



Spring 1972

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### Recommended Citation

Dante A. Caponera, *Towards a New Methodological Approach in Environmental Law*, 12 Nat. Resources J. 133 (1972).

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# natural resources journal

Published four times a year by The University of New Mexico School of Law

Vol. 12

April 1972

No. 2

## TOWARDS A NEW METHODOLOGICAL APPROACH IN ENVIRONMENTAL LAW

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Environment protection raises a host of questions involving practically every discipline—political, technical, social, economic, legal and institutional. The extent to which each of these disciplines predominates in any one country is determined by a number of factors at work. Among these factors are those relating to the conditions of nature with regard to the quantity, quality and degree of exploitation of the available natural resources, to the level of economic development, to the financial means available, to social needs, to the population growth and to its standard of living, to the level reached by science, technology, industrialization and urbanization and to the characteristics of its legal and institutional framework.

At the national level, from the legal and institutional point of view, several problems of major importance are encountered. In the first place, there is the problem of the internal administrative subdivisions which, being created by man and thus artificial, rarely fit to perfection the needs of nature. Then there is the problem of the functional attributions of different administrations with sectorial jurisdictions rarely showing adequate coordination or liaison among themselves. Lastly, since the ecological and natural environment embrace practically all the exigencies and spheres of human activity, there is the problem of the “vertical” functionality of any given new administration set up for the purpose of preserving the environment vis-a-vis other existing sectorial government departments.

The same kind of legal and institutional problems met with at the national level are, of course, met with also at the international level. Here again, the political frontiers created by man seldom coincide with the imperatives of nature, which, while they may vary between states and continents, are still part of the biosphere in which all

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human, animal and plant life goes on. Accordingly, if a solution is to be found, it is essential to consider the various possible legal and institutional alternatives at any required level, *i.e.*, at the national, regional, continental and worldwide levels, provided that such solutions respect as much as possible the imperatives of nature.

A further question concerns the methodology to be followed regarding the legal and institutional aspects if a solution is to be found for the many problems posed by the degradation of the environment. We are up against a novel state of affairs, and the prevailing methodologies do not answer present-day needs. These problems have been tackled in the past following the traditional subdivisions of human activity: agriculture,<sup>1</sup> industry and commerce,<sup>2</sup> services and transport,<sup>3</sup> population,<sup>4</sup> etc., and on the basis of laws and institutions dealing with each of these fields of activity. Occasionally, laws and institutions also refer to products which directly or indirectly pollute or degrade the environment.<sup>5</sup>

In view of the complexity and interdependence of the problems needing to be tackled, the traditional legal-institutional methodologies are somewhat ineffective, or difficult to apply. It has thus become necessary to develop new methodological concepts in order that the problems we have described may be tackled in an organic, rational manner. One of these methods is to consider the problems before us not by economic sectors but in terms of natural resources, first one by one, and then taken together.

The causes determining the degradation of human environment, as people have recently come to realize, are innumerable and closely interconnected. Bad management, improper administration, and unsound use of resources, whether by individuals or by nations, are chief among them. Until recently, the main aim in the development

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1. Agricultural production, for example, may give rise to harmful effects directly (the use of pesticides, weedkillers, fungicides and chemical fertilizers destroys ecological systems) or indirectly (when contaminated meat or vegetables are ingested). Agricultural production suffers, in turn, from the pollution caused by industry, where water and the air are concerned, or from soil degradation as a result of the encroachment of new industries and human settlements over agricultural lands.

2. Increased industrial production leads to pollution of the air, the soil, and water, and to the disappearance of the plant cover, forests in particular, and fish.

3. Expansion in transport reduces agricultural and industrial areas, and pollutes the air, water and the soil.

4. Population growth, progressive urbanization, the flight from the land—all these, in their turn, lead to the degradation of the soil and to water pollution. They are responsible for the cutting down of forests and the disappearance of green areas, with harmful effects on ecosystems.

5. Such is the case of laws on fertilizers, pesticides, hydrocarbons, inorganic residues, mercury, and waste (automobile wrecks, containers and other materials, etc.); or on secondary products, such as carbon monoxide, organic acids, and nitro-compounds, etc.

and exploitation of these resources was economic. Historically speaking, there may have been some justification for this. But today there is none, for the insurgence of other factors renders the re-appraisal of present legal and institutional structures imperative. Among these novel factors are those with social implications in the clash between individual, or sectorial interests, with the collective—national or international—interest. Added to these are the scientific and technological advances in which development has gone so far as to permit changes hitherto unthought of.

