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A. Dan Tarlock
Indiana University School of Law

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LAND USE CHOICE: NATIONAL PREROGATIVE vs. INTERNATIONAL POLICY
A. DAN TARLOCK*

This essay is intended as a brief introduction to understanding the relationship between national land use choices and policies for international environmental management and regulation of land development and use decisions. Land is one of the three basic planetary life support systems, but the international impact of a national state's land use decisions differ significantly from other types of environmental problems. Professor Samuel E. Bleicher has proposed a three-fold classification of environmental problems:

1. activities physically affecting other states through the medium of shared resources,
2. activities affecting shared resources, and
3. national environmental regulatory activities affecting global wealth production and distribution.¹

A more sophisticated classification will be necessary to formulate international management and regulatory policies;² but, for the present, it is sufficient to observe that most national land use choices with a possible international impact do not even fall within these basic categories. The first two categories assume that a national state or entity subject to its control is undertaking an activity that poses an existing or potential threat to human health or forecloses or threatens to foreclose alternative uses of a national state's resources or a common resource such as an ocean. Environmental management and control at both the national and international level has been impeded by restrictive concepts of cause and the requirement that imminent irreparable injury must be established before an activity is subject to sanction.³ Activities which pose no specific threat to present or foreseeable alternative resource uses or to human health but instead threaten the long run ecosystem stability have historically been allowed to continue unchecked. This is now changing with respect to the control of residual discharges such as air and water pollution. Dynamic homeostasis has been proposed as an organizing principle for international environmental management⁴ and the legal concepts

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*Professor of Law, Indiana University, Bloomington.

2. See Heilbroner & Allentuck, Ecological Balance and the "Stationary State," 48 Land Econ. 205, 210 (1972), arguing that the complexities of defining the concept of ecological balance require that it be defined "in terms of local effects of certain activities, the regional effects of others and the global effects of still others."
3. This development in Anglo-American common law is traced briefly in Hellerich, Imminent Irreparable Injury: A Need For Reform, 45 S. Cal. L. Rev. 1025 (1972).
of injury and cause are incorporating ecological concepts. However, most national land use choices will not constitute injuries to the resources of other states or to commons. Rather, the most immediate international impact of most land use choices will be on the distribution of natural resources to individual states and, in the long run, to the global availability of resources devoted to such uses as food production, wildlife preservation and amenity related uses. Further, for reasons which will be discussed shortly, land use choices which may cause injury within Professor Bleicher's categories will be more difficult to identify and control than are specific sources of air and water pollution.

Many of the most important resource use problems are associated with regional developments and urbanization. These problems are shared by most countries of the world. However, one country's development policies do not generally damage the health of citizens of another country or directly impair or threaten the country's resource base. Nonetheless, many of these local problems "carry such global implications as to qualify for international concern. The potentiality of aggregates of local problems impinging on one aspect or another of the global environment cannot be avoided." For example, the aggregate amount of land devoted to food production is rapidly becoming a matter of international concern. A country which does not have adequate land rehabilitation and soil conservation programs and allows practices, such as grazing which result in large-scale erosion, may cause large-scale dust storms as well as contribute to the loss of productive top soil needed for global food supplies. The cumulative impact of urbanization which converts an essentially spongy surface of low-heat conductivity into an impermeable layer with a high capacity for absorbing heat that is re-radiated at night may be to alter regional climates by increasing the frequency of cloudy skies and fog. In addition, regional development and urbanization may threaten biological or physical wonders of nature such as the Serengeti Plain in Africa.

8. Id., at 55-66.
Development, especially urbanization, also decreases the stock of open space necessary for the preservation of amenity values and recreation. There are also numerous examples of urbanization which have destroyed these values in areas which can be classified as part of a global cultural heritage. After the Six-Day War in 1967, Israel was unable to agree on a master plan for the development of Jerusalem to preserve its historic character. As a result, a fourteen story apartment was constructed in one of the oldest neighborhoods outside the walls, and a four-lane thoroughfare was located through the Valley of the Cross. More skyscrapers and hotels are planned on the city's historic hills. In France, regional authorities plan to locate what will be the largest cement plant in the country "dans le site des Reveries de Rousseau." At this point one can only raise the question, can the impact of these decisions be classified as local or do other nations or international entities have a legitimate claim to intervene in the decisions? These decisions are not currently the subject of international concern in the sense that other entities can claim an interest in them. However, international bodies have begun to be concerned with land which because of its historic associations or physical features is part of a global cultural heritage. In 1967, UNESCO passed a resolution to safeguard the beauty and character of landscape sites. The agency has "often taken a lead in mobilizing international action on behalf of cultural monuments and values" such as the salvage of the Nile temples flooded by the lake created by the Aswan High Dam.

