ENVIRONMENTAL CONSTRAINTS AND THE DEVELOPMENT OF TRANSITION ECONOMIES: A LAW AND ECONOMICS ANALYSIS

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JEL Classification: Q56, K32

ABSTRACT

It is more than fifteen years since the former ex centrally planned economies started their institutional transformations in favour of the market. After the collapse of the old systems, transition economies needed quick and effective changing. But it did not happen immediately: the most important interventions - price liberalization and privatization - started only in 1992. Additionally, the transformation process was affected by deep economic crises and the lack of a legal and institutional framework. In this situation of emergency, environmental matters were not considered a priority. Only after some years from the collapse they were taken into account, especially with regards to the recovery activities of the polluted sites and firms. So the definition of a liability system was necessary to assess the responsibility for past environmental degradation but also for current and future environmental harms. Given those problems, the first section of this paper offers a brief description of the basic tools used in law and economics to manage with environmental matters. The second one provides a law and economics analysis of the environmental problems transition economies faced in the past and the solutions, in terms of liability rules, they adopted to solve them. Specifically, I will make reference to the effects of liability for past environmental damages on the outcome of the privatization process. Then, I will provide an analysis of the directive 2004/35/EC on environmental liability for current and future environmental harms, in order to illustrate what the environmental constraints new EU Member States have to consider in their development path. In the third section I will provide a description of what happened in Hungary, to stress the difficulties Hungary has met in this sense. The last section provides some consideration about the results from the analysis.

1. INTRODUCTION: THE MAIN FEATURES OF TRANSITION ECONOMIES

It is more than fifteen years since the former ex centrally planned economies started their institutional transformations in favour of the market. A specific process called “transition” began. Its goal was the conversion of the past command based economy into a market based one.

Some important interventions were necessary for success in the process. And every step was complicated by many external and internal factors. In particular after the collapse of the old systems, transition economies needed quick and effective changing. But it did not happen immediately: the most important interventions - price liberalization and privatization - started only in 1992.

Additionally, the transformation process was affected by deep economic crises and the lack of a legal and institutional framework. In particular, the economic crises were the result of the following factors (Golub et al, 2003):
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- lack of investments;
- high inflation rates and high expected inflation rates;
- high discount rates;
- high risks connected to investment activities and poor perspective for technological innovation;
- spread and unshared information

Concerning the legal and institutional framework, it is well known that the way in which institutions are organized seriously influences the economic growth and development of a country. In transition economies the lack of well defined property rights (also called “rule of law”), the constant institutional weaknesses (also called “institutional lock-in”) and the ill definition or implementation of law (concerning contracts for example) have reduced the speed of the economic transformations. These elements compose the difference between the Western countries’ development experience and the Eastern countries’ one: developed nations began their economic development in a well defined legal and institutional framework.

In this situation of emergency, environmental matters were not considered a priority: they were not usually included in any economic calculations, neither in medium term perspective, and the willingness to pay for environmental services was low on average. Furthermore, there was an additional reason for which governments were not immediately interested in those topics: the closing down of several old high pollutant industries, such as the chemical or the oil refining ones, decreased dramatically many different types of pollution.

Only after some years from the collapse environmental problems were taken into account. In that moment the main dilemma was the identification of the proper instruments or systems to solve them (either market based instruments or legal instruments or a combination of the two).

To better understand the choices made by transition economies dealing with the environment, it is important to describe the role environmental problems had in market’s formation process.

As said, the main economic interventions necessary to create a market-based economy were the abolishment of price controls and state’s ownership. In particular the latter was necessary for the structural transformation of the systems. As a consequence, a consistent mass of privatization activities started, even if not immediately after the collapse. It is sufficient to look at privatization data to understand the significance of the process: almost 90% of the output was produced by state firms in 1992, while in 2000, in several countries more than 75% of the output was the outcome of private enterprises. Some problems arose during privatization activities: most of the sites to privatize were highly contaminated, so environmental remediation was necessary. It is quite clear how this need was linked to the specification of a liability system, necessary to assess which party had to suffer the burden of the cleaning up costs. As a consequence, transition economies’ governments had to draft remediation plans to develop cleanup standards, even if most of the time, especially in the first years of privatization, it did not happen.
Besides, the definition of a liability system was necessary to assess the responsibility not only for past environmental degradation but also for current and future environmental harms. It has meant additional efforts.

