances....."

It is not clear why the definition was not equally forthright. Besides, as the definition refers to alteration in "composition or quality of the waters", it is not clear if that includes temperature changes as a result of heat (energy). Heat doesnot necessarily change the quality or composition of water as a substance. Thomas Schoenbaum⁽²²⁾ reports that by far the largest discharger of heat is electric power industry, which uses great quantities of water for cooling. He adds in the same lines :

Growth estimates lead to predictions of a six to tenfold increase by the year 2000 in the discharge of heated water from power plants.

In other words, energy/heat and its impact on water and, possibly watercourses cannot be underestimated and there is little reason why the definition should not be precise in identifying it.

The use of the word "results" in the definition to qualify "detrimental alteration also presents a problem for a preventive regime. It is, again a word which is helpful for purposes of fixing liability, meaning that as a consequence of the identified human conduct, the results are identified. Instead a preventive regime which is what the article calls for as a priority, should be directed at prevention of the introduction of the substance or energy (already identified in paragraph [3]) which "may result" in the objectionable consequences.

Reference to "human conduct" as a component of the definition is rather suspect. Supposing that the introduction of the pollutive substance or energy into the watercourse results from some Act of God and the deleterious effects are identified, would that not be pollution? It seems to us that pollution should be a scientifically identifiable state of facts (and it is the scientists who will advise us on the establishment of the lists of substances under paragraph 3). If investigations by the watercourse states establish that the pollution resulted from human conduct then the liability is fixed against the perpetrator. The polluter may be called upon to pay for the reduction and control of the pollution under paragraph (2). On the other hand if it resulted from an "Act of God" the watercourse states will still, individually or jointly act to reduce or

otherwise control. We therefore submit that pollution occurs, "however caused". The phrase "directly or indirectly from human conduct" is not misleading and restrictive to the definition of pollution. (23)

It is clear from the definition and commentary thereafter, that the ILC was keen to provide a simplified and shorter definition. But the above analysis shows that the definition is, in fact, defective in several ways. The commentary explains that there were deliberate attempts to depart from the framework in the 1982 Law of the Sea Convention without satisfactory explanations for why the changes were preferred. Specific instances such as omitting the term "introduction" or identifying the concepts of "substance or energy" seem to have led to internal inconsistencies in the draft or downright incompatible with the objectives of this draft treaty.

Our observation is that the definition of marine pollution in the 1982 Law of the Sea Convention does not necessarily meet the suggestions given in these pages. For instance, it includes the causality as being "by man". But it is a far more advanced formulation than the GESAMP definition by which was the dominant one when the Third United Nations Conference on the Law of the Sea (UNCLOS III) started. Thus, there is evidence that there was progress in finding a definition of environmental pollution which would be applicable to different ecosystems, such as watercourses, mutatis mutandis.

The ILC definition should have been more, not less, advanced by improving on the UNCLOS III definition. For instance, would have eliminated the hang up of "by man" which we presume is evidence of lawyers' preoccupation with fixing liability but inappropriate for a regime whose first priority is prevention of pollution.

There are two specific points on Article 21 (2) : First, the watercourse states undertake to act only in circumstances which may cause "appreciable harm". Apart from the problem of determining the threshold of "appreciable" harm, the term appreciable is, strictly speaking both irrelevant and misleading because it is a fundamental assumption under the principle of lex de minimis that law shall not concern itself with trivia. Therefore, in law, "harm" automatically means something more serious than trivia, call it serious or appreciable but that would be implied.

Second, the obligation of the watercourse states extends only upto "harm to other watercourse states or to their environment.....". This is, of course the standard formulation which is confined to legally protected rights of states. But is it not time to include an obligation to prevent harm to "the ecosystem of the watercourse" as such? This would open the way for a search for locus standi for natural or juridical persons within the watercourse states to plead before a court for the protection of the ecosystem where the states do not take the action.

Article 22 deals with the issue of introduction of alien or new species into an international watercourse is straight forward but of immense importance. It is significant because the sustainability of an ecosystem depends on the natural balance among its components, including the flora and fauna. Invariably it is unpredictable what the consequences may be of introduction of alien or new species into the ecosystem of a watercourse. The following report on Lake Victoria is an apt example :

Lake Victoria is one of the richest lakes in the world in terms of fish diversity and endenuism, yet has no

protection. Introduction of Nile perch into Lake Victoria have already had serious ecological consequences as well as reducing local fish catches. Some protective mechanism is required in cooperation with Tanzania and Uganda.⁽²⁴⁾

The introduction may be deliberate or accidental. But the draft simply cautions that all measures should be taken to prevent the practice. As was the case with Nile perch into Lake Victoria, the alien species may be introduced on an experimental basis.⁽²⁵⁾ Whether the introduction will infact be detrimental to the ecosystem is invariably, unpredictable. But once the alien or new species is in the ecosystem it may be very difficult to control its behaviour or rate of reproduction or propagation. This is particularly true in the era of biotechnology when it may be scientifically attractive to introduce species of flora and fauna whose long range behaviour is totally unpredictable.

The only recommended change in Article 22 is that the word "appreciable", preceding harm, should be deleted. Law would not concern itself with trivial harm. In this regard, the formulation in Article 196 of the 1982 Law of the Sea Convention is preferable. The article is concerned with introduction "which may cause significant and harmful changes thereto". In this case the changes would be both "significant" and "harmful". If the changes are minor they would probably not be harmful.

The issue of alien and new species is one of those instances where the states should undertake to investigate and monitor any changes in the ecosystem of the watercourse as a result of immediate or past investigations. It is possible, for instance, that any

species, say, the water hyacinth or salvinia molesta, may be introduced accidentally into the water. A deliberate and careful regular monitoring of the watercourse may discover it before it becomes widespread and harmful.

Finally, in many cases the introduction of the alien species of flora or fauna may occur without the knowledge of the watercourse states. For instance, the hyacinth or salvinia molesta may only be found growing and causing harm to the ecosystem of the watercourse. In such cases, the watercourse states should accept an obligation individually or jointly, to take the necessary measures to control and where appropriate eradicate the alien or new species.

Article 23 enjoins the watercourse states to take measures, individually or jointly, to protect and preserve the marine environment. This entails ensuring that nothing that happens in the international watercourse, including pollution, reaches the marine environment, including estuaries. Of course, juxtaposing and articulating marine environment and estuaries is consistent with the notion in the 1982 Law of the Sea Convention. In defining pollution of the marine environment, Article 1 (1)(4) of that Convention refers to "marine environment, including estuaries". Whether we should now move to the understanding that marine environment always includes estuaries is not certain yet. Possibly this is a matter over which our debates should adopt a consensus so that the progressive development confirms a position.

