Enforcement Issues for Environmental Legislation in Developing Countries

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1. INTRODUCTION

The Earth Summit in Rio de Janeiro and the subsequent Agenda 21 lead to the question ‘How can the law contribute to sustainable development?’. This question is especially poignant for developing countries, which will be the focus of this paper. First some general notions concerning the efficiency of environmental legislation will be outlined, with emphasis on (1) the principles of environmental legislation that should be taken into account when a ‘model environmental law’ is drafted; (2) the process by which standards are set; and (3) efficient enforcement of environmental legislation, as applicable in most countries. Not only legal methodology, but also economics and political sciences, will be used to assess the socio-legal environment in which environmental laws operate.

After sketching the general legal framework concerning environmental law, its relevance for developing countries will be discussed.

Of course, sweeping generalizations about environmental legislation are not possible, since both the legal background and the enforcement situation differ in many developing countries. Instead, I will try mainly to point out some of the major flaws in the environmental legislation that has been developed in western Europe. Since most developing countries are still in an early stage in the introduction and enforcement of environmental legislation, they might benefit from the knowledge of previous mistakes that have been made elsewhere. Of course, many of the problems that have occurred in western Europe in developing and implementing environmental legislation might take different forms in developing countries. Among the interesting questions that arise is whether Western principles of environmental legislation can be applied as such in developing countries or whether they should be adapted to match the radically different size, technical and financial means of those countries. Therefore, this general discussion does not focus on any one developing country. Instead, it seems more appropriate to outline several problems that may require special attention in the development and enforcement of environmental legislation in developing countries.

This paper is structured as follows. Following this introduction, I will outline some general notions concerning environmental law and new technologies (Section 2). Attention will then be focused on issues of enforcement, especially on the question of what conditions are required to ensure efficient enforcement of environmental laws (Section 3). Finally, I will address the situation in developing countries (Section 4) before completing with a few concluding remarks (Section 5).
2. GENERAL GOALS OF ENVIRONMENTAL LAWS AND NEW TECHNOLOGIES

2.1 Internalization

Economists have repeatedly pointed out that environmental damage is an externality, or a negative external effect, that polluting firms will not consider in their decision-making process (concerning, e.g., production and choice of technology), in the absence of any legal rule forcing them to do so. This generality makes clear what the goal of environmental law should be: it should force a potential polluter to internalize environmental damage, so that in decisions such as choice of technology the polluting firm will take into account the environmental damages produced by different alternatives. Legal rules can therefore serve an important function in the internalization process.

Legal experts have identified two principal legal mechanisms through which externalities can be internalized: (1) liability rules or (2) government regulation. Through liability rules, the legal system uses as a deterrent the knowledge that the firm will be held liable if it does not follow the level of due care that the system requires in order to prevent damage or harm. With environmental damage, however, liability rules often fail to produce the desired deterrent effect. This failure can be attributed to several factors. Firstly, it is often difficult for victims of pollution to prove negligence by the polluting firm. Secondly, pollution is sometimes so widespread (e.g., the problem of acid rain) that no individual victim has sufficient incentive to pursue a liability suit. Thirdly, environmental pollution may not damage individuals, but rather ecosystems or biota (e.g., a plankton population) are victimized. In addition to these difficulties in proving negligence, it may also be difficult to attribute causation. For example, if a fish population in a river dies, it is often difficult to prove exactly what killed the fish or what firm emitted the lethal pollutants. Because of synergistic effects among different pollutants one single firm may not be liable for the death of the fish. These problems of causation increase in cases of latency, that is, when the harm (e.g., cancer) occurs many years after the wrongful emission occurred. In such cases victims might even think that they acquired the disease through ‘natural causes’, and thus the polluting firm(s) will escape civil liability. For all of these reasons, many authors have argued that although liability suits remain useful in preventing environmental damage, the principle internalization mechanism should be ex ante government regulation that sets a specific standard of care [see Shavell, 1984; and Faure, 1994].

2.2 Role of Standards

Due to the limitations in liability protection noted above, environmental standards laid down in governmental regulation and enforced through administrative or criminal sanctions play a crucial role in limiting environmental damage. A number of legal techniques
exist to set environmental standards. The most commonly used technique is emission standards, which prescribe what substances can be emitted into the environment and in what limited amounts (e.g., a standard that prescribes a maximum admissible concentration of 0.1 g per litre of pesticides in industrial waste water). In most cases the standards themselves do not prescribe the technology or production method to be used to achieve the standards. In the example cited above, the firm could choose any type of equipment to treat effluent waste water to achieve the given standard. In some cases, however, the technology to be applied is prescribed as well. In still other cases emission or target standards specify a standard of environmental quality for a certain environmental component (e.g., the water quality of a small stream). (For a general discussion of the standard-setting process see Ogus [1981], and forthcoming] and Richardson et al. [1982, pp. 49-55]. This question has also received attention from administrative lawyers; see, for example, Diver [1983].)

Environmental standards differ also in the authority upon which the standard is fixed. The environmental standard may be fixed by statute, decree or other type of government regulation. Given the technical nature of standards, however, this is seldom the case. Instead, most environmental statutes lay out only a general framework, and establish an administrative agency empowered to set the environmental standards. Again, the precise role of this environmental agency can take different forms. It can set standards in decrees that are binding (e.g., upon all firms of a certain branch of industry); it can regulate specific activities by requiring licences subject to given environmental standards for that activity; or it can set customized standards by requiring individual licences subject to individual standards for each firm.