Given those problems, the first section of this paper offers a brief but effective description of the basic tools used to manage with environmental matters. This description is fundamental to give an overview about the general approach used in law and economics when dealing with environmental topics. The second section provides a law and economics analysis of the environmental problems transition economies faced in the past and the solutions, in terms of liability rules, they adopted to solve them. Specifically, I will make reference to the effects of liability for past environmental damages on the outcome of the privatization process. Then, I will provide an analysis of the directive 2004/35/EC about environmental liability for current and future environmental harms in order to illustrate what the environmental constraints new EU Member States have to consider in their development path. In the third section I will provide a description of what happened in Hungary, to stress the difficulties Hungary has met from an environmental viewpoint. The last section provides some consideration about the results from the analysis.

2. A LAW AND ECONOMICS APPROACH

2.1 The traditional concept of pollution

Environmental problems arose when the concept of pollution was introduced, after the industrialization processes started all over the world.

From an economic perspective pollution represents the classical example of a negative externality: it is an involuntary result of market’s decisions. Since there are no markets for this exchange, pollution has no market price.

The direct consequence of an externality such as pollution is that an agent engaged in a production activity will generate a higher output than the social desired one that means, from an economic perspective, that the private marginal costs are lower than the marginal social costs of society for that activity. The difference between the two represents the cost of the externality.

The economic problem is how to internalize the externalities in order to reach an efficient allocation. From this perspective environmental law has a specific purpose: it creates the right incentives to force the polluter to consider the externalities he creates in his decision making process, and, as a consequence, it contributes to the definition of the optimal level of pollutant activities.

The first scholar who talked about internalization was A. Pigou in “The economic of Welfare” (1920). He introduced an important solution to overcome the externality problems: a marginal tax rate on pollutant emissions equal to the marginal costs produced by the harmful activity. In particular, he conceived the following equation:

\[ MPC + t = MSC \]

\[ ^1 \text{With the word externality scholars make reference to both the externalities from consumption activities and externalities from production activities. I will make reference to the latter.} \]
where MPC is the marginal private cost, MSC is the marginal social cost and t is the tax rate. As a consequence, because of the tax, the polluter includes the cost of pollution in his cost structure. In other words, the producer faces higher private costs because of the tax, which leads him to a lower production level, in theory equal to the society's desired one.

The first important effect of Pigou’s proposal is that, after the introduction of the tax, the market mechanisms will intervene by producing the appropriate incentives for the investment in efficient pollution abatement techniques. In fact, if a firm does not invest in new abatement techniques, it will be charged by higher pollution taxes (which means higher prices) and as a consequence it will be driven out of the market. In addition taxes represent a financial entry for governments which can eventually be redistributed to the producers. Moreover with taxes there are not enforcement problems like in the case of environmental standards. Some scholars argued that this is the reason for which taxes and market based mechanisms are more efficient than other instruments like the command and control ones.

This approach seemed appealing, but there are several problems preventing this solution from working properly. The main one is that there are deep information problems dealing with taxes: taxes are hard to implement because governments do not have the right amount of information concerning the costs and benefits that should be considered in tax’s rate assessment.

Some years later, R. Coase gave a significant response to Pigou’s proposal, in “The problem of social cost” (1960). He argued that in a situation of bilateral bargaining and in a world in which transaction costs, wealth or income effects and third party impacts do not exist, negotiating parties will reach the optimal allocation of resources regardless of the initial entitlements of property rights. In other words, Coase argued that bargaining is the best way to internalize the externalities if specific conditions are fulfilled. From this perspective the main problem is not the introduction of specific incentives, like for taxes, but the identification of the party which has to be limited in his activity. Indeed Coase’s contribution was significant, but private negotiations will not entirely solve the problem of externalities: there are several critics that make Coasian theorem unworkable in real world. First, the assumptions described by Coase are not actually verified: transaction costs are never equal to zero. In addition, parties might behave in a strategic way, leading to suboptimal results. Finally, the Coase theorem only refers to efficiency criteria. It means that the distributional aspects are not taken into account in the analysis. Anyway Coase’s contribution represents an important starting point in many fields of research such as environmental law.