It is well-known that pollution loads carried in the rivers, do, in turn pollute the sea. For instance, the odious chemical pollution with origin in the industrial areas in France, Germany and Switzerland are not only a problem for The Netherlands as the lowest riparian; it is also a problem for Belgium, a non-riparian state but

which adjoins the mouth of the Rhine and therefore suffering from the consequences of the pollution of that international watercourse. (26) Such issues, and therefore, the significance of Article 23, will be particularly pertinent in the industrializing countries which may also be land-locked. Rivers which drain land-locked countries are numerous in Africa. They include Niger, Senegal, Congo/Zaire and the Nile. Yet so far there has been very little, if any, efforts to involve land-locked countries in the prevention and control of land-based sources of pollution. It is now known that on the average, more than eighty percent of the pollution of marine environment originate from land-based sources. It is therefore, imperative that while states are responsible for the control of pollution through rivers that are exclusively national, formulae should be worked out to establish the obligation for all states riparian to international watercourses. Founding the obligations on "generally accepted international rules and standards," as Article 23 does provides an additional basis for exerting pressure on land-locked states to comply with the obligations.

III SELECTIVE EVIDENCE OF RECOGNIZED LAW

In the preceding section, we have defined the concepts of preservation and protection as terms in environmental management. We have also related the formulation of the draft articles to the problems they are supposed to deal with. In this process attempts were made to ascertain the soundness of the draft articles by some selective comparison with articles in existing treaties and vis a vis the respective environmental problems for which preservation and protection is required.

The present section will briefly outline some evidence

that the concepts underlying preservation and protection have actually been recognized by some specific sources of international law. There is close nexus between the rules relating to qualitative as well as those on quantitative use of water resources. But at the beginning of these discussions we reached the conclusion that preservation would reasonably refer only to the qualitative rather than quantitative aspects of the water resources. Quantitative utilization are a necessity for various consumptive imperatives of development.

The discussion will be presented under four broad categories: First, there will be a brief presentation of the general principles of law, in the doctrinal sense. Alongside with that we shall briefly discuss provisions in selected declarations and guidelines from international conferences. Although such declarations and guidelines are not, as such, sources of obligation, they are, nevertheless, evidence of the growing international consensus on the principles. Secondly, we shall outline the salient features of major international arbitral decisions relevant to preservation and protection. Thirdly, a limited number of treaties on international watercourses will be selected for discussion. In the introduction to this paper it was pointed out that there are over three hundred bilateral and multilateral treaties on non-navigational uses of international watercourses. The limited number will be drawn from Latin America, Africa and Asia, playing down the North American and European cases which have enjoyed considerable discussions in existing literature. Finally, we find the developments in Africa interesting and will look at two treaties of broad character, which have provisions relevant to the law of international watercourses. These are the 1968 African Convention for the Conservation of Nature and Natural Resources and the 1991 Treaty for the Establishment of African Economic Community. Fourthly, a review will be done of the work of the leading learned

societies which have contributed to the development of legal thought on international watercourses.

The majority of these principles, arbitral decisions treaties and reports of the learned societies have been discussed rather widely in existing literature. Therefore, this paper will confine itself to indicating their link to the specific question of preservation and protection of the ecosystem of international watercourses as understood in the preceding sections.

1. General Principles

A pioneering work by Anthony Lester on the legal basis of the protection of international drainage basins identified and examined three concepts, as doctrinal basis of obligation not to cause transboundary pollution. (27) The three concepts are international servitude; abuse of rights; and neighbourship. In this case, servitude would mean permanent relations between the upper and lower riparian states requiring that the former renders certain fixed services to the latter. It would require that the upper riparian binds itself permanently not to use the resources of an international watercourse for certain purposes.

In his analysis Lester finds that servitude would be an overly rigid principle restricting the expansion of use of water for its industrial or agricultural purposes. This is particularly true as population changes and technological innovation provides new requirements or opportunities for increased consumption. In Lester's view : "A doctrine based upon private property cannot be transferred to the different context of international community without modification". (28)

In that analysis Lester confined himself primarily

to the consumptive use of international waters, finding the notion of "permanence" as the basis of objection to application of servitude at the international plane. But the notion of permanence may have some value to the ideals of preservation and protection. It was agreed in the definition of preservation, as given above, that it implies application of every effort of protection to ensure that water is maintained in its natural condition, free from pollution but allowing only for those impurities which are created in the natural processes. Pollution, we agreed, should be unacceptable and permanently. Therefore, watercourse states would properly bind themselves to one another, to ensure that they desist from introducing substances or energy which may have detrimental after over the water.

It seems that, there may be some limited application of the rule of servitude to the international watercourses but only in one respect : to protect the water quality from any substances or energy which might have detrimental effect on the watercourse or its ecosystem.

The second doctrine is that of abuse of rights. Within the present context the doctrine would infer that pollution of an international watercourse by a riparian, or watercourse state, is an abuse of rights. This would be subsumed under the rules of state responsibility for activities which it has a right to do on its territory but which have adverse consequences on the territory or interests of other states. But Lester also argues that wherever the doctrine of abuse of rights is applied then it must also be the right that can be forfeited as a consequence of the abuse.⁽²⁹⁾ In the present instance, there are no rights to be forfeited. In conclusion, he observed that the doctrine of abuse of rights as such, is inappropriate with respect to obligations to preserve and protect the ecosystem of an international watercourse, because sovereignty over a territory can not be thus forfeited.

The third doctrine is that of neighbourship implying reciprocity in the conduct of states which share a neighbourhood. Lester submits that neighbourship derives from physical interdependence of contiguous states. How contiguous the states should be is unclear. In the context of an international watercourse, the watercourse states may be so far apart physically, that application of the term neighbourhood becomes tenuous. For instance, Uganda and Egypt are watercourse states for the Nile, just as the Netherlands and Switzerland share the basin of the Rhine. However, the ordinary meaning of neighbourhood might seem inapplicable unless an operational definition which applies the notion of neighbourhood on extension of the idea of the range within which noise from one compound can be heard. Or, for that matter, the range within which offensive fumes from one premise can create discomfort to residents. There is an additional idea of neighbourhood created by being in a community of states which are riparian to a given international watercourse. Thus, it may be argued that states on opposite ends of a large ocean are neighbours, so joined, rather than separated, by the ocean. In which case for either riparian to pollute the body of water or otherwise cause harm to its ecosystem is deemed to be an unacceptable conduct among neighbours.