Approaches using a combination of both statute/decree regulation and agency-defined standards are also used. Both systems have advantages and disadvantages. One advantage of standards set by an administrative agency is the agency’s high level of technical expertise and its ability to consider local and individual circumstances in issuing licences. A disadvantage, however, is that potential inequalities and differences in licensing requirements might distort market conditions. Moreover, over time, due to lobbying and other influence, the administrative agency may become subservient to the regulated firm. In those cases, the private interests of the firm become too strongly reflected in licence conditions, and complete internalization of environmental costs does not occur.

2.3 Principles of Standard Setting

A crucial question is how should efficient environmental standards be set from the perspective of public interest. It is clear that the capabilities of new environmental technologies will have considerable influence on the level at which environmental standards are set. Based on economic principles, standards should be set at levels where the marginal costs of pollution abatement equal the marginal benefits in reduction of environmental damage. This means that a new, more expensive, technology should be incorporated into a legal standard only if its marginal costs are lower or equal to the marginal benefits of the additional reduction in environmental damage. In practice, of course, this strategy often presents problems since considerable uncertainty remains regarding the impact of some pollutants. In those cases it is often difficult to reach a consensus on the appropriate trade-off between environmental protection and industrial production (see Ogus, forthcoming). Clearly, environmental standards can evolve over
time. New, more sophisticated environmental technologies that are introduced and that can achieve high abatement at relatively low marginal costs will influence the level of legal standards. But problems could arise if this new standard-setting technology were not accessible to everyone in the market. Hence, on the one hand, developments in technology will influence standards. On the other hand, standard setting should be designed such that it provides incentives for technological innovation.

Another important question is whether a standard should be uniform or differentiated according not only to region, local needs and industrial sector, but also to local public preferences. Citizens in different regions might have different preferences regarding the appropriate trade-off between environmental quality and industrial production (see Ogus, forthcoming). This concern is also relevant to the debate on whether new environmental technologies should also influence legal standards in developing countries. There are at least two reason to answer this question negatively: (1) the new environmental technology might not be readily accessible in developing countries; and (2) the population in those countries may value environmental protection less than in western countries. One could object to differentiated standards that are less stringent for some regions, however, because firms may choose to relocate to areas with less stringent emission standards. Reduced standards might also discourage innovation and thus perpetuate the use of outdated technology. Target standards may help to overcome this objection. They set a certain standard of environmental quality, but do not necessarily force a firm to use a specific technology.

A final point in this introduction to environmental standards and technology is that the economic cost/benefit analysis applied here to new environmental technologies is increasingly being incorporated into the legal system. Especially in the United Kingdom, but also in Flemish, Dutch and European Union legislation, the concept of ‘best available technology not entailing excessive costs’ (BATNEEC) has been introduced. This legislation states expressly that firms must comply with the best available environmental technology, provided that this does not lead to ‘excessive costs’. I believe that ‘excessive costs’ refers explicitly to the economic marginal cost/marginal benefit test (see Faure and Ruegg, forthcoming).

The standard-setting process just described is a crucial cornerstone for environmental law and environmental policy in general. The strength of the environmental standard will be the guarantee that adequate environmental protection is reached. Environmental quality will therefore very much depend upon the quality of the standards and their enforcement. On the other hand, firms will have to comply with these environmental standards, which can have serious financial implications for them. Therefore these standards are the bridge between technological development and environmental protection. Evolution of environmental clean-up technology will necessarily be reflected in legal environmental (emission) standards, whether they are laid down in regulations or in individual permits.

Clearly, this discussion of the standard-setting process has focused on ‘end of pipe’ technologies to treat waste resulting from a production process. In many cases, far better results can be achieved by changing to a production technology that avoids production of waste in the first place. Such changes to environmentally sound technologies can also be induced through proper setting of standards. Moreover, these technologies often lead not only to a reduction in waste, but also to a gain in quality and/or quantity of output. Hence it would be wrong to treat the introduction of environmentally sound technologies
(ESTs) merely as a cost to the firm. Indeed, in many cases there exists great potential for the introduction of ESTs that bring cost-effective improvements. Since the introduction of these technologies can often be in firms’ best interest, an approach that emphasizes providing information on these beneficial effects may produce greater benefits in reducing environmental damages than mere enforcement by regulation.
3. THOUGHTS ON THE ENFORCEMENT OF ENVIRONMENTAL LEGISLATION

3.1 Enforcement of Standards

As outlined in Section 2, environmental standards, most of which are found in administrative permits, are the cornerstone of environmental law. It should be clear then that the most important aspect of enforcement consists of securing compliance with environmental standards. In that respect I will try to outline some general notions that seem important in guaranteeing efficient and effective enforcement of environmental legislation. Although far from complete, these notions have been proved important in guaranteeing effective enforcement of environmental law in western Europe.

3.2 Enforceable Legislation

3.2.1 Legality principle

Clearly, the effectiveness of any enforcement mechanism depends necessarily upon the quality of the legislation it is designed to enforce. The starting point for any enforcement policy should therefore be to guarantee the quality of the environmental legislation itself. Obviously this means that the legislation must be clear, straightforward, precise and made known to the persons or organizations concerned.

Environmental legislation should avoid attempts to prohibit in very general terms all environmental pollution. Such a broad scope may be useful in civil litigation, but its enforcement by administrative or criminal sanctions seems totally inappropriate. With respect to criminal sanctions, one also has to bear in mind that international human rights conventions require that any criminal charge be precise. This means that the possible offender must be precisely informed in advance whether he or she is going to commit a crime or not. A broad offense such as ‘polluting the environment’ is useless since, in practice, no environmental legislation prohibits all pollution. As mentioned in Section 2, environmental legislation aims only to administer allowed pollution by controlling it through a permit system. Since a very broad prohibition of pollution is ambiguous and does not clarify what kind of pollution is or is not allowed, at the very least it should not be used as a basis for criminal liability.

