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# INTERNATIONAL ENVIRONMENTAL LAW: AIR AND OUTER SPACE

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This study will provide a brief overview of the current international environmental law applicable to the air-space continuum. The basic legal regime is well understood and will be quickly sketched as background for a discussion of current and foreseeable problem areas.

Looking broadly at the range of human activities on earth, above earth, and in space, and without making sharp delineations, there are three types of modification of the air-space environment with which we are concerned. These modifications include conscious attempts to modify that environment, temporarily or permanently. For example, there are ongoing programs in at least two dozen countries attempting to modify the weather. Since the elements know no boundaries, international effects and conflict are predictable. There are also intentional activities which inadvertently cause unintended changes in the environment, which are generally agreed to be, once they are observed, detrimental or potentially so and are of a type which nations have made at least modest attempts to deal with. Prime examples in the air-space continuum include the fallout from nuclear testing, high altitude nuclear tests and the U.S. West Ford (copper needles) experiments. A third category involves activities which clearly cause changes in the environment inadvertently, or as a byproduct have not yet been dealt with extensively by the international community. Indeed, they typically appear to be of a nature which, in the present and foreseeable international system, are not amenable to disciplined international correction, even assuming that within a nation or within several nations some basis or bases for "correction" evolve and are generally accepted. In a sense, some inadvertent environmental modification is the norm. Each time open land, forest or farm is converted to a building, there is an effect on the local climate; a city's weather differs from that of the undeveloped area which it replaces. Industrialization changes the climate of an area, of a region, of a country, and thus affects, to whatever small degree, the world's weather system. As industrialization spreads, cumulation of all the small changes implied may possibly imply more significant climate effects. Using current technology, industrialization, including the widespread use of the automobile and the airplane produces particulate matter, more CO<sub>2</sub>, contrails, changes in the earth's albedo, changes in the radiation balance, and so on. By

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themselves most changes of this type may have little or no marginal effect on weather, climate, or quality of life in other nations, but generalized and cumulated, some may cause substantial though unintended changes in climate. It is important to note that the extent of this danger is not yet well understood or agreed upon by reputable scientists who have studied these matters carefully. There is general agreement that the possibility of considerable damage exists and should be studied soon.<sup>1</sup> To the extent that these changes are the inevitable byproducts of national development it is unlikely that nations will substantially change their ways in the near future.

As noted above, the basic rules of international law constituting the regime in airspace are reasonably clear and understood. As with so many aspects of law, it is their application to real life situations which presents analytical and practical problems. With the exception of some early commentators on the field of air law, it has been an accepted norm of international law, at least since the First World War, that each state has "absolute" sovereignty in the air above its national territory, including its territorial waters (whatever distance that may now prove to be).<sup>2</sup> In the terms of Article 1 of the 1944 Convention on Civil Aviation:<sup>3</sup>

The Contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory.

In asserting the right to control all activities in their airspace, states have claimed the right to prohibit *all* entries, not only of aircraft, but of tourists and even of Herzian (radio) waves, though enforcement of some of these asserted rights is clearly a problem.<sup>4</sup> We will return to this theme at the conclusion of this paper.

Airspace over the high seas, and over the few remaining unclaimed portions of the earth (*i.e.*, parts of the Antarctic continent), has been uniformly considered, like the high seas, to be free for the peaceful use of nationals of all countries. Without renewing the discussion of the inroads made in the doctrine of freedom of the seas, especially in

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1. See generally, Inadvertent Climate Modification: Report on the Study of Man's Impact on Climate (1971); Man's Impact On The Global Environment Report of the Critical Environmental Problems (1970) (especially 19-22 and 39-112).

2. For the development of this norm in the period after the invention of the airplane, see *e.g.*, Lay & Taubenfeld, *The Law Relating to Activities of Man in Space* ch. 3 (1970).

3. 59 Stat. 1516 (1944), T.I.A.S. No. 1591.