The fundamental point here is that the very fact of being neighbours creates an obligation to the effect that whatever either party does on its side of the fence should not harm or annoy the other. This may not be being good to a neighbour, rather it is that if one does no wrong to a neighbour one does not expect a wrong in return. At the very least, the neighbourship doctrine breeds a situation of co-existence, even if there is no active cooperation. ⁽³⁰⁾ The implication is a recognition of the obligation to preserve and protect the watercourse and its ecosystem individually, where there is no joint or cooperative action by the watercourse states.

Although this seems self-evident as a doctrine on which to find obligation among states, Professor Goldie considers it only "an emerging principle of international law, with many transnational law qualities". (31) He was, infact, refering to "good neighbourliness" which does not differ significantly from neighbourship. It may be submitted though that the neighbourship doctrine obliges a state to preserve and protect the ecosystem not to be good, but out of self-interest and controlled by reciprocity. That is, if one causes harmful effects to the ecosystem in a manner that injures the interests of the other party then a similar measure may be meted against it.

Either way, it seems that a state obligation, to ensure that activities within its territory or other areas within its jurisdiction should not cause injuries to other, is well-founded. It expresses the reason why most commentators reject the theory of absolute territorial sovereignty enunciated 1895 by Judson Harmon, an Attorney-General of the United States who saw no obligation on the part of United States when it came to diverting the waters of Rio Grande, in a manner that would harm interests of Mexico. (32)

This neighbourship doctrine finds expression in the age old Roman maxim : sic utere tuo ut alienum non laedas or so use your own that it does not injure the interests of your neighbour. Professor Albert Utton⁽³³⁾ traced the application of the maxim in the common law jurisdictions and we conclude with him that international law has applied it to limiting the freedom of basin states in their use of international law; and has applied it to limiting the freedom of basin states in their use of international rivers. Within the foregoing discussion it is established that there are principles of international law which can be applied to the preservation and protection of international watercourses, in the absence of bilateral and multilateral agreements. (34)

Several declarations and resolutions by international institutions addressing environmental issues have added their voices to the general principles of international law regarding obligation to preserve and to protect general or specific components of the environment. Because of its epochal character, the preparation which was entailed and the impact in terms of the international arrangements, and action which it has generated the June, 1972 Stockholm Conference on the Human Environment (35) has a definite global respect, and that goes automatically for its solemn Declaration of Principles.

Principle 21 of the Declaration of Principles adopted by the 1972 Stockholm Conference is directly relevant to the questions of state obligation to preserve and protect the ecosystem. It reads :

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control donot cause damage to the environment of other states or to areas beyond the limits of natural jurisdiction.

No one would have a quarrel with the first part of the declaration : the right to exploit or use resources within a country is simply an expression of the notion of sovereignty. Only the national government can exercise it and it is free to do so. But with that right goes the responsibility to ensure that such activities donot cause damage to the environment of other states. Thus, far, the declaration expressed the notion of sic utere tuo, limiting it to the legally protected rights of states.

The last part of the declaration : "or to areas beyond the limits of national jurisdiction" has been considered as a proper extension of the maxim sic utere tuo to the commons or areas not under the jurisdiction of any state, such as the high seas or the outer space.⁽³⁶⁾ Principle 22 went further and urged states to cooperate "to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such states to the areas beyond their jurisdiction". (emphasis added) In other words, the declaration partly emphasizes the significance of the obligation and, partly stresses that the requirement extends to all areas beyond the jurisdiction of the perpetrator of the pollution.

That this principle is relevant to the requirements for the preservation and protection of ecosystem of the watercourse as above is certain. The so-called extension of the notion of sic utere tuo might be considered to apply, in part, to the general phrase which we recommended for paragraph (2) of Article 23, namely "the ecosystem of the watercourse". That phrase was proposed to create obligation to preserve and protect even parts of the ecosystem where no one pursues legal protection of an interest. Admittedly, it is rare to find within a watercourse an area not falling within the jurisdiction of a state. However, as indicated in the earlier discussion of Article 23, those provisions will create an obligation over such areas opening the avenue for he claims the locus standi.

The Stockholm Declaration of Principles may, arguably, be said to stand on its own among declarations resolutions and guidelines adopted by international organizations.

It does not, in itself create obligation for states on protection of the environment. Rather, it purported to recognize the obligation of states under the Charter of the United Nations and the existing principles of international law.

It is significant that the principle was adopted, verbatim, as Principle 3 of the Report of the Intergovernmental Working Group of Experts on Natural Resources shared by Two or More States which worked under the aegis of the United Nations Environment Programme from January 1976 to February 1978. (37)

2. Arbitral Decisions

Instances of international water disputes involving preservation and protection are hard to come by. In fact the two leading arbitral decisions, viz, Trail Smelter Arbitration (38) and Lake Lanoux (39) Arbitration and only by analogy and by way of dictum, respectively. What they have in common is the direct expression that there is an international obligation not to cause trans-boundary environmental injuries.

The well-known Trail Smelter arbitration arose from a dispute between United States of America and Canada. The issue arose from sulfur dioxide fumes emitted into the air from a smelting firm located at Trail on the Canadian side of the border. The ensuing precipitation, in form of acid rain, caused damage to crops in Columbia Valley in the State of Washington. (40) Canada complained and, following a Special Agreement signed and ratified by both parties an Arbitral Tribunal was set up.

The decision of the Tribunal was based on analogies from cases of inter-state disputes over waters of various rivers in the United States. In the end the Tribunal declared

its decision and expressed the following statement of obligation which has made this arbitration a leading case in international environmental law :

"The Tribunal, therefore finds that
under the principles of
 international law as well as the law
 of the United States, no state has
 the right to use or permit the use of
 its territory in such a manner as to
 cause injury by fumes in or to the
 territory of another or properties or
 persons therein, when the case is of
 a serious consequence".⁽⁴¹⁾

The Tribunal was also to add a significant statement on the responsibility to make good the injurious act. It said :

".....the Dominion of Canada is
 responsible in international law for
 the conduct of the Trail Smelter.
 Apart from the undertaking in the
 Convention, it is, therefore, the duty
 of the Government of the Dominion of
 Canada to see to it that this conduct
 should be in conformity with the
 obligation of the Dominion under
 international law herein determined."⁽⁴²⁾