In conclusion, several instruments can be described in order to deal with environmental problems. Some of them will be discussed in the following sections.

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2 Think about the double-divided literature as an example.
3 Standards are effective mainly in the case of high probability of being caught, and of adequate penalty.
4 Property rights on pollution in this case.
2.2 Policy instruments

The environmental literature mainly identifies two types of environmental instruments: the legal ones and the economic ones (also called incentive-based mechanisms because they provide financial advantages or disadvantages to specific activities). The first group includes the command and control tools such as environmental standards and targets, administrative obligations and prohibitions, while the second group incorporates instruments like market tradable permits and taxes. This distinction is somehow ambiguous and not completely clear because the economic instruments need a legal framework to be workable, such as the definition of property rights, the identification of tax payers or the determination of the level of taxation (Faure 1998): economic instruments need the legal ones to be operative.

In the literature there is also confusion about what is called regulation. From an economic perspective regulation might include several instruments such as direct regulation, taxation and also liability systems; on the other hand, from a legal perspective regulation is something completely different from liability rules. In this work I will make reference to liability rules and regulation as two distinct instruments.

During the last decades, the use of liability rules in environmental law has been at the centre of a broad debate. The critical point is when liability rules can perform better than other instruments in providing the proper incentives to reduce pollutant activities.

This discussion was introduced mainly after the publication of Calabresi- Melamed’s seminal article about property rules and liability rules in 1972. In summary they argued that it is important to identify two specific orders of decisions: who will get the entitlement\(^5\) and in which way the entitlement should be protected. About the first problem, they stated that if transaction costs are low then Coase theorem can work in order to reach the most efficient solution; on the other hand if transaction costs are high then a mechanism to mimic the market is necessary. To solve the second dilemma, there are three different methods. The first one is property rule. It means the ex ante consent of the right holder is necessary to transfer the right. The second one is liability rule, which means that prior consent of the owner is not necessary to transfer a right, but only an ex post compensation is required. The third way to protect entitlement is the inalienability of the right. The conclusions of Calabresi-Melamed state that when transaction costs are low then property rules are preferred: every person can defend or transfer his right very easily. On the other hand if transaction costs are high then liability rules are better to promote the most efficient agent’s behaviours. Finally if there are great externalities then inalienability is the best solution.

And pollution represents the most adequate example for describing the framework proposed by Calabresi and Melamed.

2.3 The choice of policy instruments

The choice of the optimal environmental policy instrument represents a crucial aspect of environmental law because it is influenced by the lack of information and knowledge suffered by every economic agent.

\(^5\) Entitlement of the right of pollution in this case.
If every agent can collect, use and process the same amount of information in the same way or, in other words, when there is perfect information, every instrument can be the substitute of the other. But this is not the case; asymmetric information (as well as bounded rationality or knowledge problems) represents a deep constraint. That is why it has been suggested that the choice of “environmental policy should be conducted in a well defined second best framework” (Porrini et al., 2002).

From this perspective, some considerations about the criteria used to choose an environmental policy instrument are necessary.

To better understand every decisional process, it is important to make a comparison between two instruments used to reach the goal of internalisation or, better, necessary “to control the activities that create risks of harm to others: liability rules and regulation” (Shavell, 1984). Both have pros and cons to consider.