Land use choices may cause injuries which fall within Professor Bleicher's classifications. But, for several reasons, international management and regulation will be more difficult than the control of specific discharges. Large scale modifications of the landscape such as hydroelectric dams, irrigation dams, canals and resource extraction may cause serious and irreversible environmental damage, but a cause and effect relationship may not be established until after the damage occurs. Existing monitoring techniques and criteria to warn of the damage may not even allow decision-makers to understand the scope of the risk of biospheric injury presented by the activity with sufficient precision to support regulatory action. Consider the possible consequences of the Soviet Union's decisions in connection with the development of Siberia:

Soviet geographers and ecologists are beginning to worry that the entire climatic pattern of Siberia may have been disrupted. The construction of the impressive network of hydroelectric stations and irrigation reservoirs and canals as we have seen has altered the flow of water to their traditional water bodies. At the same time it has resulted in a significant loss of water through evaporation and seepage into the ground through unlined irrigation canals. On the other hand, there has been widespread salination of the soil because seepage from the unlined canals has caused a rise in the water table in what are generally very dry areas. Moreover, the damming up of water bodies has had a pronounced effect on the ground water flow which has been cut off in some instances. There is fear that this may have consequences that are as yet unknown in areas which take their drinking water from wells. There are also fears that this restructuring of nature may result in the creation of new desert areas and a disruption of the Arctic Ocean as Russia's northflowing rivers are diverted to the more populous South. The reduction of warm water inflows might also throw off the temperature balance of vast regions.\textsuperscript{14}

The Aswan Dam in Egypt has deprived the former flood plains in the lower Nile Valley of their natural annual fertilizers; "consequently, artificial fertilizers will soon have to be imported into the Nile Valley."\textsuperscript{15} The sardine catch in the eastern Mediterranean has declined from 18,500 to 500 tons because the supply of flood-born nutrients is now trapped in the silt behind the Aswan Dams. The Soviet Union's diversion of rivers for irrigation which feed the Aral Sea may turn it into a salt marsh. The possible harmful effects include "[a] slight impact on the climate . . . dust and salt storms."\textsuperscript{16}

These problems will be best solved through cooperation among nations, or between the initiating state and an international entity. However, the possibility of relief through international adjudication


\textsuperscript{15} Hardin, To Trouble A Star, The Last of Intervention In Nature, It's Not Too Late 192, 194 (Carwell & Tadlock eds. 1971).

\textsuperscript{16} Goldman, The Spoils of Progress, supra note 14, at 240.
should not be discounted. The principles of state liability\textsuperscript{17} are not well developed and currently apply only to redress acts of past damage or to prohibit continuing conduct which is causing or threatens substantial injury to another state rather than prohibiting or requiring the modification of activities which merely create a risk of future injury. However, \textit{The Trail Smelter Arbitration},\textsuperscript{18} the leading international environmental precedent, rests on a series of little understood United States precedents which arguably stand for the broad proposition that a state may sue another state not only to redress past injury or to prevent imminent irreparable injury but also to protect its options to the future use and development of its resources.\textsuperscript{19} Thus, the decision provides a basis for moving beyond the restrictive principles of private nuisance law which form the basis of state liability for interference with another state’s use of its resources.

The fact remains, however, that the allocation of land resources are the least subject to international control. As Myres S. McDougal has explained: “Only with respect to the land masses and closely proximate waters and airspace, which admit of the least degree of shared use, have states reciprocally honored each others claims to

\textsuperscript{17} For a discussion of a state’s responsibility for the acts of its citizens over which it has regulatory control, see Bleicher, \textit{An Overview of International Environmental Regulation}, 2 Ecology L. Q. 1, 9-30 (1972).

\textsuperscript{18} The basic holding is that “... no State has the right to use or to permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another. ... when the case is of serious consequence and the injury is established by clear and convincing evidence.” \textit{Id.} at 716.