The emphasis is on the responsibility of the Dominion to reduce or otherwise control pollution, even though Trail Smelter was a private firm. This is the point which brings the jurisprudence of the Trail Smelter close to that of the Corfu Channel case.⁽⁴³⁾ In the latter case the ICJ found Albania responsible for the emplacement of the mines at Corfu Channel even though there was no proof that Albania, the state, had actually performed the wrongful

act. Responsibility, it was found, was concurrent on the fact of sovereignty. In a separate concurring opinion Judge Alvarez put the point forcefully that :

".....every State is considered as having known, or having the duty to have known, of prejudicial acts committed in parts of its territory where local authorities are installed; that this is not a presumption, nor is it a hypothesis, it is the consequence of sovereignty. (44)

Then he added in the same lines :

"Every State is bound to take preventive measures to forstall the execution in its territory of criminal or prejudicial acts to the detriment of other states or their nationals". (45)

Clearly, then, the Corfu Channel case and the Trail Smelter decision seem to articulate rather forcefully the rule of state responsibility to prevent environmental pollution which may injure the interest of other states. Some writers have argued too, that the Trail Smelter decision actually builds on the celebrated Rylands v. Fletcher case of 1868 which is a standard common law precedent on the rule of strict liability. (46) And, indeed, given the argument of Judge Alvarez above, it may be concluded that the three cases establish an equivalent of strict liability on the international plane.

Lake Lanoux case was between France and Spain. The complaint was by Spain which argued that a dam which France proposed to construct on River Carol, would prejudice the interest of Spain as a lower riparian. River Carol flows from France into Spain where it joins

River Segre. But in France it drains Lake Lanoux which is wholly in France and which is fed by a number of streams, also wholly on the French territory.

France proposed to construct a dam on River Carol to raise the capacity of Lake Lanoux and create a head for hydroelectric power generation of a certain required amount. Beyond the dam, France was to restore the entire quantity of water in full to the Carol.⁽⁴⁷⁾ However, in the negotiations which extended from 1917 to 1955 Spain remained firm on their objection; they rejected all proposals, even one offering a larger volume of water than under the natural flow regime. Relying on the Treaty of Bayonne of May 26, 1866 and the Additional Act of the same date, Spain objected plainly to the very fact of the construction of the dam and control of the flow regime, because it introduced the human discretion into the regime of the international drainage systems, and possibly jeopardize Spanish interest in irrigation.

The Tribunal rejected that the Treaty of Bayonne and the Additional Act actually permitted Spain the veto power over the project of the kind proposed by France, specifically because no harm to Spanish interests were actually established. It was in this argument that the Tribunal observed, by way of dictum that :

one might have attacked this conclusion in several different ways. It could have been argued that the works would bring about definitive pollution of the waters of the Carol or that the returned waters would have a chemical composition or temperature or some other characteristic which could injure Spanish interests. Spain

could have claimed that her rights had been impaired in violation of the Additional Act. Neither the dossier nor the debates of this case carry any trace of such an allegation.

It is this reference to possible change in quality or composition of the water which makes the Lake Lanoux decision significant as evidence of international obligation not to cause harm to an international watercourse. It also offers support to the provisions in the ILC draft articles on preservation and protection of the quality of such watercourses.

Treaty Provisions

Upto the end of the nineteenth century nearly all the treaties on international watercourses dealt with either navigational uses and/or as was in the case of Africa demarcation of spheres of influence for colonial regimes. But, the intensification of industrialization in North America and Europe changed this picture. Thus, the International Joint Commission between the United States and Canada, was established by a treaty in 1909 to cover, inter alia, setting the standards for the quality of boundary waters. (49) The Europeans woke up to the problems of pollution of international watercourses much later. In fact, it was at the urging of the Netherlands that the International Commission for the Protection of the Rhine against Pollution was established in 1963, with Switzerland, Germany (F.R.), France, The Netherlands and Luxemburg as the parties. (50)

Since these developments there has been a rapid growth in the number of treaties and a plethora of scholarly reviews on the quality of water of international watercourses in Europe (51) and North America. (52) The same applies to

the relation between US and Mexico on their common waters such as the Colorado River and Rio Grande. The degree of interaction, debates, comments and treaties is such that it can be assumed that the obligation has evolved; is commonly recognized; and they may have seen the rapid process of custom generation well beyond the level referred to by Judge Tanaka in his dissenting opinion in South-West Africa Cases. (53) By and large, the countries of Europe and North America are preoccupied with individual and joint efforts to prevent and reduce pollution of the international watercourses in the sense stipulated in Article 21(2) of the ILC draft articles. In fact, they have proceeded with establishing lists of substances as required by paragraph 3 of that article. (54) For these reasons we think the European and North American treaties are rather tired and need no specific treatment here.

It should suffice to look at two cases in Latin America, namely River Plate and Amazon River and three in Africa, namely Senegal, Niger and the Zambezi. Two additional continent-wide treaties adopted under the aegis of the Organization of African States will further illustrate the trend of the consencensus in Africa.

The River Plate Treaty, signed at Brasilia on 23 April 1969 by Argentina, Bolivia, Brazil, Paraguay and Uruguay entered into force on the 14 August 1970 (55) Article 1 stipulating the objectives provides that the parties will ensure the promotion of harmonious development and physical integration of the entire Plate Basin; to identify areas of common interest; and the development of regulations for multiple uses as well as the conservation and development of the flora and fauna of the basin.

The Treaty for Amazonian Cooperation was adopted at Brasilia on July 3, 1978 by Bolivia, Brazil, Colombia

Ecuador, Guyana, Peru, Surinam and Venezuela.⁽⁵⁶⁾ It is one of the new generation of treaties on international drainage basins which emphasize intergrated and comprehensive development rather than navigation and/or pollution control, which characterize contemporary European and North American agreements. Like in the River Plate Treaty, the Amazonians are broadly based in their pronouncements. In Article 1 they "agree to undertake joint actions to promote harmonious development of their respective Amazonian territories....." to produce equitable and beneficial results. Besides, the article states commitment for the preservation of the environment as well as the conservation and rational utilization of the natural resources.

Thus, the concept of preservation of the environment which is the central goal of Part IV of ILC draft is clearly stipulated. Besides, the phrase : "respective Amazonian territories" maybe interpreted to mean the ecosystem of the Amazon watercourse falling within respective territories of the contracting parties.

Article 22 of the ILC draft articles also finds support in Article VII of the Amazonian treaty which, while recognizing the need to exploit the flora and fauna of the Amazonion region, also require that the exploitation be done rationally to ensure ecological balance and to preserve the species. It is Article XVI however, which gives a note of caution to the effect that nothing in the treaty should be to the detriment of projects within the respective territories of the parties.