4. See *e.g.*, General Communications Regulations attached to the International Telecommunications Convention, Madrid (Dec. 9, 1932) and the Revisions Feb. 1 and Apr. 9, 1938; European Broadcasting Conventions (June 19, 1933 and Sept. 15, 1948) Cmd. No. 7946, T.S. No. 30 (1950).

recent decades,<sup>5</sup> it should be noted that this remains, basically, "good law" today.<sup>6</sup>

Outer space, while still "territorially" undefined by the nations of our world, has been the subject of substantial international interest and agreement since the first Sputnik flew in 1957. The nations have been reluctant to draw a line setting a formal outer limit to airspace but, from the earliest days of the space era, there has been general consensus between statesmen and scholars that there is no "legal vacuum" in outer space. It is accepted that the appropriate rules of international law governing inter-state relations on earth and in the air apply to human activities in space. It has also been the consensus, however, that outer space and the celestial bodies should not be subject to claims of national sovereignty; that they should remain free for the peaceful use of all (or at least those with the capacity to get there).<sup>7</sup> Again, without rehearsing the oft-studied history of the past decade and a half of space-related activities, it is possible to note the norms of the presently accepted international regime governing human activities in outer space which are relevant to our general problem of "environmental" law, as developed by national action, by United Nation resolutions (which played a major role in developing the law) and by treaties.

## THE LEGAL CONTINUUM

### A. *Prohibited Acts*

As a result of the East-West "thaw" of 1963, the United States and the Soviet Union were able to agree, in that year, on a partial ban on nuclear explosions for purposes of testing. Of prime importance for us, the Nuclear Test Ban Treaty of 1963 banned tests in the atmosphere, the seas, and outer space, and barred testing within a nation's

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5. See e.g., Jessup & Taubenfeld, Controls for Outer Space 210-212 (1959), and authorities cited.

6. One issue in United States' law points up the status of airspace over the high seas. Under its special maritime jurisdiction, the United States exercises authority over certain criminal acts occurring on certain islands, on American flag vessels, etc. See Special Maritime and Jurisdiction of the United States 18 U.S.C. §7 (1970). In the early 1950's, a passenger on a U.S. flag airplane was charged with committing a physical assault on a crew member while the aircraft was over the high seas. A prosecution for the assault, based on the special maritime jurisdiction, was dismissed by the federal court on the grounds of lack of jurisdiction, an airplane was not a "vessel"; Congress had not extended its authority to U.S. aircraft over the high seas; and there was no other basis for U.S. jurisdiction for acts in the airspace over the high seas. See *United States v. Cordova*, 89 F. Supp. 298 (E.D.N.Y. 1950). This gap has now been filled, Act of July 12, 1952, ch. 695, 66 Stat. 589.

7. See Jessup & Taubenfeld, *supra* note 4, at chs. 7-9.

territory if the effects might be carried beyond its borders.<sup>8</sup> This treaty was in fact the second in the field in the sense that the Antarctic Treaty of 1959, at the urging of Argentine and Chilean representatives at the treaty conference, who feared pollution of their atmosphere and lands, barred *all* nuclear explosions in the Antarctic.<sup>9</sup> The 1963 Test Ban Treaty does not bar the use of nuclear devices in war nor does it give assurances to the nuclear have-not nations that the "haves" will limit or destroy their own arsenals. As a consequence, since testing has been deemed an essential input to the development of a nuclear arms capacity, neither France nor Communist China is a party to the Treaty and both continue to test nuclear devices in the atmosphere from time to time. This testing is on a relatively small scale and the overall effect of compliance with the Treaty's provisions by the major nuclear powers has been a dramatic reduction in the threat of radioactive fallout around the world. The attitude of the non-participating nations is nevertheless of grave concern since it is indicative of the problems involved in obtaining international compliance with any proposed rules which nations see as limiting their own growth or ability to defend themselves.

#### *B. Acts of Admitted International Concern*

In addition to agreement about those acts expressly barred by the Test Ban Treaty, most of the world's nations have agreed at least to consult in advance about certain other types of acts in outer space. In the last decade, two "outer space" cases aroused considerable scientific comment. One of these was the United States' Project West Ford, an attempt to place copper "needles" in orbit around the earth in 1961 and 1963; the other was the series of high altitude nuclear explosions, conducted before the Nuclear Test Ban Treaty of 1963, referred to above.

Scientists have demanded for themselves (and their nations) an undistorted, freely observable outer space. These claims have been broadly made. Project West Ford, for example, an effort to assess a potential communications system, was attacked by scientists in several countries, and by a number of government spokesmen, as a potential interference with radio astronomy and with other observation techniques as well. It was denounced as a "dangerous" unilateral interference with the cosmos or, at least, as a forerunner of a scientifically undesirable "cluttering up" of space.<sup>10</sup>

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8. August 5, 1963, U.S.T. 1313, T.I.A.S. No. 5433.

9. 55 Dep't State Bull. 953-55 (1966).