Regulatory instruments are more advantageous when some conditions are verified. In general, regulation is good when damages are widespread so that liability rules cannot create the right level of deterrence. The acid rain problem is an example: the damages are so spread that no one individually has the incentive to bring a liability suit. On the other hand, environmental regulation actually contains several disadvantages. At first given the problem of asymmetric information, sometimes emission standards or other types of regulation are based on ambiguous criteria of efficiency and they are not often supported by a Cost Benefit Analysis (CBA). The direct consequence of those imperfections is that standards can be stricter or broader than the optimal ones. Second, if environmental standards are not supported by a CBA “there is neither incentive nor necessity for the regulator agencies to properly assess and price environmental damages as a basis for policy making” (Hott, 1998). Third, a public choice explanation is needed: most of the time the choice of an environmental instrument is not the result of the aggregation of individual preferences but it is rather the product of the pressure exerted by the interest groups on governments: this can lead to inefficient solutions. Finally regulation is an inflexible instrument which means that as soon as the initial conditions are modified, the changing in regulation is not easy because it asks for long and bureaucratic processes, which also means high administrative costs.

2.3.1 Shavell’s position

On this point, it is interesting to recall the position of Shavell (1984) in order to add some more criteria to assess the social desirability of liability rules and regulation. He defined the so called four determinants in describing the pros and cons of each instrument. The first one is connected to asymmetric information problem or, as Shavell wrote, to a situation of “difference in knowledge about risky activities” (1984). Where there are information differences, liability is usually preferred because even if sometimes regulatory agencies are able to collect a broader amount of information, in general private parties dispose of an “inherent advantage” in knowledge: regulation

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6 About the interest groups, the contribution of Olson (1965) is important. He argued that each group has a “public good problem”, and, as a consequence, the more the interest groups are small, well coordinated and with substantial financial resources, the more they are powerful. This is quite obvious if you consider that small groups can overcome the critical problems of asymmetric information, free riding and of high transaction costs.
cannot anticipate all the precautionary measures. Second, when there are problems of insolvency, also known as the “judgment proof problem”, or better, when private parties cannot pay for the full magnitude of the harm, usually regulation is preferred. This problem can be overcome by minimum asset requirements, mandatory insurance, direct regulation, criminal liability, vicarious liability and compulsory insurance. The third reason is again in favor of regulation given the lack of threat of liability if certain conditions are verified. In particular, regulation is preferred when there are long latency period between the environmental accident or the pollutant activity and the appearance of the damages, when the damage is widespread and when causation is difficult to assess. The forth and final determinant refers to the administrative costs connected to the tort law system and direct regulation: when they are high, liability rules are preferred, because most of the costs will be a burden only if the harm takes place, not ex ante as for regulation.

After all, despite the great debate about the alternative use of liability systems (ex post approach) and regulation (ex ante approach), lots of scholars, Shavell included, advocate the use of a combination of the two. To use Shavell’s (1984) words: “If, then some combination of liability and regulation is likely to be advantageous, two questions immediately arise: should a party’s adherence to regulation relieve him of liability in the event that harm comes to pass? On the other hand, should a party’s failure to satisfy regulatory requirements result necessarily in his liability? Our theory suggests a negative answer to both questions.” The first question is justified from the different knowledge held by private agents and public authorities: sometimes privates have more information which means more knowledge concerning a specific risk. That is why they should not be relieved from liability regimes in case of regulatory compliance. The second answer is justified from the fact that people might take the inappropriate level of care compared to the one prescribed by regulation in the case they know that they will be subjected to liability rules, in order to save resources. Summarizing, Shavell (1987) concluded that “a complete solution to the problem of the control of risk evidently would involve the joint use of liability and regulation, with the balance between them reflecting the importance of the determinants”.

Also environmental law is usually enforced by a combination of different instruments such as liability rules, emission standards, taxes as well as property rights.

2.3.2 Strict liability or negligence?

Now that the relevance of tort law in environmental fields is assessed, another topic, broadly discussed in the literature, is whether environmental liability should be based on negligence or strict liability regime. Following Shavell (1980, 1987), in unilateral cases, both strict liability and negligence rules lead an agent to invest in the optimal level of care. Nevertheless if the activity level is taken into account, the negligence rule does not work properly because the court does not take into account the activity level in assessing the optimal level of care. On the other hand strict liability is still effective.