The Presidents of all the eight contracting parties adopted, a special instrument called the Amazon Declaration, at Manaus, Brazil, on May 6, 1989.⁽⁵⁷⁾ The Declaration, while expressing support for indigenous people and denouncing conditions of foreign debt, also expressed

support for the newly created Amazonian Special Environmental Commission and thus, support for joint activities and expressing concern over the Amazon environment.

The two treaties from Latin America, signed by, in total by the majority of the regional states, include provisions, for individual and joint efforts to preserve, as appropriate, and to protect the ecosystem of the international watercourses. The caution against frustration of national projects is also appropriate if account is taken of the necessity to mobilize the natural resources for development while reserving preservation only for instances of endangered or threatened species of flora and fauna.

African rivers were subject to several agreements during colonial time but most of these had to do with either navigation or demarcation of spheres of influence by colonial powers. The notable cases of consumptive uses was the Nile, where there was preoccupation with water security for the desert state of Egypt and to some extent Sudan.⁽⁵⁸⁾ The Senegal, presumably because of the climatic condition of its riparians, also enjoyed some consideration of consumptive uses, but without a clear treaty on that until 1963.⁽⁵⁹⁾ This agreement with an additional one in 1964 were however found inadequate and a current one adopted at Nouakchott on 11th March 1972 by Senegal, Mali and Mauritania.

Two conventions were adopted by the three states on the same day. One was the Convention Creating the Organization for the Development of the Senegal Basin (OMVS) thus dealing only with the institutional arrangements ; the other was the Convention relative to the Statute of the Senegal River, and therefore dealing with substantive issues.⁽⁶⁰⁾ Under Article 2 of the Statute Convention, the parties undertake to cooperate towards

rational management of the resources of the Senegal Basin. But Article 4 provision is more precise : they undertake to carry out projects for, inter alia, water quality and the maintainance of the biological characteristics of the fauna and flora of the basin. Thus, the recognition of the obligation to preserve biological diversity and to protect water quality are explicitly recognized. The important point though, is that these are to be undertaken alongside with the agricultural and industrial activities. (61)

The obligation to act individually or jointly is explicitly stated in the creation of the creation of the OMVS.

The Convention Creating the Niger Basin Authority (NBA) was adopted by Benin, Cameroon, Ivory Coast, Guinea, Upper Volta, Mali, Niger, Nigeria and Chad at Conakry, Guinea on the 21st November 1980. (62) It has provisions which state the commitment by the parties to ensure integrated development of the Niger Basin (63) and initiating and monitoring an orderly and rational regional policy on surface and ground water in the basin. (64)

The specific provision on water control and utilization, which deals primarily with quantitative aspects of water use is in Article 4(2)(c). Special treatment is however, reserved for "Environmental Control and Preservation". It lays down a commitment to protect the environment by establishing the norms and measures applicable in alternative uses of the basin waters; prevention and reduction of water pollution; and preservation of human health as well as flora and fauna.

The commitment to take joint measures is explicitly underscored by the creation of the institutions of the Authority at Niamey Niger. (65)

The Agreement on the Action Plan for the Environmentally Sound Management of the Common Zambezi River System was adopted by Botswana, Mozambique, Tanzania, Zambia, and Zimbabwe at Harare, Zimbabwe on May 28 1987.⁽⁶⁶⁾ The structure of the agreement is unique : First, over an extended technical and expert level negotiation, the states agreed on an Action Plan comprised of an Introduction; Background and Objectives; and the Suggested Actions. The main elements of the suggested action are environmental assessment; Environmental management; Environmental legislation and supporting measures.⁽⁶⁷⁾ This Action Plan then became an Annex I to a short agreement comprised of a preamble; a portion on the Action Plan; institutional and financial arrangements; national focal points; implementation of the action plan; and the final clauses.

By Article 1 (1) the parties adopted the "Action Plan and it is understood to form an integral part of the Agreement. Their obligation is expressed in paragraph 5 stating that:

"The Parties will, individually and/or jointly as a regional activity of the Southern African Development Coordinating Conferences take all appropriate measures for the expeditious and effective implementation of the Zambezi Action Plan" (68)
(emphasis added)

The substantive provisions are in Annex I which is an array of pronouncements summarized as environmentally sound water resources management but which cover analogies for the draft articles from 20 to 23. In fact, the statement of obligation quoted above and the theme,

constitute sufficient analogy for the obligation to preserve and to protect the ecosystem of the watercourse.

Although there is no specific provision for list of pollutants there is a requirement for studies to identify sources and levels of pollutants in various components of the river basin environment. Protection of species of flora and fauna is provided for in the Action Plan Programme of work No. 6(c) which specifically require conservation and improvement of productive capacity of water related ecosystems. This is further amplified in Programmes Nos 18 and 19; the former require the implementation of living resource conservation programme in accordance with the national strategy. The latter provides for the eradication or the prevention of the spread of [the alien] harmful flora such as salvinia.

This is one of the rare drainage basin agreements that address the question of conservation and protection of the marine environment as in the ILC draft article 23. It simply called for the development and adoption of a regional convention for the protection, management development of river basin resources and the coastal and marine environment relevant to the basin. (69)

The trend is definite, that the new generation of drainage basin agreements have been broad, seeking the integrated management of the basins resources for development. But in each case, they seem to stress the imperatives for the preservation and protection; reduction control and prevention of pollution; and the protection of biodiversity including the control and prevention of introduction of alien species of flora and fauna or their eradication. Specific instances such as the Zambezi Action Plan provide for protection of the marine environment.

Without exhausting the analysis of treaties on the African drainage basins (70) we observe that treaty-making within the Organization of African Unity has shown acute interest in environmental preservation and protection generally and water resources in particular. Within the first decade of independence of most African countries they adopted the African Convention on the Conservation of Nature and Natural Resources at Algiers on 15th September 1968. Under Article V the contracting parties undertook an obligation to manage their water and air resources so as to maintain them in the highest possible quantitative and qualitative levels by establishing and implementing policies which maintain air and water-based essential ecological processes, including prevention of pollution. Paragraph (2) is particularly pertinent to international watercourses as it commits states to ensure conservation, management utilization and development of underground and surface water. In points of detail, the paragraph requires the study of water cycles and investigation of catchments; conservation of catchment areas, control of utilization, and the prevention and control of pollution as well as establishment of emission and water quality standards. Indirectly, the establishment of water quality standards may subsequently entail establishment of lists of substances which pollute as provided in the ILC draft Article 21 (3).