3.2.2 Information

Legislation should not be unnecessarily complex and should be made known to the person(s) whom the law affects. In many western European countries, the Ministry of the Environment regularly issues many types of newsletters and notes to inform industry of the contents of new legislation. Everyone is deemed responsible to know the law from the moment that it has been published in an official journal of the state, but of course this
is wishful fiction. A first prerequisite for effective enforcement is to inform the public on the contents of the legislation. The complex character of environmental legislation has often been advanced by industry in criminal cases as grounds for justification or excuse, but this defence is almost never accepted unless an administrative agency is shown to have provided incorrect information to the industry.

3.2.3 Role of licences and agencies

Perhaps the most effective way to give direct and precise information on what is lawful and what is not regarding pollution is to lay down emission standards in an individual licence or permit. Many large industrial organizations hold various environmental permits for their plants that describe in every detail what amounts of specific substances can be emitted and sometimes even what type of technology must be used. It is usually an offence to violate the conditions of the licence. In such a case, the conditions of criminal liability are quite clear since they are laid down in a licence that is given to the firm concerned.

Conflicts with the so-called legality principle in criminal law is another problem that may arise when standards are set by administrative agencies, since criminal liability is created not directly in a statute or by act of parliament, but through standards set by an administrative agency. It is, however, generally accepted that there is no conflict with the rule of law as long as the legislature (or parliament) sets the general framework and dictates under what circumstances standards can be set by the administrative agency. It is also in most cases the legislature that sets the sanctions and prescribes in the statute that it is a crime to violate the standards laid down in a permit by the administrative agency.

3.3 Judicial Review

3.3.1 Enforcement of legislation

It is of utmost importance that environmental laws can be enforced by an independent judiciary. In principle the task of the judiciary is to enforce (1) environmental legislation enacted by the legislator and (2) the permits issued by administrative agencies. In most trials concerning environmental pollution a conflict of interest arises between environmental protection and commercial interests of the industry. It should not be the task of the judiciary to solve this conflict. In theory, those interests have already been balanced by the legislature, which has decided, to whatever extent, in favour of environmental protection by enacting laws to protect the environment. The same balancing act has been done by the administrative authority in setting permit conditions. These conditions have usually been set after carefully balancing the interests of the industry and its financial and technological capabilities versus the interests of the environment and victims of pollution. This means, in principle, that with clear and precise legislation the judiciary’s only role is to enforce it. This enforcement role for the judiciary is important, since renewed attempts to balance these interests when a case is tried before a court should be avoided. An independent judiciary should respect, and enforce, the decisions of the legislature and the administrative authorities.

3.3.2 Testing the licence

Some legal systems do allow courts to test the conditions of a licence and to examine, for instance, whether permit conditions are stipulated in accordance with the administrative
legislation and the principles of a fair administrative procedure. Such a proceeding is, however, a limited judicial review which does not allow the judge to re-examine the contents of the permit conditions based on their merits. This is particularly important in environmental criminal trials. One should indeed remember that offenders prosecuted in environmental cases are not stereotypical criminals, but rather mostly successful businessmen of high standing in society. Often their firms contribute to a large extent to the well-being of the community concerned. Indeed, the status of accused executives and their firms seems to be a highly sensitive point in the enforcement of environmental legislation in western countries. When enforcement of environmental legislation first began, many judges in criminal courts seemed reluctant to convict offenders since they were not social outcasts. The argument for acquittal was often that it was financially totally impossible for the company concerned to comply with the environmental legislation. Industries argued that they would have no choice but to close the company, resulting in hundreds of unemployed workers, if they had to comply with the environmental legislation. This argument was frequently advanced by industry as grounds for justification or excuse.

From a strictly legal point of view acquittals based on such arguments are groundless. Decisions on the socio-economic effects of environmental legislation should not be made by individual judges in criminal cases, but by the legislature or administrative agency. This discussion shows, however, the importance of an independent judiciary that has the strength to enforce environmental legislation notwithstanding industrial, political or societal pressure.

3.4 A Combined Use of Sanctions

Another feature that should help to guarantee effective enforcement of environmental legislation is an approach that combines the use of civil, administrative and criminal sanctions. All three of these enforcement mechanisms do indeed have strengths and weaknesses, and should therefore be combined to provide support for each other.

3.4.1 Civil liability

The discussion in Section 2 revealed that the use of civil liability to prevent environmental damages has several weaknesses, especially the problems of causation, proof and latency. Therefore, standards should in principle be set \textit{ex ante} through government regulation. This does not mean, however, that environmental liability plays no role at all. First of all, the regulation can guide the judge in setting the standard of due care. If standards are set efficiently by the regulatory agency they can inform the judge in a tort case: in most legal systems breach of a regulatory norm is regarded automatically as a fault that can lead to liability in tort. Thus civil liability provisions have the added advantage of providing an incentive for victims of environmental pollution to prove in a civil liability case that a regulatory norm has been breached. This helps to make the victim, in a way, an enforcer of the regulation.

There are other reasons why the civil liability provisions should reinforce regulation. First, regulations can become outdated, technology can change and neither all possible cases of pollution nor all possible substances can be regulated. The possibility of liability in tort for wrongful conduct that causes harm should therefore function as a safety net. Second, enforcement of regulations depends on administrative and criminal sanctions.
Due to many factors, among which is a low probability of detection, administrative and criminal sanctions often fail to provide the intended deterrent effects. The threat of civil liability to reinforce the deterrence is therefore useful.