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7 Sometimes people individually will not sue for damages because the suit is too costly compared to the damages suffered. But the total damage might be substantial. That is why class action can help to solve this inconvenience.

8 Shavell made reference to neoclassical approach in his analysis.

9 Unilateral cases refer to harmful situation in which the victim cannot influence the risk of an accident.
That is why in case of unilateral accidents strict liability rule is preferred. The situation is different if bilateral accidents are considered: neither strict liability nor negligence lead to optimal care and activity level at the same time. So some problems arise, but given that environmental accidents are mainly unilateral, the enforcement of a strict liability rule is preferred.

On the other hand, even if a strict liability rule is efficient for the reasons given above, some scholars argued that it might produce some distortions on the polluters’ side. At first if the polluter is risk averse then strict liability is efficient only when insurance is available. In addition if the polluter is involved in a production system, then he might be discouraged from entering new activities if he will be always held liable. Again, if insurance is available then the problem can be partially overcome. Also the concept of causation can help to solve the difficulties mentioned above, even if causal links are not easy to assess because of the usual problems of lack of information and of uncertainty.

Actually tort law had little consideration in the environmental economic literature, but it seems that it is gaining more and more influence\textsuperscript{10}. In transition economies it has been crucial for the determination of the liability for past environmental damages, deep problem in countries where until the first years of the ‘90s the productive system was based on high pollutant industries. Anyway it also provides important insights for the treatment of current and future environmental damages.

After this necessary introductory part, the next section will apply those arguments to transition economies’ experience.

3. AN ANALYSIS OF PAST, CURRENT AND FUTURE ENVIRONMENTAL DAMAGES IN TRANSITION ECONOMIES

3.1 The case of past environmental damages

It is crucial to make a distinction between the remediation needed for past environmental contamination and the tools necessary for the treatment of current and future environmental degradation. This distinction is important because it again shows how the structural reconstruction of Eastern economies has not been easy and it has required diligent interventions in order to let developing economies grow in the proper way.

About the first point, it is necessary to provide a description of the main measures introduced to treat past environmental damages. As said, the production activities of the former big industries in the East and Central Europe were highly pollutant: lots of damages were estimated at the expenses of water, air and soil. In particular the literature identifies four categories of environmental harms (Earnhart, 2000):

- on-site environmental contamination (such as soil contamination);
- off-site environmental contamination (such as groundwater aquifer contamination);
- injuries and illnesses suffered by employees of a facility;
- damages to third parties (such as health problems suffered by neighbouring residents).

\textsuperscript{10} The European directive 35/2004 is the proof.
There are three main questions to answer dealing with past environmental damages: which and how many properties should be cleaned up and who is liable for the costs of cleaning up.

About the first question, from an economic perspective the recovery of the polluted site is advantageous when the benefits of cleaning up (gains in human and environmental health, future development of the area etc.) exceed the relative costs. Specifically, the cleaning up costs include: the opportunity costs of using some resources for the recovery of the polluted site rather than for investments in other activities such as the building of schools or hospitals, and administrative, monitoring and enforcement costs. The benefits, on the other hand, are strictly related to health improvements, and are dependent upon the value that society gives to health and to the existing value of a clean environment. Obviously, the priority should be given to the sites where the net benefits are higher. CBA represents the best instrument to use for this purpose.

The other problem is how many sites it is convenient to clean up. Here again CBA is useful: until the overall benefits are higher than the costs the sites recovery is convenient. However, the use of CBA as a tool for drafting transition economies’ plans has been strongly criticized: if from one side a rational technique is necessary in order to assess the effectiveness of a policy, on the other hand, given the difficulties in the collection and interpretation of data and information, CBA might be too imprecise, and, as a consequence, ineffective. In addition, even if there are experts that can estimate with proper instruments the costs and the benefits of an activity, there might be divergences between experts and lay people’s evaluations because they can have different risks’ perceptions, as Slovic argued. In fact, lay people sometimes are not familiar with specific topics or they have limited skills to process information in the proper way. To overcome the problem Slovic (1980) concluded that “each side, expert and public, has something valid to contribute, and each side must respect the insights and intelligence of the other”.

