

## Study Note 1

# ENVIRONMENTAL LAW AND ECOLOGICAL FUNDAMENTALS

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## 1. Introduction

The purpose of this essay is to explore the relationship between environmental law and ecological fundamentals. By ecological fundamentals we mean environmental targets necessary to ensure the preservation or continued functioning of a particular resource or ecosystem.

By this definition it is clear that eco-factors (EF) must be scientifically derived through technical means and measurements. EF are the recommended minimums that are necessary and sufficient to ensure, if they are attained, a quality environment.

Environmental Laws (EL), in contrast, express norms and procedures created and determined by political processes. EL is the result of debate and compromise. Politics not science governs EL. As a result, there is no necessary connection between EL and EF.

This creates potential and actual problems. Any appraisal of EL should therefore involve an inquiry whether EL observes or ignores EF. We shall find that the picture is a mixed one. Although EL takes EF into account, the laws created by the political process often fall short. There is thus great room for improvement in the law.

The following sections explore how the law takes EF into account. There are, in general, five patterns that can be discerned in the law with respect to whether EF are taken into account. These are discussed in turn.

## 2. Legal Norms with a Vague and Ambiguous Character

Certain legal formulations are unduly vague and ambiguous so that there is little impact on EF in any way. These laws are particularly common in the international arena.

A leading is the International Customary Law norm for state responsibility for transboundary environmental harm. A statement of this norm is found in the Restatement (Third) of the Law of

Foreign Relations of the United States. Section 601 of the Restatement says that “a state is obligated to take such measures as may be necessary, to the extent practicable under the circumstances, to ensure that activities within its jurisdiction or control are conducted so as not to cause significant injury to the environment of another state or of areas beyond the limits of national jurisdiction.”

This formulation is obviously vague in the extreme. EF considerations are totally absent. This kind of law is really no law at all.

Another example is the United Nations Convention on Biological Diversity (the UNCBD), 1992. This Convention was adopted to ensure the protection of biological resources all over the globe. Biological resources are defined to include ecosystem, species and genetic diversity. However, almost all the important obligations under this Convention re qualified by the phrase: “as far as possible and as appropriate”. For example, parties to the UNCBD must adopt in situ conservation plans for their territories “as far as possible and as appropriate”.

This phrase reduces the “obligation” to zero.

### **3 . Legal Norms that Specify Arbitrary Reduction of Pollution**

A common type of environmental law is one that requires a reduction in pollution emissions, usually expressed in percentage terms. This version of environmental law does not take EF into account, but operates on the assumption that pollution is “bad” and that any reduction is acceptable.

An example of this is the 1990 Amendments to the United States’ Clean Air Act [42 United States Code section 7651fb(a)]. The 1990 Amendments proposed to reduce acid rain with a market-based allowance system for sulphur. A limited number of “sulphur allowances” were issued, each allowing one ton of sulphur to be emitted by the holder. Facilities must have an allowance for all sulphur emissions. By the year 2000 this system reduced sulphur dioxide emissions from utilities by 50 percent, with a nation-wide cap of 8.9 million tons. Sulphur allowances are now freely bought and sold in the United States. This system is, perhaps, laudable, but the percentage reduction system bypasses EF.

A second example can be drawn from international law. The now-famous Kyoto Protocol (1997) to the United Nations Framework Convention on Climate Change, 1992, requires all “Annex I” Parties (developed countries) to reduce greenhouse gas emissions by a certain percentage. The required percentage reduction differs from country-to-country. The percentage-reduction system is designed to produce a total reduction in greenhouse gases by 5 percent from 1990 emission levels. This system does not, however, guarantee the stopping of the effects of greenhouse gas emissions, climate change: it is rather an arbitrary reduction system.

A third example is the International Convention on Long-Range Transboundary Air Pollution of

1979. This Convention was adopted in Geneva and went into force in 1983. Thirty-three states are Parties to the Convention. The purpose is to “limit, and as far as possible, gradually reduce and prevent air pollution, including long-range transboundary air pollution.” A weakness of the Convention is the lack of ceilings and timetables to achieve the reductions. The 1987 Protocol to the Convention required the reduction of sulphur emissions or their transboundary effects by 30 percent by 1993. This was an arbitrary figure in ignorance of EF.