10. See J. Johnson, *Pollutions and Contamination in Space*, in *Law and Politics in Space* 37-50 (M. Cohen ed. 1964). The first attempt to discharge the needles failed. For an attack on West Ford, see e.g., A Lovell & M. Ryle, *Interference to Radio Astronomy From Belts of Orbiting*

Similarly, experimental high altitude nuclear explosions were opposed by some scientists as possibly creating distortions in the Van Allen Belt, and making the study of the earth's natural environment more difficult, thus causing interference with scientific and other satellites in orbit, and constituting a menace, present and future, to man in space.<sup>11</sup> The Soviet bloc called such experiments "acts of aggression" and contrary to international law, to the U.N. Charter, and to U.N. Resolutions.<sup>12</sup> Yet the high altitude tests were, in part, designed as an interesting scientific experiment. While some of these criticisms have been obviously politically self-serving,<sup>13</sup> they have been widespread enough to indicate a general interest around the world in protecting the environmental *status quo* even if no specific damage to a nation or an individual could be shown or was foreseeable.<sup>14</sup>

In response to these demands, all major powers agreed in a 1963 U.N. resolution on Outer Space<sup>15</sup> that:

In the exploration and use of outer space, States shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space in the due regard for the corresponding interests of other states. If a State has reason to believe that an outer space activity or experiment planned by it or its nationals *would cause potentially harmful interference with activities of other States in the peaceful exploration and use of outer space*, it shall undertake appropriate international consultation before proceeding with any such activity or experiment. A State which has reason to believe that an outer space activity or experiment planned by another State would cause potentially harmful interference with activities in the peaceful exploration

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*Dipoles (Needles)*, 3 J. Royal Astronomical Soc'y 100-108 (1962). Report by Georgi Zhukov, Problems of Space Law at the Present Stage, presented to Fifth Colloquium on the Law of Outer Space, International Institute of Space Law, in Varna, Bulgaria, Sept. 25-28, 1962.

The Space Science Board of the National Academy of Sciences in fact concluded that the West Ford dipoles had not interfered with radio or visual astronomy, but it was stated in the report that this

should not be taken either as an endorsement of the experiment or as tacit agreement to the launching of another similar belt without further discussion.

See NASNRC Press Release, Mar. 26, 1964; Space Science Board, U.S. Space Science Program, Report to COSPAR 153-154 (1964).

11. See Johnson, *supra* note 9; H. Massey, *Space Physics* 208 (1964); H. Taubenfeld, *Nuclear Testing and International Law*, 16 Sw. L.J. 365, 397 (1962).

12. See e.g., Legal Sub-Committee on Outer Space, U.N. Doc. A/AC. 105/C.2/SR5 (1962); *American Diversion of Space*, 12 Int'l Affairs 117-18 (Moscow 1961).

13. E.g., the Soviet attacks on U.S. high altitude testing when Russia was conducting similar tests. On radiation following Soviet high altitude tests, see e.g., N.Y. Times, Jan. 24, 1963, at 5, col. 4.

14. Note that the U.S. has not repeated the "needles" experiment.

15. G.A. Res. 1962 (XVIII), (Dec. 13, 1963) at par. 6.

and use of outer space may request consultation concerning the activity or experiment. [Emphasis added.]

This was made conclusive by the Outer Space Treaty<sup>16</sup> of January, 1967, which provides, in Article 9, that:

States parties to the treaty shall pursue studies of outer space, including the moon and other celestial bodies, and conduct exploration of them *so as to avoid their harmful contamination and also adverse changes in the environment of the earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. If a state party to the treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities of other states parties in the peaceful exploration and uses of outer space, including the moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A state party to the treaty which has reason to believe that an activity or experiment planned by another state party in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the moon and other celestial bodies, may request consultation concerning the activity or experiment.* [Emphasis added.]

While the treaty is self-policed and involves no enforcement mechanisms, it demonstrates the likelihood of further international efforts to prevent certain perceived dangers to the environment. In the course of the United Nations space discussions, the United States representative stated his government's belief that, *according to established principles of international law*, states should take all reasonable steps to avoid activities which limit the free use of space by others.<sup>17</sup> As early as 1962, the Committee on Space Research (COSPAR) established a Consultative Group on Potentially Harmful Effects of Space Experiments consisting of scientists from the Soviet Union, India, Sweden, the Netherlands, the United States, and the United Kingdom, to study all questions relating to possible harmful effects of proposed space exploration and to make recommendations to COSPAR. Thus, prior consultations, at least, have been recognized by states as necessary to maintain international calm in the face of consciously induced changes in aspects of the physical environment.<sup>18</sup>

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16. See *supra* note 9.