The sensitivity to environmental protection and natural resources management is, once more, evinced in the Treaty Establishing The African Economic Community adopted by the fifty one OAU member states at Abuja, Nigeria on the 3rd June 1991. Article 46 (2)(b) specifically require the member states to cooperate in the development of river and lake basins", while sub-paragraph (c) requires "the development and protection of marine and fishery resources". The protection of species of flora and fauna

which includes the prevention of introduction of alien or new species may, arguably, be covered by Article 46 (2) (c) which requires the states to cooperate in the field of plant and animal protection. The general issue of cooperation in the management and or protection of water resources is catered for in a number of articles.

Learned Societies

Non-governmental organizations have made notable contribution to the development of the law of international drainage basins or watercourses. Prominent among these are the works of the Institute of International Law and the International Law Association, even though the contribution of others, such as the Inter-American Bar Association and the Asian-African Legal Consultative Committee are not entirely negligible. The objective here is to highlight their major provisions on the subject of preservation and protection, just for completeness.

The work of the Institute of International Law⁽⁷²⁾ reflected the preoccupation of the time. The 1887 Heidelberg resolutions were concerned with regulation of river navigation and made only one reference to sanitary control, which is broader than the problem of pollution. It was the Declaration of Madrid on 20th April 1911, that focused on uses of international rivers other than for navigation, it had a provision that all "alterations injurious to the water, emptying therein injurious matter (from factories etc) is forbidden".⁽⁷³⁾ This concern surfaced again in the Resolution on Pollution of Rivers and Lakes in International Law adopted at Athens in 1979.⁽⁷⁴⁾ Article II of the Resolution is actually a small variation from Principle 21 of the Stockholm Declarations largely to fit the latter to the specifics of international rivers and lakes. There is specific obligation to prevent new and abate

existing pollution in Article III (I). But a possible requirement for the establishment of lists of pollutants is suggested in paragraph 2 of that article. Other provisions relate to liability and requirements for consultation and joint action.

The International Law Association has, of any organization of its kind, had the biggest impact on development of the law of international drainage basins. For this study we cover only from Dubrovnik resolutions of 1956 to the Belgrade report in 1980.⁽⁷⁵⁾

According to paragraph IV of the Resolution of Dubrovnik states are responsible any act on a river, which causes injury to another state, but only if the injury is preventable.

This limitation is further applied specifically to pollution in paragraph VII. This cautious formulation is a distinct departure from the position of strict liability suggested above in the analysis of the Trail Smelter arbitration and Corfu Channel case.

They agreed on the necessity for intergrated, if also harmonious, basin management, a principle which is also reflected in paragraph 1 of the New York Resolution in 1958. But the latter resolution was explicit in enjoining co-riparians "to prevent further pollution" and to reduce all existing pollution.⁽⁷⁶⁾ At Hamburg in 1960 the ILA re-emphasized the New York recommendation but also urged for studies to define the scope and responsibilities for the abatement and control of water pollution in drainage basins.

It was in 1966 at Helsinki that the ILA adopted its rules, popularly known as the Helsinki Rules⁽⁷⁷⁾ which have had

major impact on the law of international water resources. Chapter 3 of the Helsinki Rules deal with "pollution" which they define as "any detrimental change resulting from human conduct in the natural composition, content or quality of the waters of an international drainage basin". (78) Clearly, the attempt is to keep it short and concise but the idea that water pollution must be a detrimental change and resulting from human conduct makes it defective for the reasons analysed earlier in this paper.

The obligation to prevent any form of pollution or any increase in the existing pollution is qualified only by reference to substantial injury or damage. As pointed out earlier, such a qualification is problematic and misleading because most of pollution problems which become acute result from bioaccumulation over time. Secondly, it is a basic presumption that law does not concern itself with trivia.

The Helsinki Rules were elaborated at the August 1972 New York session which adopted "Articles on Marine Pollution of Continental Origin" The six articles are a distinct support to the ILC draft Article 23, and would have suggested its elaboration, but as an umbrella convention Article 23 seems adequate.

The extent to which the Helsinki Rules had influenced the thinking of other learned societies is testified to by the immediate adoption of its formulations by the Asian African Legal Consultative Committee (AALCC). At its 1973 session the AALCC adopted a set of propositions on "The Law of International Rivers" Proposition VIII is on pollution, is identical to the provision on pollution under the Helsinki Rules.

It is clear that there is ample support for preservation and protection of in the legal commentaries of distinguished legal societies. But there are, admittedly some degree of variation as to the clarity and firmness of the statements of obligations which states ought to assume.

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FOOTNOTES

1. By 1963 a United Nations publication listed 253 treaties on non-navigational uses of international rivers. United Nations, Legislative Texts and Treaty Provisions Concerning the Utilization of International Rivers for Other Purposes than Navigation, ST/LEG/SER.B/12 (New York, 1963). Ten years later, another United Nations publication reproduced yet another 52 bilateral and multilateral agreements signed. United Nations, Legal Problems Relating to the Non-Organizational Uses of International Watercourses A/CN.4/274 (vol.I) of 25th March 1974 prepared by the International Law Commission at its twenty - Sixth session 6 May - 26 July 1974. Admittedly, these are not all agreements on different rivers and lakes, however, the numbers are clear evidence of the widespread, if also preservation, protection and utilization of the waters of such systems.

The ILC Draft articles have used the term "watercourses" instead of "drainage basins" or "catchment". We have accordingly used the term consistency rather than as a preference.

2. Laylin, John G. and Rinaldo L. Bianchi, "The Role of Adjudication in International River Disputes" in 53 Am. J. Int'l L. 30, 31 (1959)
3. Caponera, D.A. (Ed) Water Laws in Moslem Countries. Volume 1. (Rome : Food and Agriculture Organization of the United Nations, 1973) Irrigation and Drainage Paper No. 20/1 p.11
4. United States Water Resources Council, The Nation's Water Resources, 1975 - 2000 quoted extensively in Schoenbaum, Thomas J. Environmental Policy Law Cases, Readings and Text. (Mineola, N.Y. : The Foundation Press Inc., 1985) p. 607