#### **4 . Legal Norms Based on Feasibility**

In many cases environmental laws base regulations on the technological feasibility of compliance by those who have to comply with the law. This means that the amount of environmental degradation that is permissible can be very great or very small depending on whether the technology is available at a reasonable enough cost to make pollution control “feasible”.

An example of this is the United States Clean Water Act, the principal US law designed to control water pollution. Point sources of pollution discharged into rivers, lakes, and streams in the US must meet the standard “best practicable technology” for existing dischargers, and “best available technology” for new dischargers. Best practicable technology is the average of the best technology in use at the time an effluent limitation is set. [33 United States Code section 1314 (b)(1)]. Best available technology is the most advanced technology in use at the time an effluent limitation is set. [33 United States Code section 1314 (b)(2)].

These technology-based legal norms ignore EF. In fact, the US Environmental Protection Agency is forbidden by law to even consider the quality of the receiving water when setting the standards. See *Weyerhaeuser Co. v Costle*, 590 F. 2d 1011 (D. C. Cir. 1978).

This is, in effect, a legal mandate to ignore EF when setting environmental norms.

Another related but different type of feasibility requirement is economic feasibility. Economic feasibility requirements appear in several US environmental laws. A prominent example is the US Occupational Health and Safety Act, which protects workers’ health and safety. See the case of *Industrial Union v. American Petroleum Institute*, 448 US 607 (1980).

#### **5 . Legal Norms Based on Assessing and Balancing Economic and Social Costs against the Health and Safety Benefits**

A great many environmental statutes require that legal norms be set by a process of measuring, comparing or balancing costs and benefits. These laws are heavily influenced by the economic idea of “optimal pollution”, that is, that a regulatory standard should not be set at a point where the costs of

compliance outweigh the benefits. Of course this is an appealing notion, but it ignores two major problems: (1) that both costs and benefits of environmental regulation are difficult or impossible to measure and (2) that the benefits of protecting the environment frequently cannot be expressed in economic terms.

Famous examples of this type of regulation may be drawn from US law. First, the US National Environmental Policy Act requires that a regulatory agency balance “the environmental costs of a project against its economic and technological benefits”. Second, the US Pesticide Act requires suspension of the use of a pesticide when there is “unreasonable risk to man or the environment, taking into account the economic and social costs and benefits” of the pesticide.

Such environmental statutory norms consider EF, but EF is not determinative.

## **6 . Legal Norms Based on Environmental Fundamentals**

Finally, there are some cases in which legal norms are based upon and even derived from environmental and ecological fundamentals.

Two important examples may be cited from US law. First, the US Clean Air Act requires the setting of air quality standards for six common air pollutants based upon what is actually necessary to protect both human health and the environment. These are: particulate matter, sulphur oxides, carbon monoxide, nitric oxides, ozone, and lead. National Air Quality Criteria are promulgated and enforced for these six pollutants. The criteria are set without regard to economic or technological feasibility. The Act states, in fact, that the air quality criteria are intended to be “technology-forcing, that is it is intended that the strictness of the criteria force the development of new technologies to achieve compliance.

A second US law that is based on EF is section 404 of the Clean Water Act, which protects wetlands against pollution and dredging and filling. The regulations established under section 404 requires the protection of wetlands based upon their ecological character, ie the presence of wetland vegetation. The regulations adopt a policy of “no net loss” of national wetlands.

There is an important example of an environmental norm based on EF in International Law. This is the Montreal Protocol to Protect the Ozone Layer, 1987. This international convention determined that in order to protect the earth’s ozone layer, ozone-destroying gases had to be phased out of production and use. The Montreal Protocol identified these gases and adopted a time schedule and a methodology to achieve this goal.

## 7. Conclusions

From this review of the types of legal norms employed and the examples cited, it is apparent that there is a “disconnect” between scientists who study the minimum needs of the natural world on the one hand, and the lawyers and politicians who formulate and pass the laws. Only a small minority of environmental laws address ecological fundamentals adequately. Most environmental laws ignore EF or rank them as only of secondary importance.

In an ideal world environmental laws should not only be based on eco-factors, but should provide a “road map” and a process that is designed to actually achieve EF. Environmental laws should be reformed with this in mind.

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