17. 17 U.N. G.A.O.R., 1st Comm. U.N. Doc. A/AC. 1/SR at par. 3 (1962).

18. We can also note that, for space activities, there has been consensus on sterilizing spacecraft to avoid contaminating other celestial bodies and on precautionary measures for

### C. Acts Not Intended Or Foreseen As Causing International Problems

Two kinds of activities may create international problems as their effects are felt across borders on the ground and in the air-space continuum, though no such effect is intended and though the activities are designed to have only local, beneficial effects. Some activities are intended to make atmospheric changes, though all their effects may not be, as in intentional efforts to modify weather; others, like industrialization in general, are not intended to modify the atmosphere at all, but may nevertheless do so. We will here touch only very briefly on the latter.

#### WEATHER MODIFICATION: AN EXAMPLE

In other places, we have called attention to the fact that, in several dozen countries, experimental or "operational" projects are presently being conducted with intentional weather modification as the goal.<sup>19</sup> "Weather modification activities" can be taken as including:

any artificially produced changes in the composition, or dynamics of the atmosphere. Such changes may or may not be predictable, their production may be deliberate or inadvertent, they may be manifested on any scale from the microclimate of plants to the macro-dynamics of the worldwide atmospheric circulation.<sup>20</sup>

At present, the reputable scientific opinion seems to be that man can, in certain circumstances and at certain places, modify at least local weather conditions in limited ways. Man can now dissipate certain cold fogs in limited areas for short periods. This is being done operationally by the U.S. Air Force and at some commercial airports, e.g., at Salt Lake City and Denver. Many scientists now agree that man can increase rainfall or snowfall by perhaps ten to fifteen percent in a local area in narrowly limited circumstances and that he can probably convert large hail into less dangerous forms of precipitation, also in narrowly limited circumstances.<sup>21</sup> Scientists are conducting

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avoiding back-contamination of earth (Art. IX of the Space Treaty of 1967) (T.I.A.S. No. 6347), for equipping orbiting satellites with cut-off devices for their radios to avoid noise pollution, and for at least considering the potential problem of cluttering up near in space with debris. See Lay & Taubenfeld, *supra* n. 1, at 189-191.

19. See e.g., R. Taubenfeld & H. Taubenfeld, *The International Implications of Weather Modification Activities* (Office of External Research, U.S. Dept. of State June, 1968). An article based on that study appears in 23 *International Organization* 808ff. (1969).

20. The definition is that used by the U.S. National Academy of Sciences. See *National Academy of Sciences-National Research Council, Weather and Climate Modification-Problems and Prospects* (1 Summary and Recommendations, Pub. No. 1350 1 1966).

21. The principal basis for current local weather modification to date has normally involved the use of cloud seeding with dry ice pellets or silver iodide particles. For a general survey, see Report of the Special Commission on Weather Modification, *WEATHER AND CLIMATE MODI-*



experiments to learn more about such severe storms as hurricanes, typhoons and even tornadoes. We will need to learn much more before we can begin to think of safely undertaking intentional modification on anything more than a local and highly selective basis. Indeed, major climatic shifts may never become possible on an intentional basis. Nevertheless, it is clear that even the limited effects thus far produced do not stop at some predetermined boundary; both nationally and internationally, attempts to modify weather can be expected to cause dislocations and friction. Moreover, even though it is not clear that large-scale changes in weather or climate can be artificially induced, it is the possibility of weather changes of this type which causes the most difficult international problems. This is also true of large-scale changes caused by national activities undertaken for other purposes. Scientists are concerned, for example, that Soviet efforts to reverse the flow of Siberian rivers to irrigate drier lands may cause the Arctic ice to melt and that Brazil's programs to deforest the Amazon to produce farm land and lumber may, if carried out extensively, cause widespread climatic shifts. It is of course not clear that such major changes would have to be of the type which imply that some states would have to lose desirable or valuable weather if others are to gain it, but it is at least likely. Indeed, even local changes in the weather achieved so far have regularly produced complaints, and even physical violence. The weather satellite, which represents a quantum leap in information to use and to develop models, brings us near a revolution in forecasting and, perhaps, control. With the development of increased knowledge about weather, and given the fact that weather modification is a potential weapon, it seems certain that there will, in time, be increased wide-scale experimentation in weather modification. Man has already modified weather inadvertently on an important scale and, by conscious effort on a smaller scale he will also, in time, have at least some capacity to "control" weather on a regional, national, continental or conceivably on even an international scale. It seems clear that at some time international institutional innovation will prove essential to control this emerging capacity to modify the weather. This is certainly true even for the wide scale research and monitoring of the oceans and atmosphere called for by leading scientists in recent years. It is also of interest that the World Meteorological Organization (WMO) has begun to take an important interest in international