### 3.4.2 Administrative sanctions

In theory, regulations can be enforced directly through either administrative or criminal sanctions. Administrative sanctions have the advantage that they are relatively easy and inexpensive to administer. But compliance with human rights conventions requires their use to be limited to sanctions with a relatively small impact, such as low administrative fines. Empirical research has shown that administrative authorities tend to base enforcement strategy more on cooperation with the industry to convince them to comply than on coercion to force them to comply. This strategy seems generally to have had little effectiveness. Therefore, independence of the public prosecutor and criminal courts is needed, since they can also impose more stringent sanctions (e.g., imprisonment).

### 3.5 Effectiveness of Control and Prosecution

A few obvious observations can be formulated concerning the requirements that have to be met to exercise effective control over compliance with environmental legislation and, particularly, environmental standards. Both knowledge and independence are critical for effective control by administrative agencies and prosecution by the public prosecutor. Independence is usually better guaranteed with a public prosecutor, who generally belongs to the judiciary and is therefore nominated for life. Administrative agents, on the other hand, may be highly dependent upon the industry which they are supposed to control. In some countries, administrative inspections accompanied by free meals and small gifts for the inspectors are no exception. Nevertheless, the technical expertise of the civil servants belonging to enforcement agencies is usually quite high. One guarantee for good technical expertise is specialization. The civil servants are usually very well trained and equipped, which is necessary to adequately monitor compliance with standards (e.g., to measure pollution levels in industrial waste water). At the level of the judiciary, on the other hand, specialization is often still lacking. This is a serious problem since public prosecutors often still assign lower priority to environmental crimes than to more traditional crimes, such as murder, theft and rape. One can notice clearly that the number of prosecutions increases from the moment that a specialized environmental prosecutor is nominated. Such a prosecutor has a direct incentive to learn a lot about both environmental techniques and environmental legislation, and to treat environmental crimes as a serious priority.

One factor that has proven effective in solving the trade-off between independence and technical knowledge is close co-operation between the public prosecutor, who is independent and has the necessary judicial protection, and the civil servants from the controlling environmental agency, who have the technical knowledge. Their combined efforts and actions are often a guarantee for successful prosecutions against environmental offenders.

Obviously training of both public prosecutors and civil servants requires investment. It goes without saying, however, that it is fruitless to create a sophisticated legal framework if it is not backed by well-trained and well-equipped officials to enforce it.
3.6 Effectiveness of Sanctions

Sanctions should serve to deter potential polluters from wrongful behaviour and hence give them an incentive to comply with environmental standards. As long as the probability of detection is one hundred per cent, the sanction applied can simply be equal to the harm caused. But if polluters can always be detected and held to pay for the damage done, then liability rules would suffice. As I have already discussed, however, one feature of environmental pollution is that it is often hard to detect. In practice, the probability of detection will often be less than one hundred per cent. A higher sanction should therefore be imposed to compensate for the reduced rate of detection. This increased sanction could involve imposing a monetary sanction, for instance an administrative or criminal fine. The problem with fines, however, is that the probability of detection is often so low and the amount of harm done so high that the fine would far exceed the total wealth of the individual offender. In that case judgement proof problems could arise and the potential fine would not provide the desired deterrence [see Becker, 1968; Shavell, 1985, 1986; Faure and Heine, 1991]. Therefore, non-monetary sanctions must also be imposed. Non-monetary sanctions can take the form of imprisonment, but in environmental law it is especially important to focus on sanctions that ameliorate the environmental harm caused. Some modern environmental legislation allows the judge to impose a *restitutio in integrum*, that is to force the convicted offender to ameliorate the harm done (e.g., to remove all the deposited waste). This type of non-monetary sanction can not only be highly effective, but is also directed towards improving the quality of the environment, which is not directly the case with fines and imprisonment. Modern environmental legislation in western Europe is therefore increasingly employing such direct ‘environmental’ sanctions.

3.7 Information and Compliance

I mentioned above the importance of providing information to regulated industries. Regulations can be effectively enforced only if firms are made aware of the contents of the regulations and of the risks of non-compliance, which depend on the probability of detection and the severity of the sanction to be imposed. More important, however, is to develop environmental policy such that firms are made aware of the inherent advantages of adopting environmentally sound technologies. Clearly, enforcement would be more effective if compliance were achieved automatically without having to use the deterrent effect of enforcement measures, such as criminal sanctions. Adequate information dissemination through education of regulated industries should be stressed as an important component of environmental policy.
4. ENVIRONMENTAL LEGISLATION AND ITS ENFORCEMENT IN DEVELOPING COUNTRIES: AN INTRODUCTION

4.1 General

I have outlined in Sections 2 and 3 some of the general problems that arise in formulating and enforcing environmental legislation. Although this bird’s-eye overview is far from complete, it allows us to apply some general lessons about environmental regulation to the situation in developing countries. Clearly, one must be careful with generalizations given the many differences that exist in the various developing countries; some countries already have more or less sophisticated environmental action programmes, while others are only beginning to develop environmental legislation. Nevertheless, some general remarks can be made concerning environmental law enforcement in developing countries. I will address this problem from two different angles. Firstly, some of the problems that have arisen in western Europe in development and enforcement of environmental law (as discussed in Sections 2 and 3) will be offered as a warning for developing countries. I will focus on the question of whether similar problems might arise in developing countries, and how can they be prevented. Secondly, I will explore how conditions in developing countries differ from those in western Europe, and when similar principles can be applied and when adjustments have to be made. In this paper I will not discuss the state of the environment in Third World countries. Specific problems, such as deforestation, are discussed elsewhere in the literature [for a discussion of the deteriorating state of the environment in selected countries see Sunaryo [1992, pp. 47-52] for Indonesia, Cho [1993] for Korea, and Schumann [1991] for Africa, and particularly Kenya].