The problem, as it is now realized, is one of control or monitoring: control in order to secure the rational use of natural resources. But before we attempt to develop a new methodology, we must first be clear as to what we mean by these natural resources. The scientists and the technologists have their various types of classification for resources. On the one hand we have the distinction between renewable natural resources and non-renewable natural resources. The non-renewable kind are those that become depleted with use, as is the case with minerals, which once extracted, cannot be replaced by natural means; this category is further subdivided into resources not subject to natural depletion or deterioration (coal and most other minerals) and those so subject, the depletion and/or deterioration often being accelerated by human interference (oxidation of minerals, erosion of the soil, evaporation of water, nuclear decay in the case of radioactive materials, and so on). Renewable resources may be divided into those where human intervention has so far not caused irreparable damage (solar, and cosmic radiation, and to a larger extent, air, water) and those where a "critical level of use takes place," beyond which the depletion or deterioration process becomes "irreversible," and regeneration, by that token, impossible (animal or plant species now extinct or in danger of extinction, groundwater resources, resources in the form of scenic beauty, etc.)<sup>6</sup>

Any conservation policy must aim at two things: first, to arrest or slow down the natural process of depletion or degradation of non-renewable resources and, secondly, to prevent or keep at arm's length the *critical level of use* of renewable resources.<sup>7</sup> In such cases, the critical level becomes the norm in reference to which conduct is prescribed or prohibited: it represents the "safe minimum standard."

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6. Schemes are under way to replace or increase natural resources, notably in the use of nuclear, geothermal and solar energy, desalinization of sea water and the tapping of fresh-water sources below the seabed. Then, in agriculture, there is the trend toward high-yielding varieties; in fisheries, the attempt to increase stocks and the exploitation of marine plankton.

7. For a general description of conservation economics, see S. V. Ciriacy-Wantrup, *Resource Conservation: Economics and Policies* (3d ed. 1968).

Other scientists speak today of ecological systems. Thus, where two or more resources unite or are living together (micro-organisms/soil; man/air; animals/water/plants, and so on), they form an ecological system. For the conservation of such systems a number of authors advocate a policy of ecomanagement.<sup>8</sup> All ecosystems, moreover, are constituent parts of the biosphere—that part of the universe of nature that supports all life on earth.<sup>9</sup>

Yet other scientists, and many technologists with them, refer to ecocyclic systems—vital, natural systems affecting a particular resource: thus, the oxygen cycle, the carbon cycle, the nitrogen cycle, and the hydrological cycle whereby water evaporation from the sea, for example, ultimately finds its way back there.<sup>10</sup>

In short, in tackling these varied technical and scientific problems, we may broadly take the resources concerned to be air, water, soil, mineral and the so-called bio-resources, *i.e.*, resources that are living: flora and fauna, and man among them.

From the standpoint of the present legal and administrative framework one may note that the laws and the agencies dealing with the control and administration of natural resources are, in nearly all countries we care to mention, “use-oriented,” or concern one or more harmful effects of the resources themselves. What are needed, however, are *resource-oriented* laws and institutions.

To make the distinction clearer, we may take the example of water. Without water, animal, plant or man's life is impossible. It is therefore an essential, indispensable, yet limited element. There are three main types of problems where water is concerned: water, in the first place, may be put to beneficial use—livestock watering, domestic needs, irrigation, industry, hydro-power production, navigation and the rest. Generally, there are a plethora of institutions and laws controlling the beneficial uses to which this single resource is put: irrigation laws, electric power generation laws, navigation laws, industrial water use laws, navigation and floating laws, and so on. Secondly, there are the harmful effects of water to be considered; if water is inadequately controlled (whether from the technical or the legal and institutional standpoints), harmful effects ensue, such as floods, erosion and the salinization of the soil (in, say, tropical countries). Here, too, there is a diversity of laws governing these harmful effects, sector by sector and with separate administrative authorities

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8. J. Mayda, *Environment and Resources: From Conservation to Ecomanagement* (1968).

9. The term biosphere was first used by the Austrian geologist Eduard Suess in 1875; see also C. I. Vernadsky, *La Biosphere* (1929, translated from the Russian).

10. 223 *Scientific Am.* (Sep. 1970). A special number on cycles in the biosphere.

providing for the control over those same harmful effects. The third and last type of problems concerns the health aspects—quality control, usually—of water. It is at this point that the question of water pollution comes into the picture. And so it is that water pollution—the pollution of one of the several resources listed earlier—is but one sectorial aspect of that series of problems arising from the use of one and the same natural resource.<sup>11</sup> And the inadequacy of the legal and institutional framework where water is concerned is reflected to the full with each of the other natural resources.<sup>12</sup>

The foregoing analysis of the existing state of affairs regarding the legal and institutional provision for the control of natural resources calls for certain remarks before the discussion is taken further. In the first place, the technical, scientific, economic and social aspects of the problems calling for solution are largely unknown to the lawyer and lawmaker whose task it is to provide precisely that solution. Both need to be informed, at least in broad outline, on all these aspects and problems which, when all is said and done, must be solved by legislative and institutional means. Again, the scientists and technologists, who are intimately acquainted with the problems created by the bad management of natural resources, are not usually the ones best able to propose the requisite legislative and institutional remedies, the latter entailing, as they do, the devising of novel methodologies, legal frameworks and government organization. The lawgiver called upon to introduce new laws and the creation of new institutions has his hands tied by an electorate that is usually unaware of the problems at issue. And so it is that, without the stimulus from the “grass roots,” he puts off again and again the consideration of those same problems. And then, the reforms that

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11. Even in the single sectorial field of water pollution there are special laws designed to secure control of those aspects of pollution associated with the various uses of water or specific applications (pollution due to urban, industrial, commercial, waste discharge, etc.). Thus, various institutions exercise (or are supposed to exercise) control over water quality on the one hand, and over water pollution, on the other—each institution responsible for a different aspect of one and the same problem. Examples of this division of responsibility are the public health authorities, local authorities, the Ministry of Public Works, and so on.