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FICATION (SNF 1965). See also *Controlling the Weather: A Study of Law and Regulatory Processes passim* (Taubenfeld ed. 1970). For a recent, partial, survey of progress, see World Meteorological Organization, REPORT OF THE FIRST SESSION OF THE CAS WORKING GROUP ON CLOUD PHYSICS AND WEATHER MODIFICATION 27-30 (1972).

modification, with a study group appointed for the purpose, and that it is now a partner, with ICSU, in preparing for, coordinating, and, in time, helping to direct a major international study, the GARP (Global Atmospheric Research Program).<sup>22</sup>

Conflicts may arise out of weather modification operations if such operations prove to entail inverse payoffs so that there will be "losers" as well as gainers. If there must be "losers," even if this means no more than that a nation must deal with an unwanted change of some sort, international conflict, mild or serious, is inevitable. In predicting the future, Dr. Edward Teller some years ago nominated weather as the likely cause of the last war on earth.<sup>23</sup>

The need for new international arrangements to deal with weather modification has long been recognized by the World Meteorological Organization, which stated, ten years ago that:

. . . the complexity of the atmospheric processes is such that a change in the weather induced artificially in one part of the world will necessarily have repercussions elsewhere. This principle can be affirmed on the basis of present knowledge of the mechanism of the general circulation of the atmosphere. However, that knowledge is still far from sufficient to enable us to forecast with confidence the degree, nature or duration of the secondary effects

22. On the Global Atmospheric Research Programme (GARP) see JOC, An Introduction to GARP (GARP Pub. Series No. 1) (Oct., 1969); GARP, Experimental Design Proposal for the GARP Atlantic Tropical Experiment (GATE) GATE Report No. 1 (June, 1972). There are now 8 GARP Special Reports and 10 papers in the Publication Series. GARP is designed as a long-term coordinated program and will operate in the mid and late 1970s.

23. He told the Senate Military Preparedness Subcommittee in November, 1957:

Ultimately, we can see again and again that small changes in the weather can lead to very big effects. . . .

Please imagine a world in which the Russians can control weather on a big scale, where they can change the rainfall over Russia, and that—and here I am talking about a very definite situation—that might very well influence the rainfall in our country and in an adverse manner. . . .

What kind of a world will it be where they have this new kind of control, and we do not?

Cited by C. Anderson, *Toward Greater Control: High Risks, High Stakes*, in *Science and Resources: Prospects and Implications of Technological Advance 60-61* (H. Jarret ed. 1959).

Weather modification is clearly a potentially strategic activity. The interest of the armed forces in developing a capability of modifying the environment to their own advantage or to the disadvantage of an enemy, is not new. Dr. St. Amand, a Navy scientist, stated years ago that:

"We regard the weather as a weapon. Anything one can use to get his way is a weapon and the weather is as good a one as any." *Hearings on S. 23 & S. 2916 before the S. Comm. on Commerce, 89th Cong., 2d Sess., pt. 1, at 33 (1965-66)* [hereinafter cited as *Hearings*]. On military shortrun interests in weather phenomena which influence military operations, see remarks by Dr. C. W. Sherwin, *Hearings, supra* at 156, 161.

Not only are weather information and the general surveillance possible from many weather information collecting devices and local weather modification capacity likely to be useful in military maneuvers (as has been allegedly the case with efforts to increase rainfall to hinder enemy operations in Southeast Asia), but there also remains the possibility, perhaps remote, that major weather switching may become a very important new alternative total weapon.

to which a change in weather or climate in part of the earth may give rise elsewhere, nor even in fact to predict whether these effects will be beneficial or detrimental. Before undertaking an experiment on large-scale weather modification, the possible and desirable consequences must be carefully evaluated, and satisfactory international arrangements must be reached.<sup>24</sup>