4.2 Goals of Environmental Legislation in Developing Countries

4.2.1 Different standards for different countries?

This question relates closely to issues discussed above on standard setting (Section 2) and the enforceability of environmental legislation (Section 3.2). In principle, environmental standards should, as is the case in western countries, be set from the perspective of the public interest, taking into account the marginal costs and benefits. Standard setting should obviously take into account the ‘state of the art’ of environmental technologies that are readily available in the country concerned. Since ‘best available technology’ should not be considered on a world-wide level, but instead given the available technology within the developing country, this could indeed justify adjusted standards for developing countries.

Of course local circumstances and preferences should also be taken into account. In that respect there is much to be learned from mistakes made by the European Community.
It has long been the policy of the European Commission to harmonize all environmental standards to the greatest extent possible. Many countries with already far-reaching environmental legislation feared that harmonization directives would be a maximum of environmental protection. Therefore, countries like Germany, the Netherlands and Denmark always strived for quite stringent environmental standards in directives. These directives prescribed relatively detailed standards (e.g., types of substances that could not be emitted, or emitted in restricted amounts, in surface waters). For countries with less stringent environmental legislation (e.g., Portugal and Greece), compliance with such strict requirements may be quite burdensome. Many of those member states were convicted by the European Court of Justice for failing to implement the stricter standards. The question arises, however, whether such detailed harmonization of standards at the European level is indeed necessary and useful. Very stringent standards might well be efficient in densely populated regions such as the Netherlands, Denmark and Germany but perhaps not in countries, such as Greece and Portugal, that still retain many unpolluted resources. The view that standards should not be completely harmonized has therefore grown within the European Union. In fact, it is unlikely that the European Union will ever reach complete federal unity, and many obstacles to complete harmonization of standards will therefore probably remain. Indeed, citizen preferences regarding environmental quality also differ. This idea has now been accepted in the Treaty of Maastricht, which has accepted the so-called Principle of Subsidiarity. Article 3b of the EC Treaty now expressly states that ‘Any action by the Community shall not go beyond what is necessary to achieve the objectives of this Treaty’. In the areas of shared competence, the Community shall proceed ‘only if and in so far as objectives of the proposed action can not be sufficiently achieved by the member states’ [for a discussion of these problems see Faure and Lefevere, 1994].

Here I think that the European example clearly provides a lesson for environmental policy in developing countries. Standards for industrial waste water discharge in the city of Antwerp, for example, can certainly be different than those on the Island of Kalimantan in Indonesia. Obviously, the marginal benefits of investments in highly sophisticated environmental technology must be considered. These benefits are relatively high in areas that are already heavily polluted, such as Flanders. Pollution abatement in Kalimantan, on the other hand, might well be achieved with relatively modest technological equipment given the much higher capacity of its large clean rivers to absorb biodegradable wastes than the river Schelde near Antwerp. Requiring more stringent standards in Kalimantan, not taking into account ecosystems’ natural capacity for recovery, might be inefficient.

This is not to say that developing countries should continue to use outdated technology, but is rather a plea to consider local circumstances in developing environmental standards. Clearly, the benefits in pollution abatement might outweigh the costs of investing in highly sophisticated technology in many overcrowded Third World cities, such as Mexico City or Cairo. Given different local circumstances, varying emission standards can be developed that result in the same level of environmental quality. Obviously, when fixing environmental standards for developing countries the question should also be asked whether the technology that is available in the West to achieve a given level of abatement is available in developing countries. This availability is clearly related to the willingness of western countries to make these technologies available. The problem of availability of technology can be addressed by fixing standards based on ‘best technology available’ in that particular country. Blindly copying western legislation with western emission problems.
standards that cannot be met by the industry in developing countries might therefore not be very useful.

Local preferences and priorities should also be taken into account in the standard-setting process. Imposing stringent western standards on industries in developing countries could pose problems if environmental protection is not valued as highly in developing countries as in western Europe, even disregarding the preceding arguments. The preference argument would mean that one could accept differences not only in emission standards (which could still lead to similar environmental quality) but also in environmental quality, and hence varying target standards. There are, however, some problems with this preference argument. Firstly, information about the real costs and hazards of environmental damage might be lacking. This was still the case to a large extent in western Europe at least until the 1970s, when the public began to realize the consequences of environmental pollution. Hence, lack of interest in environmental protection might be based not on informed choice of preferences, but on lack of information. Secondly, environmental pollution may affect not only the current population, but also future generations. It could be argued that it is reasonable for the current population to choose not to worry about future generations. In a paternalistic model, however, the regulator could decide that environmental standards should be imposed that take into account the protection of future generations as well.

A similar paternalistic, even egocentric, argument could be made concerning pollution that reaches beyond national borders, which is the case for many types of pollution. A classic example is cutting of the rainforests in Indonesia and Brazil, which can be viewed as a typical example of externalities. The benefits of cutting clearly contribute to the local population, while most of the negative external effects (greenhouse effects and related problems) are felt mostly in the industrialized western world. This raises the interesting question of how incentives could be given to developing countries to prevent activities that cause a large part of their harm outside the national territory. A final argument against varying target standards is the potential relocation problem: lower environmental standards in developing countries might attract polluting industries from the industrialized world.