12. In the case of the air, both the law and the institutions are at the present time use-oriented: the air law concerns itself with air transport and navigation and the relevant institutions whereas air pollution due to industrial activities comes within the purview of other institutions and other laws—industrial or commercial; other uses such as artificial rain (cloud seeding) are governed by yet other laws and institutions. The same may be said of both the law of the sea, which concerns itself primarily with shipping, while fisheries and resource conservation are covered by legislation administered by different bodies, and of the law where the mineral resources of the seabed are concerned. Likewise, land, as a resource, is governed and administered by different laws and institutions such as agricultural, agrarian and forestry law, town and urban planning, zoning laws, industrial laws, transport laws, amenities laws, etc. . . .

are needed are of such scope and are so much at conflict with vested interests, that any attempt at changes calls forth massive resistance from economic and other sectors. Lastly, existing legal disciplines and institutional organizations are in need of major reform and bringing up to date. Thus the task is an extremely complex one.

Given the nature of the problem, the only possible approach to the protection of man's environment is the interdisciplinary one, in which all aspects—technical, scientific, economic, financial and social, and not only legal and institutional—are taken into account.

Where the technical aspects are concerned the legislator needs the collaboration of those who can explain to him the consequences of, and the interconnection between man's activities when he exploits or uses natural resources. It is necessary to consider aspects of the biosphere, ecosystems, ecology and natural resources in the broadest sense. Again, any solution, whether it be technical, scientific or legal, has economic and financial implications which cannot be ignored; the cost of the essential technical and scientific measures to be taken and the financial resources that must be drawn upon for the purpose must also be taken into account.

Then, there is the conflict between the concepts of development and conservation. Until recently, the main concern has been the development and the exploitation of resources: today conservation is on everybody's lips. If development *per se* may bring in its wake loss, damage and harmful effects, whether direct or indirect, this very fact may induce some people to emphasize conservation at the expense of development, thus closing the road to progress. The solution therefore must be sought in a balance between these two concepts.

Insecticides, for example, are dangerous and cause alterations in the ecological milieu but it is equally true that a country may need insecticides and fertilizers to intensify its agricultural productivity. One also must remember that laws and institutions are not ends but means—means of implementing policy decisions; and the decisions in this case, *i.e.*, where the environment is concerned, are better appreciated by the scientists and the technicians than by the lawyers and the politicians. There is a scarcity of lawyers in the natural resources field, a circumstance due, at the present time, to the fact that in this specialized sector the "user" can only be states or international organizations. Again, there is the pressure of vested interest of the economic and industrial operators, often in conflict with social considerations. A policy of environmental conservation inevitably implies a renouncement to a certain immediate utility by our generation for the benefit and survival of future generations. New legal and institutional concepts are needed, and precedents are

lacking. In this connection, the distinction is sometimes made between the Western and the socialist countries, private ownership surviving in the former and not in the latter. The distinction, however, is out of date in many respects: in the United States, for example, one may read articles affirming that one may one day come to the point where all natural resources will have to be state-controlled, if not declared the property of the community altogether.<sup>13</sup> Now, these novel approaches call for novel legal and administrative structures, whereby resources may be looked on as the birthright of all generations, both present and future. Therefore, it is necessary to create—for each resource, and not, as in the past, for sectorial beneficial uses (harmful effects and quality control)—those kinds of legal and administrative institutions that guarantee the rational use of natural resources, compatible with the need for their conservation.

We have seen how the existing legal and institutional framework at the national level is largely “use-oriented,” or geared to the “abatement of harmful effects” or to the control of quality of natural resources. We have considered the need for the replacement of those structures by others which should be “resource-oriented;” we shall try to demonstrate the validity of this statement in order to reach the final aim towards “rational” resource use.

Nowadays all countries have progressed from the sectorial use phase to the more comprehensive approach referred to as economic planning. Any planning of natural resources requires the fullest knowledge of: a) the abundance and availability of the respective resource, b) the existing uses and the users of the resource in question and, c) the future needs, due consideration being given to the population growth and demands. Under present legal and institutional systems, it is not usually possible to have a clear knowledge of these three fundamental data, despite their being an essential prerequisite of any planning worthy of the name. Thus, as regards their abundance and availability, the relevant data, surveys and inventories of the individual resources now available are in the possession only of the sectorial institutions concerned with their particular use of the resource. Existing laws do not oblige the sectorial government departments to supply each other with those data; still less do they make for centralizing such information as exists. It is rather as though individual banks knew their respective financial resources without there being a “super-bank” informed as to the total financial resources possessed by all the banks together. Generally, in most

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13. 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, 458 (1970).



countries total financial resources are known to the central or issuing bank, and yet there is no analogous arrangement where natural resources—water, soils, minerals, fauna, flora, etc.—are concerned.