5. ibid
6. See a pioneering work in Report of the Study of Critical Environmental Problems (SCEP Report) Man's Impact on the Global Environment : Assessment and Recommendations for Action. (Cambridge Mass : The MIT Press 1970) esp. pp. 76 - 77, 100 - 103, 186 - 191
7. Protests against environmental pollution by Municipal or industrial wastes have become frequent in Kenya. But the most dramatic one was during September 1991 at the industrial town of Thika when residents of Makongeni Section went on protests and demonstrations against a chemical company. See particularly Kenya Times (Nairobi) 23rd September 1991 p.1 col. 4 to p.2 cols 3 - 7 and 25th September 1991 p.1 col. 6 to p.16 cols 1 - 7 .
8. UNEP, Public Health Problems in the Coastal Zone of the East African Region UNEP Regional Seas Reports and Studies No.9 (Nairobi, UNEP 1982) pp 18 - 20. See also UNEP, Environmental Problems of the East African Region(Nairobi, UNEP, 1982) UNEP Regional Seas Reports and Studies No. 12
9. See Para 3 p.125
- 10 "Draft 4 : Covenant on Environmental Conservation and Sustainable Use of Natural Resources" prepared by an Ad Hoc Working Group for the IUCN- Commission on Environmental Law (Bonn : IUCN/CEL Environmental Law Centre. April 1991 Article 1 (K). The definition is distinctly different from that of "conservation" which "means to manage renewable natural resources sustainably, and to avoid waste of non-renewable natural resources" ibid Article 1 (c)

11. The Articles on "Uses of the Waters of International Rivers" adopted by the International Law Association at its 52nd Conference at Helsinki on 20th August 1966 are popularly known as Helsinki Rules. The text is reproduced as Appendix A in Garretson, AH, R.D. Hayton and C.J. Olmstead (Eds) The Law of International Drainage Basins (Dobbs Ferry, N.Y. Oceana Publications 1967) pp. 779-830
12. See a synoptic discussion by Stein, Robert E. "The Potential of Regional Organizations in Managing Man's Environment" in Hargrove, John Lawrence (Ed) Law, Institutions and the Global Environment (Dobbs Ferry N.Y.; Oceana Publications 1972) pp. 253, 265
13. A possible rise in the level of Lake Victoria of upto three meters with a consequent flooding on the shores of the Lake was anticipated in the plan for the dam and provided for in the Exchange of Notes constituting the agreement for the construction of the Owen Falls Dam. See letter from the Egyptian Ministry of Foreign Affairs, dated July 16, 1952 to the British Government in ST/LEG/SER.B/12 (1963) op,cit. pp 114 - 115. See also discussions on this and the Wadi Halfa flooding in Okidi, C.O. "A Review of Treaties on the Consumptive Utilization of the Waters of Lake Victoria and Nile Drainage System" 22 Natural R.J. 161, 176 - 181 (1982)
14. Although there are submissions that the quality of the Great Lakes is improving this may just be a matter of degrees from the mortuary smell of 1960s. It is doubtful that the waters of Lake Erie will be fit for human consumption soon. Literature on the efforts by the two countries is legion. See for instance Bilder, Richard

- B. "Controlling Great Lakes Pollution : A Study in the United States - Canadian Environmental Cooperation" in Hargrove (Ed) op.cit. pp. 294 - 380 especially pp. 308 - 310
15. See details in Okidi, C.O. "The State and the Management of International Drainage Basins in Africa" in 28 Natural Res.J. 645, 649 (1988)
16. The Great Lakes, for instance would not have reached a worrisome state since efforts for its protection started with the IJC agreement in 1909 in very good time. For comments on the present condition, see Colborn, T.E., A. Davidson, S.N. Green, R.A. Hodge, C.I. Jackson and R.A. Liroff, Great Lakes : Great Legacy ? (Washington, DC. The Conservation Foundation 1990)
17. Rage Para. 2 page 137
18. p.138
19. United Nations, The Sea : Prevention and Control of Marine Pollution UN. Doc. E/5003 Report of the Secretary General. May 7, 1971
20. Article 1 (1) (4) defines pollution of the Marine environment to mean "....the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazard to human health, hindrance to marine activities, including fishing and other legitimate uses of the Sea, impairment of quality of use of the sea water and reduction of amenities".

21. The Convention for the Prevention of Marine Pollution By Dumping from Ships and Aircraft signed at Oslo on 15 February 1972 to apply to northwest Atlantic is in this regard, similar to the Convention for the Prevention of Marine Pollution by Dumping of Wastes and Other Matter done at London, on 29 December 1972 to apply globally. Text in United Nations, National Legislation and Treaties Relating to the Law of the Sea. ST/LEG/SER.B/16 (1974) pp: 457 - 463 and 464 - 474 respectively. Both conventions provide for classification of pollutants into three Annexes the first one of which contains prohibited completely while the other two are regulated or dumped under permit.
22. op.cit
23. See this line of argument in Okidi, C.O. Regional Control of Ocean Pollution : Legal and Institutional Problems and Prospects (Sijthoff and Noordhoff, 1978). pp. 6 - 13
24. IUCN, Action Strategy for Protected Areas in the Afrotropical Realm (Gland, IUCN, Commission on National Parks and Protected Areas (1987) p.37
25. See the comments by Norbert Odero, Kenya's Director of Fisheries in his paper, "Fish Species, Distribution and Abundance" in Okidi, C.O. (Ed) Natural Resources and the Development of Lake Victoria Basin of Kenya (University of Nairobi, Institute for Development Studies Occasional Paper No. 34 1987) pp. 390., 401 - 405
26. See Stein, supra note 12, p.265

27. Lester, Anthony "Pollution" in Garretson, A.H., R.D. Hayton and C.J. Olmstead, (Eds) The Laws of International Drainage Basins (Dobbs Ferry N.Y. Oceana Publications 1967) pp. 89 - 123. The three concepts are discussed on pp. 97 - 98
28. ibid p.98
29. ibid p.97
30. See discussions of international law of co-existence as distinct from international law of cooperation in Friedmann, Wolfgang, The Changing Structure of International Law (Columbia University Press)
31. Goldie, L.F.E. "Development of International Environmental Law - An Appraisal" in Hargrove, op.cit; pp. 104, 129
32. See various comments by Utton, Albert, E. "International Water Quality Law" in Teclaff, Ludwick A and Utton Albert E. (Eds) International Environmental Law (N.Y. Praeger Publishers 1974) pp. 154, 155-156, Austin "Canadian - United States Practice and Theory Respecting the Law of International Rivers : A Study of the History and Influence of the Harmon Doctrine" in 37 Canadian Bar Rev. 393 - 443 (1959) Lipper, Jerome "Equitable Utilization" in Gerretson et al op.cit. pp. 15, 26 - 27
33. Utton, op.cit p. 158
34. This argument was urged in the recommendations of the United Nations Water Conference held at Mar del Plata, Argentina in March 1977. See U.N. Doc. CONF.70/29 p.53 also reproduced in Caponera, Dante A (Ed) The Law of International Water Resources : Some General Conventions,