\textsuperscript{19} Read strictly the case is one extremely limited precedential value because Canada agreed to the use of United States precedents because they were more favorable to the polluter. Rubin, \textit{Pollution By Analogy: The Trail Smelter Arbitration}, 50 Ore. L. Rev. 259, 263 (1971). However, the opinion relied in part on Justice Holmes’ opinion in \textit{Georgia v. Tennessee Copper}, 206 U.S. 230, 237 (1907), which suggests that in the case of a state suing to protect its natural resources less weight should be given to the comparative injury to the polluter:

The very elements that would be relied upon in a suit between fellow-citizens as a ground for equitable relief are wanting here. The State owns very little of the territory alleged to be affected, and the damage to it capable of estimate in money, possibly, at least, is small. This is a suit by a State for an injury to it in its capacity of quasi-sovereign. In that capacity the State has an interest independent of and behind the titles of its citizens, in all the earth and air within its domain. It has the last word as to whether its mountains shall be stripped of their forests and its inhabitants shall breathe pure air.

United States Supreme Court precedents are concerned with preserving the delicate balance between federal and state judicial power and have therefore expressed a strong preference for adjustment of conflict by the cooperative efforts of the states through institutions such as compacts. This judicial deference in the form of strict standards for the exercise of original jurisdiction is warranted because a political solution is a viable alternative to judicial intervention; if the states fail to solve a problem, it is increasingly likely that the federal government will intervene. However, federal-state considerations are not applicable to international law for no sovereign body with effective power to deal with the problem exists and thus the case for less restrictive standards to determine injury is stronger. See Rubin, \textit{Pollution By Analogy}, supra, at 269-70.
comprehensive, continuing and exclusive competence...”

Even if the matter were realistically open, there are five primary reasons for retaining national sovereignty as a basis for land use decision making: First, many important land use conflicts will generate spillover effects that will be primarily internal to the country with control over them and thus the national state will have a sufficient incentive to remedy the problem. Many of the critical land use problems stemming from the side effects of dense urban concentrations and the consequent need for new urban development strategies, such as new towns and mass transportation, are apparent to individual nations. Responses to these problems must vary since the problems will vary from country to country.

Second, bi- or multi-lateral cooperation remains a feasible method of resolving many conflicts. For example, many land use problems are connected with river basin development and, as Professor Utton’s article in this symposium indicates, firmer international legal precedents and mechanisms exist to structure multi-national cooperation.

Third, even if an authoritative international decision making institution were to formulate and enforce land use standards, meaningful implementation would have to come from affected nation states. This is not a case of control of use of a commons where international institutions will be necessary (and thus potentially feasible) to limit overuse of its waste assimilative capacity. The solution to many land use problems lies less with the prohibition of specific activities than with integrating environmental considerations into over-all development planning and resource management. International law and regulation are better suited to redressing past acts of damage and prohibiting specific acts than to initiating affirmative resource management programs.

Fourth, the case for international regulation of environmental problems is not self-evident. Proposals for new legal principles; and, more importantly, new international regulatory structures, are based on the assumption that the wholistic perspective of ecology can be


24. The “... essential characteristic of the ecosystems approach is its wholistic emphasis.”
成功应用于政治组织和控制国家资源使用的问题。25 生态学可以提供必要的方法论，用于识别人类干预对自然循环的影响。然而，这些一般化的描述在识别这种干预造成的这些问题时非常有用，但它们在提出适当机构响应时的实用性却大大降低。因此，在描述问题目的时，最佳的地理视角并不总是最佳的地理分配监管责任。

例如，生态学可以很少，甚至没有，对预测污染加拿大的北极群岛水域是否会通过控制加拿大或一个国际制度来最小化。此外，我认为，分布式决策的优点明显地依赖于国家的继续存在来“制定一个非常大的参与者群体来推动重大系统性变革”27

一个第五和相关的原因是，环境问题必须在发展中国家和发达国家之间争夺有价值自然资源的背景下考虑。问题不能像许多作家通常所做的那样，通过假设所有国家都明白生态学的必要性来减少。正如理查德·法尔克哀叹的那样：

"国家有不同的优先事项，导致对地球环境的冲突视角。因此，几乎不可能达成协议，甚至一个关心的议程。

国家政府制定地球优先事项以反映国家优先事项的排名和特征。权力、财富、意识形态和历史的多样性创造出国家政府的基本多样性。对于大多数政府，尤其是那些有大规模贫困的政府来说，首要关心的是提高GNP在一个符合率和获得内政和国际安全之间的关系。任何其他关心的事都将是不可取的。"

Caldwell, The Ecosystem As A Criterion For Public Land Policy, 10 Natural Resources J. 203, 210 (1970). The reduction of this proposition is that all acts of human intervention and environmental deterioration are causally related.