An entirely similar situation—of the sectorial and fragmentary approach—is encountered where present use patterns and the users themselves are concerned. Each individual institution has control through its particular sectorial legislation over resource uses and users—whether as regards the volume exploited or as regards the type of use in the more specific sense of the word or with regard to the type and number of users, but the law rarely prescribes the bringing together in a central register the various types of uses and of users of the same resource. To return to the analogy of the bank, it is as though there were no information constituted in an organic and centralized form as to who holds cheque books, who signs cheques, and how much money is being used in this way. If this were the situation in the banking world, the financial consequences would be disastrous. And yet it is just such a situation that happens where the use of natural resources is concerned.

Coming, now, to the questions of future needs, again we encounter the same difficulty: since the two sets of data we have already discussed—regarding availability, existing uses and users now in being—are inadequate, any calculations made of future needs are bound to be incorrect, even though statistics, with its special techniques can, to some extent, come to the rescue.

In practice, it is the individual, sectorial institution that sees to the inventory of the resource with which it is concerned, to the granting of permits and authorizations (again on a sectorial basis) and to future planning, per force sectorial. With current legislation, it is not possible to have a complete overall picture for the resource or comprehensive control over its use. This makes it excessively difficult to develop an overall policy for the rational use of natural resources. An attempt to remedy this situation is to be found in the formula of inter-ministerial committees, but frequently committees of the kind are not vested with the necessary powers to impose a determinate policy. Furthermore, the inevitable resistance and rivalry between ministries or agencies are only aggravated by the greater number of the sectorial economic and financial interests involved.

If, contrariwise, laws and institutions were “resource-oriented,” it would be possible to make decided progress in the direction of the harmonious planning of natural resources. Moves are already being made in this very direction, and in several countries we may find the formula of Ministries established for a given resource<sup>14</sup> or of a

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14. In Argentina, China, Iran, Lebanon, Mexico, to mention only five countries, there is

Ministry of natural resources.<sup>15</sup> Thought is being given to the possibility of enacting consolidated or unified natural resources codes or laws.<sup>16</sup> It is essential, however, that such a Ministry or institution should limit its powers to those of a regulatory, monitoring, or licensing nature (regulatory or monitoring agency) and not be itself the user or developer of the resource in question; it should be vested with powers to regulate licensing of all uses, harmful effects and quality control aspects of the same resource, of coordination, inspection and enforcement. The actual utilization of the resource should be left, subject to the conditions contained in the license, to users whether these users are individuals, associations, communities, corporations or development Ministries or agencies.

A "resource-oriented" administration of the kind backed by appropriate legislation would be in a position to facilitate the solution of problems posed by the protection of the environment.

Even at the international level, one encounters difficulties similar to those at the national level. An example of piecemeal responsibility may be cited in the case of water. Thus, where the question is one of water use for agriculture, the component agency is FAO; for industrial uses, UNIDO; when studied from the scientific standpoint, UNESCO; when it is a question of groundwater in connection with mining activities, the United Nations would be the appropriate body; for atmospheric water, WMO; while water for domestic uses would come within the sphere of WHO. But, the United Nations and the Specialized Agencies are no more than the resultant of their Member Nations, each of these in turn being the expression of the human community making up the particular state and engaging in the activities in question.<sup>17</sup>

Coming now to the protection of the environment, a major program is now under way involving the United Nations and all other

a Ministry of Water Resources; in Venezuela, a Ministry of Mines and Hydrocarbons; in Botswana, a Ministry of Commerce, Industry and Water Resources, in Uganda, a Ministry of Mineral and Water Resources; in India and Pakistan, a Ministry of Water and Power.

15. A Ministry of Natural Resources can be found in some states of the United States of America, in Honduras, Kenya, Malawi, Mauritius, etc. See also the recent proposal of President Nixon to bring together in a new Federal Department of Natural Resources several of the present Departments. Herald Tribune, 29 Mar. 1971. In many cases, however, these Ministries, etc., for natural resources imply no more than the addition of yet another institution to the list of those already in being, without thought for divesting the latter of their regulating powers. For this reason, the newly created Ministry often does not function properly.

16. For individual resources (Water Code—France, Nicaragua, United Kingdom, China, etc., some of the United States of America), or for all resources together: Natural Resources Code.

17. The problems of coordination between the programs of the United Nations agencies are dealt with by an inter-agency coordination body (the Administrative Committee on Coordination), which has various subcommittees on resources or activities.

Specialized Agencies. A Secretariat has been set up to prepare for the United Nations Conference on the Human Environment, to be held at Stockholm in 1972.<sup>18</sup> Heading this preparatory body is a Secretary-General. The Stockholm Conference will be a meeting at the world level, attended by representatives of international and scientific organizations. It will have an action-oriented program. A United Nations declaration on the Human Environment is currently being drafted. All the international organizations of the United Nations family are preparing studies and contributions for this conference and also for such action as it may take.

Since FAO is concerned with the flora and fauna, soils, water, inland and sea fisheries and the farming populations, it directs its attention to most of the resources of nature, with the exception of minerals and air (which is of interest to FAO under certain aspects only). Nor is it concerned with urban populations. An interdepartmental committee has been set up within FAO with the participation of experts of the various divisions concerned for coordinating the work in view of the Stockholm Conference. The study of environmental problems, in fact, comes under one of the five "areas of concentration" that constitute FAO's current strategy, namely, "war on waste." Again, during the second Development Decade, which began in 1970, one of the items singled out for attention was precisely the protection of the human environment. The programs designed to put these intentions into practice are implemented both at Rome, where FAO has its Headquarters, and in the field, as part of the technical assistance programs that FAO executes in various parts of the world. Special effort is to be directed to mass information and involvement. FAO's main areas of operation are: development, administration and conservation of water resources, soils, plants, forests, animals, including wildlife and fisheries, and the study of the legal and institutional implications of such resources.