4.2.2 Legislation with symbolic value

Whatever level of environmental standards is chosen, it is important to stress that the legislature should be responsible for balancing competing interests and establishing environmental priorities. It is not very useful to proclaim strong environmental protection on paper for reasons of ‘window dressing’, while failing to enforce the regulations at all or only prosecuting extreme cases. Many developing countries have indeed enacted environmental protection Acts that, on paper, provide excellent protection and impose severe sanctions against violators. In practice, however, they are often totally unpracticable. For example, Article 22 of the Indonesian Environmental Management Act of 1982 provides severe sanctions (imprisonment of 10 years or a fine of 100 millions rupiah) to punish anyone who violates the provisions of the Act. To my understanding, however, there have been very few convictions to date for violation of this statute, although H. Hamrat Hamid [1990, pp. 12-13] reported some criminal cases concerning water pollution, illegal transport of waste and illegal trade in protected species. Even in those cases producing a conviction, violations of the legality principle have occurred. For example, in the Sido ardjio case, a polluter was convicted although the permit conditions had no
formal status. In addition, regulations to implement the Act are still lacking, due in part to conflicts of competence between Bappedal (an environmental agency) and the ministry for environmental affairs. The World Bank has indicated a willingness to make funding available to modernize Indonesian environmental law (according to information obtained by Thys Drupsteen, professor of environmental law at Leyden University, during a recent visit to Indonesia). It remains unclear, however, if this would do any good without structural changes in Indonesia’s legal and administrative framework.

4.2.3 Who sets the standards?
If environmental protection is to be taken seriously it seems preferable to enact one environmental protection act that establishes the administrative system for setting and enforcing standards. Mistakes in the West also seem to suggest the importance of legislation that limits the discretionary power of administrative agencies, and establishes a standard-setting process that is as rational and open as possible in order to minimize the risk of lobbying by industrial interest groups. One way to promote this goal is to grant authority for issuing environmental permits to a scientific or technical administrative agency (such as the U.S. Environmental Protection Agency) instead of giving it to a political body.

4.3 Role of the Judiciary
Some of the issues relevant to the role of the judiciary were discussed in Section 3.3. The lack of an independent judiciary is too frequently a problem in developing countries. It is not uncommon for judges to be appointed by political nomination, and industrial interest groups often exert considerable influence and pressure on politicians, and thus on judges as well. I once discussed the role of the judiciary in controlling permit conditions with an Indonesian Supreme Court judge of Jakarta. He opined that it was totally out of the question that a judge would test the legality of an administrative order, such as an environmental permit. Problems associated with the lack of an independent judiciary in Indonesia have also been mentioned in the literature. ’t Hart [1987, pp. 166, 192-194] mentions that, in every district, the chairman of the district court, the chief prosecutor and the chief of the police hold periodic meetings. These meetings would especially be held when important political cases were being tried, which would serve to deter judges from making decisions that are unpopular with the government [’t Hart, 1987, pp. 192-194]. The dependence of the judiciary upon the executive branch of government is apparently so significant in Indonesia that it inhibits effective enforcement of permits. This system of checks and balances is, however, crucial to improving the quality of environmental permits. The dependence of the judiciary on politicians or industrial pressure groups, which can occur in many developing countries, is a problem for the criminal enforcement of environmental legislation. As mentioned earlier, it is already difficult for independent western judges to convict a ‘white collar’ member of society for an environmental crime; similar difficulties will certainly occur in countries where judges have strong links with political or industrial pressure groups or where corruption is still prevalent. According to ’t Hart [1987, p. 194], for example, there is ‘wide spread corruption’ in Indonesia, due to the very low salaries of judges and other court officials.
Of course, few useful recommendations can be made in this respect, except to note that every democracy that respects the rule of law needs an independent judiciary, which is an absolute necessity for effective enforcement of environmental legislation. Apparently some developing countries have a relatively independent judiciary. I have been informed that judges in Brazil are selected independently, and are well paid, so that they attract well-qualified attorneys to the bench.

4.4 Combined Use of Sanctions

4.4.1 Rights of standing of environmental groups

The issues discussed in Section 3.4 related to the combined use of sanctions should also be taken into account in the development of environmental policy in developing countries. In addition, especially given the weaknesses of administrative and criminal law enforcement in developing countries, it seems important to improve the potential for civil law enforcement by granting rights of standing to environmental interest groups. Granting environmental groups the right to sue for an injunction to shut down an unlawful activity with harmful consequences might provide a powerful counter-weight against corruption and other influences of industrial lobby groups. Environmental groups have apparently achieved some successes in some Latin American countries, such as Colombia, Brazil and Costa Rica. Colombia has granted a right of action to environmental groups, which is even founded in the constitution [Sarmiento Palacio, 1988]. Environmental groups in Colombia cannot only ask for an injunction, but also claim damages in which case the group itself receives the award. In some cases they may even act on behalf of local communities as well, in which case the proceeds are divided with the community. Recently, the Fundación para la Defensa del Interes Público filed a claim against Dow Chemicals, for damages estimated at U.S.$ 2 million (according to information provided by German Sarmiento Palacio, president of the Fundación para la Defensa del Interes Público, Colombia). Obviously non-governmental organizations (NGOs) can play a role not only by initiating independent legal procedures, but also by providing adequate information to firms and the public at large on optimal measures to prevent environmental damage.

4.4.2 Due process requirements

Sanctions to be imposed on environmental pollution should always adhere to the requirements of international human rights conventions. Very broad definitions of offenses may conflict with these provisions: for example, the Indonesian Environmental Protection Act provides relatively serious sanctions that can also be applied to minor offenses. In that respect it is remarkable that a tradition of very severe criminal sanctions often arises under exceptional circumstances when they might seem justified, such as during civil war. But these severe sanctions may remain in place long after the exceptional circumstances end, and thus be applied to common offenses to which they were never intended to apply. Examples of such statutes include Indonesian Acts introduced around 1959 that were deemed necessary to counter a communist revolution at the time. Emergency legislation was passed, mostly based on presidential orders which even introduced the death penalty for those who would ‘interfere with a government program to provide for the safety of the people and the state’. Most of the statutes remain in force, however, and are now used for different purposes.
One should not forget that balanced sanctions, adapted to the seriousness of the offense, is necessary not only from a human rights perspective but also to increase the effectiveness of the sanction. Moreover, one can seriously question whether the policy adopted by the Indonesian government to simply copy western (in casu Dutch) legislation is always very successful. For example, Indonesia copied the Dutch Economic Crimes Act of 1950 more or less literally in its Statute No. 7 of 1955 [see Hamzah, 1986], although the legal background and institutional framework in the two countries is completely different.