Declaratons and Resolutions adotped by Governments,
International Legal Institutions and International
Organizations on the Management of International
Water Resources (Rome : FAO, 1978) p.56

35. Report of the United Nations Conference on the Human Environment, U.N. DOC A/CONF.48/14/Rev.1 (1972)
36. See the insightful comments on the Declaration, by Professor L.B. Sohn in his "Stockholm Declaration" 14 Harvard Int'l L.J. 423, (1973)
37. The final session of the Working Group was at Nairobi 23 Janaury to 7th February 1978. Their final report is UNEP/IG.12/2 of 8th February 1978.
38. United Nations, Reports of International Arbitral Awards (UNRIAA) Vol. III PP. 1906 - 1981
39. The original text in French language is in United Nations, Report of International Arbitral Awards (UNRIAA) vol. XII pp. 281 - 322. A summary with comments is in 53 Am.J. Int'l L. 156 - 171 (1959)
40. The facts are outlined in UNRIAA vol. III pp. 1916 - 17
41. UNRIAA vol. III p. 1965
42. ibid pp. 1965 - 66
43. ICJ Report (1949)
44. ibid p.44

45. ibid
46. See analysis by Professor Utton in his article supra note 32 p. 158
47. The case is summarized under Judicial Decisions by Brunson MacChesney in 53 Am J. Int'l L. 59 and discussed at length by Laylin and Bianchi supra note 2.
48. See MacChesney, op.cit pp. 160 - 161
49. See text of the Treaty Between Great Britain [for Canada] and the United States Relating to Boundary Waters, and Questions arising Between the United States and Canada signed at Washington, January 11, 1909 in ST/LEG/SER.B/12 (1963) op.cit pp 260 - 266
50. See text of the France - Germany, Federal Republic of Luxembourg - Netherlands - Switzerland : Agreement concerning the International Commission for the Protection of the Rhine against Pollution (with protocol of signature) signed at Berne on 29 April 1963 in UN.DOC. A/CN.4/274 (vol.I) 25 March 1974 op.cit pp. 138 - 141 see also comments by Stein supra note 12 p. 265 - 267
51. On the Rhine, for instance, five articles are presented in Verwey, Wil D. Nature Management and Sustainable Development (Amsterdam : IDS 1989) On the range of treaties on the Rhine see Lammers, J.G. "The Rhine : Legal Aspects of the Management of a Transboundary River" in the same volume, pp. 440 - 460
52. On the Great Lakes of North America see the recent publications : Great Lakes, Great Legacy? op.cit

- Living with the Great Lakes op.cit. and Bilder, Richard B. "Controlling Great Lakes Pollution : A Study in U.S. - Canadian Environmental Cooperation" in Hargrove, op.cit pp. 294 - 340 and the literature cited therein.
53. ICJ Reports 1966.
54. For details see Lammers, op.cit.
55. UN.DOC. A/CN.4/274 (vol.1) 1974
56. Reprinted in 17 Int'l Leg. Mats 1303 - 1305 (1989)
57. Text reprinted in 28 Int'l Leg. Mats 1303 - 1305 (1989)
58. See analysis by the present author supra note 13 and in "Legal and Policy Regime of Lake Victoria and Nile Drainage Basins" in 20 Indian J. Int'l L 395 - 447 (1980)
59. For the 1963 and 1964 Conventions see UN.DOC. A/CN.4/274 (vol.I) 1974 pp. 79 - 80. and 81 -82 respectively.
60. See International Environmental Law : Multilateral Agreements 972 : 19/1 for the Statute and 972 : 20/1 for the OMVS Convention [Printed by the IUCN/CEPLA Environmental Law Centre, Bonn]
61. On the integrated development of the Senegal basin, see Okidi, C.O. Development and the Environment in the Senegal Basin under the OMVS Treaty . (University of Nairobi, Institute for Development Studies Discussion Paper No. 283 June 1987)
62. Copy obtained from the NBA Headquarters at Niamey.

63. Article 3 (1)
64. Article 4 (1) (d)
65. Articles 5 - 9 give the details of the Secretariat while Articles 10 - 14 give the financial arrangements.
66. 27 I.L.M. 1109 (1988)
67. It is apparent that the Action Plan adopted to a framework similar to that of the Regional Seas Programme where such an outline actually preceded the regular outline of the agreement.
68. Since treaties bind only parties to it the provision that the Zambezi Action Plan be an activity of the SADCC would seem improper. To correct this, Article 1 (2) request the Council of Ministers of SADCC to endorse the Action Plan "as a concerted action programme" of that organization. Further Article 4 (2) request the Executive Secretary of the SADCC and the Executive Director of UNEP to start immediate consultation regarding the implementation of the Action Plan.
- 69 . It is curious, though that neither in the agreement, e.g. in the preamble, nor in the Annex did the parties mention that the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region was concluded by Mozambique, Tanzania, and seven other Eastern African states on the 21st June 1985 at Nairobi, under the aegis of UNEP Regional Seas Programme. For detailed discussion see Okidi, C.O. "Nairobi Convention : Conservation and Development Imperatives" in 15 Environmental Policy and Law 43 - 51 (1985)

70. Among the recent agreements not discussed here is the Agreement creating the Organization for the Management and Development of the Kagera Basin adopted on the 24th August 1977. The contracting parties are Burundi, Rwanda, Tanzania and Uganda. For details see Okidi, C.O. Development and the Environment in the Kagera Basin Under the Rusumo Treaty. (University of Nairobi, Institute for Development Studies. Discussion Paper No. 284 1986). Another one is the Treaty on the Highlands Water Project signed by Lesotho and South Africa at Maseru on the 24th October 1989.
71. Article 55 (a) ; Article 56 (a) and (b)
72. The tireless Dante Caponera compiled the reports of the Institute from the Resolution of Heidelberg of 9 September 1987 to Athens 12 September 1979 in the volume he edited : The Law of International Water Resources FAO Legislative Study No. 23 (Rome : FAO 1980) pp. 269 - 284
73. para II (2)
74. ibid pp. 282 - 284
75. ibid pp. 287 - 314 The issues are still before an ILA Committee under Professor Charles Bourne.
76. ibid p. 289
77. reprinted in ibid pp. 293 - 300
78. Article IX
79. ibid pp. 317 - 318

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