At the request of the Secretary-General of the United Nations Conference on Human Environment, "Methods to expedite the adoption and implementation of international rules and standards for environment protection" has been prepared.<sup>19</sup> Also in preparation for 1972 is another publication on the legal and institutional aspects of environment protection. At the United Nations Secretariat, the Social Development Division, the Centre for Housing, Building and Planning, the Resources and Transport Division, and the Public Administration Division, not to mention the regional economic

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18. G.A. Res. 2398.

19. U.N. Doc. A/Conf. 48/PC(II)/Conf. Paper No. 3 (1971); *see also* Contini and Sand, *Methods to Expedite Environment Protection*, 66 Am. J. Int'l L. (Jan. 1972).

missions,<sup>20</sup> all have under way programs for environmental protection. Thus the United Nations Development Program supplies financing for technical assistance in this sector to developing countries either through the United Nations' own operations or through the Specialized Agencies which carry out the programs falling in their respective spheres of competence.

Thus, too, UNESCO concerns itself with marine science, hydrology, earth sciences, ecology and social science and has programs for the conservation of monuments, the development of tourist activities and the protection of man in the biosphere.<sup>21</sup> The World Health Organization (WHO) defines environmental standards for human health protection, identifies hazards and studies effects deriving from environmental changes. The World Meteorological Organization (WMO) is responsible, in this connection, for the application of meteorology to aviation, marine navigation and agriculture and also the solution of problems where atmospheric water resources are concerned. The Inter-Governmental Maritime Consultative Organization (IMCO) deals with problems connected with the pollution of the sea, land and air by ships, and with the preparation of conventions designed to prevent such pollution.<sup>22</sup> The International Atomic Energy Agency (IAEA), in cooperation with other international organizations, has a program concerned with aspects of the radioactive contamination, caused by the peaceful uses of atomic energy, of plants, water, soils, etc. . . . The International Civil Aviation Organization (ICAO) is to contribute to a program concerned with noise in the vicinity of airports and with the "sonic boom," both problems having been aggravated by the advent of supersonic aircraft. The legal services of the United Nations and of FAO are very active in the study of the legal and institutional problems of environment protection at the international level. All the works described converge on the preparation of the 1972 United Nations Conference on the Human Environment.

Another interested international organization which has its own program on the protection of the environment is the Council of Europe. It was the Council that, in fact, convened a very important conference which led, in February 1970, to the declaration on the administration of the human environment in Europe. Activities of

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20. ECLA, ECAFE, ECA and, in particular ECE (Economic Commission for Europe), which organized a conference on the human environment at Prague in 1971.

21. Cf. Conference on the Resources of the Biosphere, 23 U.N. GAOR (1968).

22. E.g., International Convention on the Prevention of the Pollution of the Sea by Oil, 1954; International Convention Relating to Intervention on the High Seas in case of Oil Pollution Casualties, 1969; and the International Convention on Civil Liability for Oil Pollution Damage, 1969.

the Council are directed towards the coordination of national activities, the harmonization of European laws, the formulation of minimum safety standards, the creation of a European agency for pollution control and, again, towards the constitution of a European fund for pollution control. In 1968, a convention for the restriction on the use of detergents was also adopted. The European Economic Community (EEC), the Organization for Economic Cooperation and Development (OECD), the North Atlantic Treaty Organization (NATO), the COMECON and the Warsaw Pact Organizations, have also undertaken studies on environment protection. A number of non-governmental organizations pursue similar objectives.

The International Union for the Conservation of Nature and Natural Resources (IUCN) has appointed a Council on environmental law and, in 1968, cooperated in the preparation of the African Convention on the Conservation of Nature (fauna, flora and other natural resources); in addition, it has prepared two draft conventions for the conservation of natural resources and for the administration and protection of the environment. In the countries of Northern Europe, a draft convention is being prepared for the protection of the environment. The World Peace through Law Center has two similar projects under study.<sup>23</sup> The International Law Association has set up an expert committee for the study of the legal aspects of environment protection.

At this point, it will be appropriate to make a rapid survey of the activities undertaken and the solutions proposed at the national level. Here again, the preoccupation with the protection of the human environment is, from a historical standpoint, of very recent date. The problem is particularly acute in the industrialized countries, where the consequences of human interference with nature are much in evidence and weigh heaviest. The situation is still fluid, and the legal and institutional movement already under way, albeit of very recent date, is gathering momentum.

In the light of the experience of the individual nations and of the solutions proposed, one may summarize by saying that attempts at control and regulation are being channelled along four main directions, thus: A) the setting up of environmental coordinating committees between ministries and specialized institutions responsible for activities touching the human environment; B) the creation of a ministry, department or agency, responsible for the protection of the human environment; C) the enactment of laws for the protection of

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23. World Peace through Law: Draft Convention on Environment Cooperation among Nations, 1971, and Draft Convention on Weather Modification, 1971.

the human environment; D) the mobilization of public opinion and the action resulting therefrom. These may now be examined in turn.