27. Id. at 230.
Resource conflicts between industrialized and non-industrialized nations may thus be characterized as environmental claims by the former against the latter. This problem has many dimensions, but it stems from the present distribution of what Nazili Chouiri has called the "population-resource-technology fix." At the present time, six percent of the world's population consumes close to 40 percent of the world's processed resources. This fact, coupled with the possible validity of the Forester population, resources, pollution and quality of life curves suggests that the industrialized nations may seek to confine the undeveloped countries to supplier roles and seek a combination of uniform high standards of pollution control and pro rata cutbacks in the production of goods; or agree that many nations should serve as recreational reserves for the populations of more developed countries. In either case, less developed countries will be locked in to low levels of development and may, in effect, be asked to forego development to preserve existing levels of material satisfaction elsewhere.

The tension between sovereign prerogatives and global responsibility is reflected in the United Nations General Assembly resolution on Development and Environment. The statement emphasizes that "not withstanding the general principles that might be agreed upon by the international community, criteria and minimal standards of preservation of the environment as a general rule will have to be defined at the national level and, in all cases, will have to reflect conditions and systems of values prevailing in each country, avoiding where necessary the use of norms valid in advanced countries, which may prove inadequate and of unwarranted social cost for the developing countries." The statement also stresses "that each country has the right to formulate, in accordance with its own particular situation and in full enjoyment of its national sovereignty, its own national policies on the human environment, including criteria for the evaluation of projects." At the same time, it asserts that the main responsibility for financing corrective measures falls upon the devel-

28. R. Falk, This Endangered Planet 40 (1971).
30. See D. Meadows et al., The Limits to Growth (1972).
oping countries. The resolution does, however, mildly recognize that the side effects of resource development policies can adversely affect other countries. The resolution argued that any action plans proposed for Stockholm conferences must "respect the sovereign right of each country to plan its own economy, to define its own priorities, to determine its own environmental standards and criteria, to evaluate its own social costs of production, and to formulate its own environmental policies, in the full understanding the environmental action must be defined basically at the national level, in accordance with locally prevailing conditions and in such a manner as to avoid producing harmful effects on other countries."

It is difficult to formulate general criteria for an international land use management and regulatory policy; as has been mentioned, "land use problems differ greatly among countries, contrasting sharply between such confined territories as Singapore and large open space lands such as Australia."\(^{32}\) Moreover, the experience of more developed countries is not generally exportable. As L. K. Caldwell has observed, "the more developed countries have no superior wisdom or experience."\(^{33}\) This conclusion seems to apply to all forms of governmental and economic structures.

Speaking very generally, democratic-free market, planned-socialist\(^{34}\) and democratic-socialist\(^{35}\) countries have been equally deficient in integrating the necessary environmental considerations into developmental planning although some countries such as Great

\(^{32}\) Supra note 5, at 117.

\(^{33}\) Supra note 5.

\(^{34}\) The criteria issued in 1969 by the Czechoslovakian Federal Committee for Technical and Economic Development include "establishment of new industrial works with a minimum disturbing influence on the living environment on the sites of localities with low industrial basis" and simultaneous solution of the industrialization of backward regions. Kasalicky, Economic Incentives and Environmental Control In The Czechoslovak Republic Socialist Republic, in Proceedings of International Symposium: Environmental Disruption, supra note 14, at 74, 78. This is further support for Marshall Goldman's conclusions based on his study of the Soviet Union that "many of the theoretical advantages that a socialist society would seem to have for coping with ... (environmental problems) have proved illusory in practice. Moreover, some of the existing advantages are offset by economic forces that tend to generate environmental disruption." Goldman, The Spoils of Progress, supra note 14, at 75.

\(^{35}\) Professor Gerald Adler of the Center for Urban and Regional Structures of the Technion, Haifa, Israel reports that legislation based on the British model requiring that development take place pursuant to a plan has been relatively ineffective. "In Israel, planning is very, very bureaucratic and the system responds very slowly to development pressures. Thus, a development proposal often becomes a reality before the planners get to have their say (i.e. the amount of illegal building both by the private and more importantly by the public sector is large). This is not to say that there is no governmental response to ecological claims. As a result of vociferous opposition to the location of a new power station the National Planning Board was compelled to make a study of the situation, and to prepare a partial National Plan." Letter from Professor Gerald Adler to A. Dan Tarlock, August 25, 1972.
Britain have been more successful than others.\textsuperscript{36} The problem of land use decision-making is thus, too complex to warrant the creation of an international regulatory mechanism at the present time. Instead, what is needed is the exchange of data and development plans among nations which could lead to a minimal consensus about land use policies which will be implemented by a coordinated effort among individual sovereign states. On the other hand, it is possible to identify certain policies and legal capabilities which will be necessary if coordination among nations is to lead to meaningful changes in natural resources decision-making policies.