With regards to the third question, liability rules assess who is responsible for the costs of cleaning up. It means that liability rules influence the distribution of the costs for past contaminated sites between the parties. In general there are mainly three possibilities: the burden of the cleaning up costs can be suffered by the current owner of the site, by the former polluter or by the government. The literature suggests that the costs for environmental recovery refer to the past and so they have to be treated as sunk costs. As a consequence it is advantageous, following the least cost avoider principle, that the burden of the costs is addressed to the entities that can best finance the remediation activities.

In transitional economies, the choices are more limited. In a market oriented economy the former polluter is usually (but not always) a private firm, in transitional economies it is the state itself. This means the choices are restricted from three to two options:

- the governments accept the burden of the cleaning up costs usually by the introduction of public funds;

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11 The existence value refers to the worth of natural resources regardless their use value.
12 Even if there were private firms as former polluter, probably they would not have enough financial resources to support the costs of cleaning up that are usually quite consistent.
13 The funds were usually financed by public firms’ sales revenues. This technique is called escrow accounts.
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- the liability for past contamination is transmitted to the new owner during the privatization process.

Some problems of asymmetric information arise in this context: it can be difficult to estimate environmental damages because transition economies' governments usually do not have full record of information and data. In particular, there are problems of moral hazard and adverse selection.

Referring to moral hazard, if the state is held liable for past contaminations, then the deterrent effects of liability are shortened: the new owner might claim that future pollution is the result of past environmental damages, and ask the state for the remediation. On the other hand, moral hazard on the side of the state is possible as well: the state might ask the new owner damages for pre-existing contamination, claiming that they are the result of new harming activities. In this case, “the retroactive liability can weaken deterrence, precisely because it threatens firms with insolvency” (Boyd, 1999).

For adverse selection, given the lack of information, if investors expect to find a property of average environmental quality, then the level of their willingness to pay will exclude the acquisition of high environmental quality sites. This leads to a situation in which high quality sites are out of the market and only “lemons” remain. This uncertain framework does not encourage investments and, in particular, it affects the demand of foreign investors and the entry flows of foreign capital.

Anyway in the case (less likely) in which investors have information unknown to the authorities about the contamination of a site, they will be reluctant to invest in that site because once the environmental damages will be recognized, the industrial site will be inspected by authorities or experts, which will also control the current production’s activities.

This shows how information diffusion is important. To avoid the problems described before, the investors and the states have to know all the relevant environmental information\(^\text{14}\), in order, eventually, to discount the property prices of the polluted sites from the necessary cleaning up costs or to take other specific actions. But this did not happen in transition economies, at least in the first phase of the transformation process.

Because of this reason, it is interesting to investigate further how liability systems for past environmental damages interfered with privatization activities. The next section addresses this issue.

### 3.2 The effects of liability rules for past environmental damages on privatization processes

Privatization, as well as the abandonment of price control, was one of the most important structural intervention transitional economies started after the collapse of the old system. Revenues from privatization in Eastern countries rose from 33.218 $ in 1990 to 100.063 $ in 2000.

\(^{14}\text{Some studies made by Segerson (1994) showed that even assuming symmetric information, distortions are still possible in the case parties are judgment proof. This situation can “discourage sales from owners to deeper-pocketed purchasers and encourage sales to shallower-pocketed purchaser” (Sigman 2005).}\)
As said in last section, privatization processes were affected by serious problems of asymmetric information. In particular, governments did not provide all the available information about the environmental quality of the privatized sites, by offering example remediation plans. The consequences have been the following on average:

- lower share prices;
- reduction of the privatization’s revenues;
- slow down of privatization process;
- lower competition for the enterprises;
- lower quality buyers.

Recent studies (R. Bluffstone, 2003 and Earnhart, 2000) have provided important contributions in the interpretation of what happened during the privatization moments.