#### *A. Setting Up of Environmental Coordinating Committees*

Coordinating committees between ministries and institutions responsible for sectorial aspects affecting the protection of the human environment have been set up in many countries.<sup>24</sup> The powers vested in these committees vary from one country to another, but generally are higher than those of the ministries whose activities they coordinate. In addition to coordination, the purpose usually is to approve and control all activities and products at the *planning stage*, *i.e.* before plans are finalized. In this way, the creation of acquired rights is avoided, such rights being difficult to remove once the projects have been carried out. In a number of countries, it is necessary to obtain for such projects a prior authorization by a Secretary appointed to implement the policy of the coordinating committee. Authorizations, concessions and licenses of this kind usually lay down the measures and conditions designed to prevent the degradation of the human environment.

#### *B. Creation of an Environment Ministry, Department or Agency*

Several countries have created overall ministries or departments or other responsible institutions directly in control of those activities which may lead to the degradation of the human environment.<sup>25</sup> Thus, in the United States of America, there was set up, in July 1970, the Environmental Protection Agency, following the signature by President Nixon, on 1 January 1971, of Public Law 91-70, declaring it to be the national policy to encourage the protection of the environment and the conservation of natural resources. This law, then, enshrines a determinate environment policy, sets up an Environmental Quality Council, which acts as advisor to the President, and places under the jurisdiction of the new Agency all problems concerning the control of air and water pollution, pesticides, radiation and the disposal of solid waste. In the United Kingdom, in September of the same year, a Department of the Environment was

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24. Among these are the following countries: Austria, Bulgaria, Chile, Czechoslovakia, Denmark, Finland, Hungary, Iran, Poland, Turkey, USSR.

25. Such is the case at present in about 15 countries, *i.e.*: Australia, Canada, Chile, Finland, France, German Democratic Republic, Greece, Japan, Malta, New Zealand, Portugal, Senegal, Sweden, United Kingdom, USA. Other countries which are considering the setting up of such environmental agencies include: Ceylon, Cyprus, Denmark, Germany (Fed. Rep.), Hungary, Iran, Italy, Ivory Coast, Malaysia, New Zealand, Philippines, Poland, Portugal, Singapore, Sweden, Switzerland, Turkey.

set up with wider powers than the component ministries. This is a kind of super ministry to which, for the moment, other ministries must report, and under which will later be brought together the Ministry of Public Works, Town and Country Planning, Health and Transport. In France, in January 1971, there was created a Ministry for the protection of nature and the environment, reporting to the Prime Minister direct. In Canada, the federal government has created a Department of the Environment, to be responsible for renewable natural resources and taking over important powers as regards water resources, fisheries, etc., hitherto under the control of other ministries or departments.

These environmental institutions have the powers necessary to enforce control over plants and projects likely to cause degradation of the human environment. The actual control is exercised at the planning stage and takes the form of the granting of authorizations. In States with a federal system of government, control is exercised also through financial policy in the allocation of funds for development or environmental protection purposes. In these countries, the problem of coordinating inter-state activities is obviously much more difficult.

### *C. Enactment of Environmental Protection Law*

The third type of action that States have undertaken consists in the promulgation of laws for the protection of the human environment: this has taken the form of either an overall and comprehensive environmental law or of legal enactments concerned with sectorial aspects of a whole resource, or of a type of use of a resource, or of a particular product.

It should be realized, that, in most countries, there are already laws which concern sectorial aspects of environmental protection. However, the legislation in such cases, having accumulated over the years, usually lacks an organic structure, does not meet present-day needs, and fails to take into account the interconnections between a multiplicity of environmental factors. Lastly, such legislation makes no provision for financial assistance from the State. Antiquated legal systems and traditional water and land rights constitute a bar to the rational use and the conservation of natural resources. Often, any regulation for the protection of the environment is regarded as an unjustified limitation on human activities, for people do not yet understand that such laws are an integral part of the long-term and harmonious development of the rational exploitation and the conservation of resources. During recent years, a number of countries

have introduced sectorial laws for pollution control:<sup>26</sup> United Kingdom,<sup>27</sup> France,<sup>28</sup> United States of America,<sup>29</sup> Czechoslovakia,<sup>30</sup> Hungary,<sup>31</sup> Italy,<sup>32</sup> Germany,<sup>33</sup> Bulgaria,<sup>34</sup> and many others.

However, more recently, the need has been felt in certain countries to deal with environmental protection problems by means of organic and comprehensive enactments.

Sweden, in 1969, introduced a basic environmental law.<sup>35</sup> This law deals with water, soil, dwellings, air, noise and vibrations; it sets up a collegiate body for the granting of concessions wherever the human environment is involved, the body in question being assisted by an executive organ—the Nature Conservation Office, which also provides the Secretariat. A regulation lists activities subject to the control by the new institution, which is responsible for the coordination, supervision, licensing and inspection.<sup>36</sup>

Other countries have or are considering the introduction of similar organic laws for the protection of the environment.<sup>37</sup>

The current trend in law-making, which has thus gathered momentum in our days, is one oriented largely towards the concept of subjecting to control and to minimum safety standards those products which be be deleterious to the ecology. Control generally concerns the production, marketing, and use of such products. In this way, the use of non-biodegradable detergents has been pro-

26. This legislation has grown in piecemeal fashion and covers such fields as air, water, soil, etc.

27. Clean Air Act 1968; Radioactive Substances Act 1960; Water Act 1963; Noise Abatement Act 1960; Waste Disposal Act 1967, etc.