4.5 Problems with Environmental Law Enforcement in Developing Countries

4.5.1 Lack of technical knowledge and funds

An obvious problem is that the effectiveness of the environmental protection policy proclaimed on paper is often low in practice, due in part to a lack of political will to enforce the regulations made. In fact, often no manpower is provided to monitor compliance with environmental regulations, and even if there is sufficient manpower personnel often lack technical knowledge or equipment. Very few developing countries have established a specialized environmental control agency or specialized public prosecutors who devote their time exclusively to environmental matters. This is a classic problem: environmental protection is often limited to political rhetoric that lacks adequate enforcement. The technical expertise required to prosecute a case is sometimes lacking as well. H. Hamrat Hamid, Director of General Criminal Prosecutions in Jakarta, noted [1990, pp. 12-13] that

The service of qualified and experienced investigators, professional and especially well-trained prosecutors in criminal cases on environment, and experts in various fields is of major importance, as well as a qualified laboratory, supported by sufficient funds, especially in handling water and air pollution caused by industry. And I do not think that we have some or even one laboratory which can serve and provide us with all the data we need to construct an indictment accurately and prove the accused guilty beyond reasonable doubt.

Some attempts have been made to improve the legal expertise of public prosecutors (e.g., by training 30 Indonesian prosecutors in the Netherlands in Dutch environmental law)\(^9\). Until that time, no public prosecutors in Indonesia were assigned specifically to enforcement of environmental law\(^10\).

4.5.2 Corruption

A related problem is the close relationship of enforcement agents and public prosecutors with the powerful industries that should be regulated. In countries where corruption of government officials is practiced daily, effective enforcement of environmental law will often fail altogether [for a general discussion, see Van den Heuvel, 1992]. Even if a public prosecutor nevertheless decides to file a criminal charge against officials of a polluting company, the accused often argue that there are grounds for justification or excuse: since the wrongful emissions had been tolerated for so long by the enforcement agents, the prosecuted can claim they believed the behaviour was in fact lawful and that the violations were simply a mistake.

The problem of corruption is not limited to developing countries and certainly not to enforcement of environmental law. Again, there are mechanisms available to avert the potential risks associated with overly close relationships between agents and industry.
Granting rights of action to environmental groups is one possibility; effective enforcement by an independent public prosecutor is another.

4.5.3 Low deterrent effect of sanctions

Mild sanctions as punishment for perpetrators of environmental crimes presents additional obstacles to effective enforcement of environmental laws in some countries. Mild sanctions may lack the deterrent effect needed to prevent violation of environmental standards. Even sanctions that appear very stringent may lack deterrent effect in countries where the probability of detection is very low. A common axiom in law states that potential criminals always underestimate the probability of being caught. Moreover, this overconfidence only increases if they can further decrease the probability of prosecution and conviction by bribing enforcement officials or the public prosecutor. Hence, it is not only important for legislation to include sanctions that are sufficiently high to deter environmental crimes, but to assure a high probability of detection and punishment as well. In that respect one should not forget that most polluters are rational criminals and balance the expected costs of a crime (probability of detection x probability of conviction x expected sanction) against the expected benefits (the omitted investments). In many cases the investments in environmental clean-up equipment required to meet the standards may be very high, and exceed the small risk of a fine in case an environmental crime is actually detected and prosecuted.
5. CONCLUDING REMARKS AND SUGGESTIONS FOR FURTHER RESEARCH

In this paper I have outlined some basic issues that should be addressed if a country wishes to enact effective environmental legislation and guarantee effective enforcement of these environmental regulations. Thus this paper has addressed the question ‘how can legal instruments contribute to sustainable development?’ These insights into the prerequisites for effective environmental law emerged only after some twenty years of experience with environmental law in western Europe. In that light the criticism is often heard in developing countries that industrialized countries could afford to industrialize over a period of two centuries, without any concern for the environment, whereas the Third World is now expected to develop its industry with complete consideration of environmental concerns. Of course it would seem impossible to expect developing countries to industrialize in a way that completely protects the environment for future generations if basic resources are missing to guarantee the survival of even the current generations. Therefore one should not be overly optimistic about the development of effective environmental legislation over the short term.

Nevertheless, it seems worthwhile to explore the problems that western countries encountered in the process of developing environmental law. This experience in the West reveals some of the inefficiencies in the original legislation. In fact, most of the environmental legislation that originated in the early 1970s is currently being replaced by more all-comprising environmental codes in many western European countries. In this reformulation of environmental law in western Europe, previous mistakes are being taken into account and attempts are being made to create new, better and more effective legislation. Countries that are still in the early stages of developing initial environmental legislation could benefit from the experience gained in western countries by avoiding the same mistakes. In this paper, I have identified some of these mistakes and suggested how developing countries might take that experience into account when drafting new legislation. Of course the unique situation of developing countries should be taken into account. Blindly copying western European environmental legislation would probably be fruitless, since not only the legal framework, but also the environmental conditions, public preferences and thus environmental standards, may be totally different in developing countries. In this paper I have identified some of the criteria that could be considered in setting environmental standards.