The control of land development, at least in more urbanized countries, has typically been limited to consumer protection objectives. Controls such as building, subdivision and zoning codes have generally been limited to assuring that the value paid for a property and building is not diminished because of poor construction and the subsequent appearance of incompatible land uses. Controls administered by small units of government are generally adequate for this purpose. As land use policies move beyond this rather limited objective to the more complex (and more difficult to translate into meaningful standards) policy of ecosystem maintenance, it will be necessary to move to nation or at least region wide administration, as has been the case in Great Britain, and more sophisticated regulatory powers must be granted the state. States must have the legal capability to determine the optimum population density of land development and the level of natural resources exploitation. In certain cases the optimum permanent density or level may be zero and the power to withdraw land from development will be necessary. This policy will probably be limited to highly ecologically sensitive areas and nations are more likely to concentrate their efforts on deflecting development to limit rather than prohibit the growth of certain areas. This may be done to preserve the ecological carrying capacity of land or it may be done to prevent the myriad social costs of over-urbanization. One of the major lessons of applied ecology is that little can be predicted in the absence of field data. Thus, it will be impossible to make meaningful decisions in advance of specific development proposals except in the case of the prohibition of land and natural resource development. States will therefore need mechanisms to review the environmental impact of large-scale development decisions in advance of their implementation should modification of the proposal be warranted.

Land is withdrawn from development by limiting its use to a single or limited class of environmentally compatible uses. In the United States, this has historically been done with unique natural resources in the public domain by legislation classifying them as national parks and, more recently, wilderness areas. Other countries have made similar withdrawals of unique natural areas. However, in recent years, states in the United States are expanding the use of withdrawals to sensitive ecosystems such as coastal zones. The most sweeping such withdrawal is the Delaware Coastal Zone Act of 1971 and the California Coastal Zone Conservation Act passed by initiative in 1972. New heavy industry and bulk transfer facilities are totally prohibited within a band along the entire Delaware Coast. Light industry may be constructed after the State Planner and a newly created State Coastal Zone Industrial Control Board have considered the environmental, economic and aesthetic impact of the proposed facility. In the future, similar withdrawals are likely to be an integral part of state land use planning as will policies to discourage urban growth in certain areas. Centrally planned economies, such as Romania, have designated certain areas for water storage, tourism and recreation and have preserved their natural features by deflecting economic growth to other areas designated for that purpose. In many countries, policies which prohibit or severely restrict development cannot be accomplished unless property owners who are so restricted receive some form of compensation. This may take the form of the outright purchase of the land by the state. For example, a number of Canadian municipalities are purchasing large amounts of land on the urban fringe to control location, scale, pace and design of urban development. Other strategies might include tax reductions to those

37. See M. Gouldman, Legal Aspects of Town Planning in Israel 89-91 (Institute for Research and Comparative Law, Jerusalem, 1966) for a brief description of national parks reserve legislation in Israel.

38. Del. Code Ann. tit. 7, §§7001-014. Heavy Industry is described by characteristics such as smokestacks, pickling equipment and waste treatment lagoons (municipal sewage treatment facilities are exempt) involving twenty or more acres. Del. Code Ann. tit. 7 §7002(c). See generally Governor’s Task Force on Marine and Coastal Affairs, Coastal Zone Management for Delaware, reprinted in Coastal Zone Management, Hearings on S. 582 and Related Bills, Before S. Comm. on Commerce, Subcomm. on Oceans and Atmosphere, 92d Cong., 1st sess., at 358 (1971).


who retain their land in environmentally preferable uses or the purchase of some form of development rights from the owner who continues to own the land but is restricted in his choice of uses. Regions designated for development might be classified as impacted areas and receive subsidies to compensate them for loss of development opportunities. The World Heritage Trust, established at the United Nations Conference on Human Environment to aid in the preservation of historical, cultural and natural areas, may spur individual nations to go further and adopt more comprehensive land development policies which deflect development away from ecologically sensitive areas.