28. Law on Pollution and Water Control, 1964; Decree of Feb. 28, 1960, on the Pollution of the Atmosphere; Decrees on Central Heating (1963-69), on Automobile Emissions (1954-59), on Noise (1962-69), on Parks (1960-67).

29. Clean Air Act, 1963, *as amended* (1965); Air Quality Act, 1967; Federal Water Pollution Act, 1956; Water Quality Improvement Act, 1970; Federal Insecticides Act, 1965.

30. Law on the Elimination of Solid Waste, 1965, etc.

31. Water Conservation Act, Pure Air Bill; National Building Construction Act, 1967, etc.

32. Town Planning Act, 1960; Law No. 615 on the Air Pollution, 1966; Ministerial Decree No. 1444 of 1968 on Green Areas; Law of 1967 on the Economic Development Plan; Circular of July 23, 1966, of the Ministries of the Budget and of Public Works, on the Appointment of Regional Economic Planning Committees (CRPE) and so on.

33. Laws on Physical Planning, Apr. 8, 1965; on Building Construction, June 23, 1960; on Water Conservation, July 27, 1957; on Detergents, Dec. 1, 1962; on Hydrocarbon, Dec. 23, 1968; on Air Pollution, May 17, 1965; and so on.

34. Law on the Protection of Nature, 1966; on the Protection of the Air, Water and the Soil, 1963; on Cultivable Areas, 1967; on Town Planning, 1970; on Forests, 1958; on Water, 1969.

35. Law No. 378 on the Protection of the Environment, June 24, 1969.

36. Crown Order No. 388, of May 29, 1969, on the Protection of the Environment.

37. Such is the case of Mexico (Federal Act, Mar. 11, 1971), Honduras (Regulation Jan. 22-27, 1970); USA (P.L. 91-190 of 1969, etc. . . .)



hibited in many countries, or their prohibition is being contemplated. Among the countries in question may be mentioned Finland, the Federal Republic of Germany, Sweden and the United States. Most European countries have recently been added to the list. A number of insecticides are prohibited in some countries (United States, Netherlands). Sweden, for example, has subjected to strict control the marketing of motor fuel, which may not contain lead in excess of certain standard levels.

#### *D. Mobilization of Public Opinion and Action Resulting Therefrom*

In many countries, especially industrialized ones, there has been a growing awareness of the importance of mobilizing the public opinion through the press, radio, television and the school, as a means of ensuring that the community is informed of the problems connected with the degradation of the environment by man. Such mobilization of opinion is extremely useful in achieving a number of important goals where legal and institutional aspects are concerned. Among these goals there is that of creating public awareness of these problems and encouraging people to act in such a way as to avoid activities likely to degrade man's environment. Thus, citizens will think twice before discharging indestructible waste, destroying fauna and flora, and before polluting the air, the water, the land and the sea, and will come to respect green and protected areas. In this way, too, they will find it easier to comply with legal provisions (even where they are outmoded) and will help, indirectly, the existing institutions responsible for control over resources. This public participation and awareness will also justify and facilitate the acceptance of new laws and administrative prescriptions as well as the restrictions imposed on human activities which are harmful to the human environment. In this way, too, the population itself will spur legislators to introducing the necessary reform.

The mobilization of public opinion also constitutes an important stimulus for local authorities in restricting or prohibiting activities which cause damage to the environment through the enforcement of existing—though archaic—laws. As an example may be cited the proceedings instituted by magistrates against persons responsible for pollution,<sup>38</sup> and the direct interventions of local authorities to reduce activities that degrade the environment.<sup>39</sup>

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38. Examples may be cited of the proceedings recently instituted by certain local magistrates (*pretori*) in Italy against industries and firms causing pollution.

39. *Cf.* orders recently issued by a number of mayors in Italy prohibiting the use of nonbiodegradable detergents. Another example of this type of action is that recently taken at Los Angeles (USA), where a commission composed of experts and police officers went to

The mobilization of public opinion has also, in certain cases, developed an individual consciousness tending to consider the right to a wholesome and decent environment as one of the fundamental and inalienable rights of man, even if it is not yet generally recognized in constitutions and current legislation. Thus, a recent Federal Court in the United States authorized the City of New York to sue for damages those automobile manufacturers who had failed to mount anti-smog devices on their products. According to this ruling, any individual or undertaking or government authority able to prove grievance as a consequence of air pollution caused by automobiles may recover damages from the automobile industry.<sup>40</sup> In Michigan (USA), the fact that certain individuals initiated judicial proceedings against polluters led to the promulgation of a state law, in 1970, recognizing the rights of citizens to individually initiate proceedings against persons causing the degradation of the environment. In this way, there was recognized for the first time the right of every individual to a wholesome environment. As a result of the above-mentioned law introduced by Michigan, Senator Cranston and others tabled a resolution for an amendment of the Federal Constitution in order to include in it an article to the effect that every individual has an inalienable right to a wholesome environment and that the United States and each State guarantee such right.<sup>41</sup> The same right is recognized in certain States such as Switzerland, but only to associations and not to individuals.