Simply applying general principles of environmental law to developing countries may often produce pessimism regarding their ultimate success. The proper legal framework to guarantee the introduction and enforcement of effective environmental regulation is completely lacking in some countries. In addition, corruption is often such a serious problem that it prevents successful enforcement against powerful polluting industries. Nevertheless, I have suggested a few directions in which to search for possible solutions.
A general conclusion is that in drafting environmental legislation for developing countries, the unique conditions prevailing in that country must be considered. Merely copying legislation from other developed countries (e.g., copying Dutch law in Indonesia) seems unlikely to produce fruitful results. The experience gained by the various member states of the European Community also suggests that environmental standards cannot be uniform, but should be tailored to reflect local conditions and varying public preferences. Another general conclusion is that legislation should not serve merely as window dressing with little practical capacity to address real problems. Very broad legislation that punishes all types of environmental pollution, but creates no effective licensing or standard-setting system, appears highly ineffective. A prerequisite for any environmental legislation is a sound legal framework that defines clearly at what level the environmental standards are made and who takes responsibility for decisions concerning the balancing of interests between environmental protection and industrial development. These decisions should be made when the environmental standards are set and not at the level of law enforcement.

I examined the general question of how legal instruments can contribute to the introduction of environmentally sound technologies. Of course, many incentives other than legal instruments can be offered to urge a country and its industry to introduce ESTs. For example, the World Bank now requires an Environmental Impact Assessment for every project before it is financed, thus providing important financial incentives for environmentally sound development [Benjamin, 1993, p. 12].

In this paper I have only been able to identify some of the possible problems that might play an important role in environmental law enforcement in developing countries, but every country has its own unique situation. The relative importance of these general problems will vary from one country to another. The degree of judicial independence and the level of corruption may be totally different in Indonesia than in Brazil, for example. Nonetheless, some general observations can be made. Firstly, the effectiveness of environmental law often seems to be hampered by corruption and, more generally, depends on the institutional legal framework within a particular country. Environmental law can be effective only if it can be enforced by an independent judiciary. And that leads to a second related point: although it is of utmost importance that the bureaucracy, public prosecutors and magistrates are all independent, this independence is especially crucial for the magistrates in a court of law. Experience in several Latin American countries has revealed that some success in enforcing environmental statutes can be achieved by granting rights of standing to environmental groups. These groups may become a powerful counter-weight to lobbying by industry and corruption of government officials. Future research should strive to refine the discussion presented here, which focused on general problems and provided examples drawn from selected countries, by applying the issues discussed in this paper to the situation in one or more specific countries.

One important point that I have not yet addressed explicitly is the question of how western countries can assist developing countries in building up an environmental law regime in accordance with some of the general principles sketched in this paper. Several programmes have been initiated toward that end, including education and training programmes, and by drafting environmental codes for developing countries. Some of these projects were initiated by United Nations and other international organizations. Others have come into being on a bilateral basis. For example, the Dutch Ministry of Justice organized a course on the enforcement of environmental law for Indonesian Public Prosecutors [Van Brummen et al., 1991].
In this paper I could mention only a few of the important points relevant to development of a legal framework for the enforcement of environmental laws in developing countries. Clearly, much more remains to be said (for example, with respect to liability for polluted soils, which is currently a highly sensitive topic in western Europe and North America). Within the scope of this paper I could only point out some of the more pressing priorities. This does not mean, however, that other points should not be addressed. Some general directions for solutions have been suggested, but more research needs to be done with respect to individual countries. Some issues that could be addressed only briefly in this paper, but that certainly merit more careful attention, are:

- What influence does the legal framework, and especially environmental standards, have on the incentives to innovate technology?
- Should different environmental standards apply in developing countries? And how does the standard-setting process in developing countries influence the specific incentives to introduce new technologies?
- Should the standard-setting process and the overall environmental policy of developing countries also take into account the fact that environmental pollution may cause much of its damage outside the border of the developing country?
- What attitude should industrialized countries take towards polluting activities in developing countries that cause most of their harm to industrialized countries?
- Should developing countries invest in new technologies to prevent environmental damages that occur outside their own borders. If so, how does that affect incentives to innovate in the developing country?

ENDNOTES

1. This paper deals mainly with the externality of pollution. A related environmental problem that plays a critical role in many developing countries is the problem of resource exhaustion. Although many of the economic principles discussed in this paper can also be applied to the problem of resource depletion, I will not discuss this issue separately.
2. Nobel Price winner Ronald Coase [1960] has, however, demonstrated that in the absence of transaction costs the internalization will follow automatically. In the case of environmental damage the transaction costs are prohibitive since potential victims of pollution cannot bargain with the firm concerning the level of pollution and the technology to be applied. Hence, a legal rule is necessary to achieve internalization. Still the Coase theorem is important since it suggests that the legal system should preferably look for institutions that make markets work.
3. In this discussion, we have to assume risk neutrality. In the case of risk aversion, higher investments in environmental technology might be efficient since they can remove the disutility of risk from risk-averse subjects.
5. I have already referred to the risk that standards could be set at a level that is too lenient as a result of lobbying by the regulated industry.
6. Baumol and Oates (pp. 213-233) have suggested introducing a tariff on commodities imported by a victim state to compensate for the transfrontier externalities caused by the pollution-exporting country.
7. More detailed information on the environmental criminal law of developing countries can be found in the reports prepared for the XVth International Congress of the International Association of Penal Law, held in Rio de Janeiro in September 1994. See, e.g., Dotti [1994] and Cabrera and de la Cruz Gammarra.
8. These included Presidential order No. 5 in 1959, and Presidential order No. 21 in 1959. The Anti-Corruption and Anti-Subversion Acts are similar. For a critical analysis of these Acts see ‘t Hart [1987, pp. 198-200] and Faure and Termorshuizen-Arts (forthcoming).
11. Findley ([1988, p. 92]) notes, for example, that 'the Brazilians expressed resentment over suggestions that their development efforts should be impeded by restrictions to which already industrialized countries had not been subjected at similar stages in their own development.'
REFERENCES