#### CONCLUSIONS: SOME GENERAL NORMS

From the point of view of general international law there is a basis for norms controlling cross-border air pollution, the unwanted effects of atmospheric experiments, intentional weather modification, etc. While it is clear that no more than rudimentary basic rules exist, and that, in matters states consider vital to their well-being (such as the developing states' demand to industrialize), it may well be difficult in a given case to gain compliance, it does appear that international law already imposes the duty on a state "not to allow knowingly its territory to be used for acts contrary to the rights of other States."<sup>25</sup> A state has been held internationally responsible when its acts or those of its citizens, while not intended to be harmful, in fact caused damage (unwanted change) in another state. The best known (and almost unique) international case in point, the *Trail Smelter Arbitration* between Canada and the United States, supports this conclusion. Canada was held responsible for the injury and damage resulting in the United States from fumes and deleterious matter emitted from a smelter located in British Columbia and deposited over an area of the State of Washington. It was obliged to pay damages on the theory that a nation incurs liability under international law when it permits or fails to act reasonably to prevent conduct within its territory which causes injury in the territory of another state.<sup>26</sup> Future operations of the smelter were to conform to a specific set of restrictions designed to prevent injury as much as possible. Thus, as the United Nations Charter confirms, every state is entitled to maintain its national territory free of external interferences and to protect the lives, property, and interests of its nationals when threatened from any quarter,<sup>27</sup> including, presumably, deleterious cross-border airborne pollution.

As population grows, and as technology advances, humans put great pressure on the air (as well as on the land and water) to accept the

24. See World Meteorological Organization, *SECOND REPORT ON THE ADVANCEMENT OF ATMOSPHERIC SCIENCE AND THEIR APPLICATION IN THE LIGHT OF DEVELOPMENTS IN OUTER SPACE* (1963).

25. *Corfu Channel Case* (1949) I.C.J. 4, 22.

26. See 35 Am. J. Int'l L. 684 (1941). See also *Corfu Channel Case id.*; L. Oppenheim, *International Law* 290-91, 365 (8th ed., H. Lauterpacht ed., 1955).

27. Cf. U.N. Charter art. 2 para. 7, art. 51.

unwanted wastes created by this progress. The basic norms of an international system for allocating the costs of conscious pollution or intentionally caused change (*i.e.*, in "weather" resources) exist. The problems in obtaining international consensus on actual approaches for maintaining a "clean" environment while permitting national development are many and great and are inherent in the present international political system, which stresses self-help as the primary source for development as well as security, while relying primarily on self-policed rules and norms. In this context, it must be recalled that the now classic traditional national economic development strategy has always been to allow pollution of social resources, which can be thought of as a type of subsidy to development. Poor countries have been generally unwilling to be burdened with higher, more costly, standards than the rich have recently begun to impose on their own development. It is possible, however, that the developed countries could pioneer a relatively costless pollution control technology which would prove acceptable to the developing states, or could induce compliance by alternative techniques such as subsidizing it or attempting to impose it as a condition of aid. One need be no seer to know that this "cultural imperialism" would be bitterly resisted.

Air pollution has only relatively recently become a matter of international concern. The World Health Organization and the Economic Commission for Europe have studied the problem for a decade and the Council of Europe has worked on guidelines for industrial, thermal, vehicular and other sources of atmospheric pollutants. The U.S. and Canadian International Joint Commission for border problems has conducted studies. Both Western and Eastern European nations have indicated concern and there are some efforts at cooperative studies. Yet, while joint action seems essential, the ultimate right of a state to industrialize as it sees fit is likely to be pressed in practice. The Stockholm Conference results cannot be discounted. The very holding of the conference, after initial developing nation resistance, was a triumph for environmentalists. The decision to place the new environmental agency in Africa seems to reflect among other things<sup>28</sup> the distrust of the developing states for the developed—and to suggest their interest in seeing to it that progress, as they view it, will not be seriously hampered.

Perhaps the most that can be expected in the foreseeable future is that the best modern standards of care will be imposed on polluters and potential polluters by the *cooperative* actions of the states.<sup>29</sup> This

28. This was also an effort to change the fact that there was no U.N. Agency located in Africa.

29. See *passim* Report of the U.N. Secretary General, U.N. Doc. E/4667.

is not particularly comforting since it has failed to thwart environmental pollution by the relatively small number of already heavily industrialized states. Will the developing countries, knowing that people plus industry equal power, willingly accept any international efforts to impose higher (and, it appears, more costly) standards on all? If all do not comply, the others will be disadvantaged due to the extra costs of unilaterally maintaining higher standards of pollution prevention. Though the legal framework exists, the prognosis for firm international action is guarded.