Lastly, mobilization and participation of public opinion generate a collective conscience whereby the respect of the environment is recognized as a duty of the community; such a collective duty should be manifested at all levels—individual, local, national and international.

The rights and duties of the individual, of States and of the international community with respect to the environment are not yet recognized in national and international law.

In conclusion, it may be said that the problems concerning the protection of the environment are new problems everywhere in the world, and that the existing legal and administrative structures preclude rapid and whole embracing solutions. The task of the legislator is a hard one indeed due to the technical, scientific, economic, financial and social implications of the problems he is up against, but

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the airport and, having established that jet engines caused pollutant emissions and noise, imposed fines and other sanctions, to the extent of temporarily bringing air traffic to a halt there.

40. International Herald Tribune, Sep. 19, 1970.

41. S. Res. No. 169, 91st Cong., 2d Sess. (1970).

also due to the ignorance of the masses and the fact that they do not participate directly in these matters. What is needed is to develop and bring into being new legal and institutional tools whereby a rational exploitation of the available natural resources, compatible with their conservation can be secured. Only in this way, an awareness and a sense of responsibility can grow in our generation, and that is essential for the survival of future generations in a decent environment.

Due to the complexity and the interdependence of the problems raised by the need to protect the natural ecologic environment and the lack of precedents in all countries (as they have just begun to face them), it is necessary to proceed cautiously before introducing new legal and institutional structures, though it is essential to make a start with the necessary studies. It is important not to create institutions and government departments which may indeed be suitable for dealing with present impelling needs and yet may well be quite unsuitable for dealing with those of the future.

Where the future is concerned, action might be divided into two main parts: one, an examination of existing laws and institutions in any interested state and in other countries to determine their functional value, and then, to seek those overall solutions for which present laws and institutions may not be adequate; and the other—which is more immediately needed—the study and enactment of new laws regulating those products which cause the degradation or pollution of the ecological environment, particularly with respect to their standards, quality, manufacture and marketing. Even if action of the kind will be still sectorial in character, it could be introduced rapidly and without it being necessary to conduct a foregoing review of the existing legal and institutional structures; and it will make it possible to deal with the most critical and immediate aspects of the problems, leaving time for the study of those necessary reforms for which our present legislation and departmental structures stand in need. It is important, however, that the control and regulating powers vested in existing institutions should be clearly defined and coordinated with those of other sectorial and interested institutions. Every institution made responsible for a different sector should be in a position to prescribe the control of products, plans, and the activities which may degrade the human environment—a control which must be applied at the planning stage, before the products are manufactured or sold. The respective laws must contain provisions on cost, taxation, financial or other contributions, or subsidies needed in order to put an end to or to restrict activities responsible for pollution or the degradation of the environment.

Meanwhile, the need clearly exists to consider the possibility of evolving new legal and institutional structures designed in such a way as to deal with each and every natural resource in its entirety and in each and every aspect—knowledge of total availability, existing uses, future needs, and, consequently, to bring under a centralized regulatory control at any appropriate level (basin, region, nation or otherwise), depending on a resource (or on other circumstances), all beneficial uses as well as harmful effects, and quality control. This may be achieved either through the prescription of minimum standards and/or the granting of licenses or concessions whereby all aspects of a particular utilization of a given resource should be considered. From the standpoint of legislation, something might be gained by simplifying and consolidating existing laws into codes to deal with the natural resources, lands, water, air, minerals, flora and fauna. Since many legal and institutional aspects of natural resources are common to all of them, a regulatory natural resources authority could be set up to control all uses. A single code of natural resources could be enacted to be administered by such authority. However, a natural resources regulatory authority should take over only those functions which concern the regulation, coordination, licensing, control, and inspection of resources use while leaving to individuals, associations, corporations, local authorities or to sectorial agencies or to other ministries, the functions of promoting, utilizing and developing different uses of the same resource. Regulatory functions presently exercised by a multiplicity of sectorial institutions and which often are combined with development functions, could perhaps be taken away and centralized into one or more resources regulatory institution, in order to prevent overlapping and inter-agency rivalry. A regulatory institution should maintain close contact with local and intermediate authorities and all interested sectorial groups in order to encourage popular participation and involvement.

Lastly, it would be well to consider the possibility of creating new legal and institutional structures able to recognize and define the rights of each individual and of the community at large to a decent environment as one of the basic human rights.

The evolution of new legal and institutional structures at the national level will contribute greatly at the international, regional or world-wide levels to the solution of problems arising in connection with the protection of the human environment, and will have additional repercussions on international institutions and international law in those cases where the demands of environmental protection, transcending national frontiers, call for international solutions and

action. Such solutions are needed particularly in the case of atmospheric resources, international basins, the sea and its resources, migratory fauna, the flora in frontier areas and, finally, as regards international transport and trade where those resources and the products obtained from them are concerned.