Mechanisms are needed to incorporate environmental considerations into development planning and decision-making. Environmental considerations have been weighted substantially less than development considerations in most countries and developmental planning has been allowed to proceed on a separate track from environmental planning and review. The gap can be bridged by mechanisms which provide for the objective review of major land use development decisions such as the development of coastal areas. Ideally, procedures would exist to compare the costs and benefits of alternative choices; but no such workable procedures presently exist. In the past few years, however, Sweden and the United States have devised reviewing institutions which may spur the development of such criteria. These institutions, with appropriate modifications, are useful models for other nations to consider.

In 1969, new environmental protection legislation enacted in Sweden created an Environmental Franchise Board which must license all uses of land which may cause air or water pollution. Separate legislation requires a license for economic activities affecting the landscape such as stone-quarrying or permanent outdoor advertising.

A license, which may be subject to rigorous conditions, from a Franchise Board for Environmental Protection is required. A separate agency, the Nature Conservancy Agency, consisting of representatives from environmental agencies, has the power to grant exemptions. All external costs of the decision to engage in the activity must be considered; but the state retains the power to allow the industry if the social costs of not permitting it, such as unemployment, would be too great. Thus, Sweden has not adopted so much an anti-technological

44. See Burhenne & Irwin, The Coordination of Legislative Policy and the Regulation of Private Interests: Some Suggested Pragmatic Principles for Environmental Policy, 11 Natural Resources J. 455, 456 (1971).
policy but a scheme for comprehensive, rigorous evaluation of environmental impact which allows for modification prior to commencement of a potentially detrimental activity.

In the United States, the activities of the federal government are subject to an environmental review procedure under the National Environmental Policy Act of 1969. The Act contains a general policy which provides, in part, that it is the continuing responsibility of the federal government to fulfill its responsibility as trustee of the environment for succeeding generations and to attain the widest range of beneficial uses of the environment without degradation. Federal agencies undertaking activities such as public works projects, the licensing of atomic power plants and public land decisions must prepare an environmental impact statement prior to approval of the activity. The report must describe the environmental impact and, if the impact is adverse, less environmentally detrimental alternatives must be discussed. The Act has severe limitations, however, because it does not bridge the gap between environmental policy making and developmental planning. It does not alter any existing allocations of regulatory authority but rather attempts to induce environmental considerations into all aspects of federal decision-making that affect the environment by superimposing a uniform review procedure over each agency. The unit charged with implementing the Act, the Council on Environmental Quality, is given the power to develop environmental policies but is powerless, except through persuasion, to implement them. Contrasted to Sweden, there is no federal authority with the power to prohibit or modify environmentally detrimental projects if the initiating agency does not choose to do so. Thus, the courts, which have been the main enforcers of the Act, have required only a good faith discussion of environmental problems by imposing procedural rather than substantive requirements on the various federal agencies. Further, the Act applies only to federal lands. However, in California which adopted a similar legislation, the state supreme court has held that the legislation applies to private land development decision subject to state regulatory authority.

The policies that a nation follows in developing its land and other natural resources are at the heart of its economic development objectives. Efforts to introduce global environmental considerations

45. The act is described in P. Sand, Legal Systems for Environmental Protection: Japan, Sweden, United States 5-13, 37-46 (1970).
into developmental planning must be seen in this context; at this time, it is premature to suggest regulatory principles and new international control and management institutions to structure the resource use choices of individual nations. The international side effects of land and natural resources use patterns are just on the threshold of being perceived as a global environmental problem. For the foreseeable future, international institutions such as the proposed permanent United Nations Secretariat to coordinate United Nations environmental activities should be used to coordinate policies among individual nations.

Nations should be encouraged to exchange research data and to circulate development plans in advance of their initiation to the United Nations, interested nations or other transnational entities. This could lead either to the formulation and acceptance of general environmental criteria which could be implemented unilaterally by individual nations, or it could lead to the consensus necessary for more direct international intervention.


49. See National Academy of Sciences, Institutional Arrangements for International Environmental Cooperation: A Report to the Department of State, Committee for International Environmental Programs, Environmental Studies Board 4-31 (1972); Gardner, The International Organizational Implications For Action Proposals, First Draft of Secretary General’s Position Paper for United Nations Conference on the Human Environment (July 5, 1971) (unpublished) for the background analysis of this recommendation which was adopted by resolution at the Stockholm Conference.