The first evidence states that better access to environmental sites information, a clear definition of the responsibilities for past contamination and the circulation of environmental remediation plans were “positively correlated with privatization prices, privatization revenues and foreign ownership, and negatively correlated with time, tender rounds and auction rounds required for privatization.” (Bluffstone 2003). This means that when information packets were prepared and when they included a special section for site contamination, many consequences, positive and negative, arose, and usually the positive effects were more consistent than the negative ones. On average, those types of information were not provided because of several reasons. At first the lack of information itself did not facilitate the drafting of informational plans: it is difficult to draw an intervention if knowledge is severely limited. Second, governments feared the privatization process would slow down with all the consequences for the industrial reform and for the economic development: economic expansion was a priority to reach as soon as possible, even if it meant the sacrifice of others important but less urgent goals, like environmental protection. Only later some governments introduced environmental consideration by using reimbursement schemes in example. Third, governments wanted to maximize the outcome of privatization. From this perspective, they believed that if information about environmental past damages was provided the share prices would be much lower, meaning minor revenues for the state. This is only partially true. Of course investors find dirty firms less attractive, but it does not mean that they are not attractive at all. It depends on the field of activity: some sectors are always appealing, at least in the medium-long run. Actually it is important to recall that sometimes lower share prices were due mainly to governments’ attitudes rather than to environmental information’s diffusion: many times they enforced immediately a price reduction policy\(^{15}\) rather than interventions to improve the desirability (and so the share price) of the contaminated industrial site.

Moreover, the survey showed how the joint diffusion of environmental information and developing site remediation plans doubled privatization revenues and how the years of privatization were indirectly related to revenues. These findings indicate that the diffusion of information is important to make higher privatization’s gains, and, on the other hand, that a slow down of privatization activities reduces the revenues: a

\(^{15}\) Mainly ad hoc basis price reduction.
compromise between the two should be found. Anyway, the latter assertion seems odd in some ways. Part of the literature and the privatization experiences of Western economies prove that prudent and slow privatization activities signal that the state will renounce its property little by little, without escaping from his responsibilities. It means that a longer period of privatization enables governments to collect and find more information and eventually to enact some recovery activities in order to make the contaminated sites more valuable.

The last interesting point of the analysis is related to the position of foreign investors. It has been shown that foreign investors’ choices are not really influenced by the diffusion of environmental information and site remediation plans as some of the literature asserts. This strange finding is justified from the fact that many foreign investors are actually interested in the acquisition of pollutant industries like the chemical ones because of their activity: some sectors are attractive regardless of environmental consideration because they are sources of gains, at least in the medium-long run. Rather, foreign investors were influenced by the amount of shares owned by governments: they did not like to share a firm with the state.

The privatization processes are not ended yet, and the experiences accumulated will be useful to maximize the expectations of every party involved in the procedures: because of a discovery process, states and investors should have more knowledge in order to adopt more efficient decisions as time passes.

3.3 Environmental liability for current and future damages

A description of the current liability rules adopted in transitional economies is necessary. Referring to the European Union context, a brief examination of the directive 35/2004/EC “on environmental liability with regard to the prevention and remedying of environmental damage” is unavoidable.

3.3.1 The European directive 35/2004/EC

The European Union finally adopted a directive on environmental liability in April 2004, with a transposition deadline of 30th April 2007. The directive can be interpreted as a mixture of private-public law instruments and it is the result of some interventions made in the past, such as the Green Book of 1993, the White Paper on environmental liability of 2000 and the European Commission’s proposal presented to the European Parliament and to the Council for the introduction of a directive on environmental liability of 2002. The directive respects what stated in the article 175 of the Treaty of Rome and it represents an important legislative intervention in the definition of a homogeneous European legal framework.

The main principle of the directive is provided by article 1, which states that “the purpose of the directive is to establish a framework of environmental liability based on the ‘polluter-pays’ principle, to prevent and remedy environmental damage”. The

16 The directive was conceived mainly as a regulatory instrument based on the principle of private operators’ liability.
17 This principle is not new: the OECD talked about it in its environmental policy guidelines already in 1972; also the UNCED Rio Declaration of 1992 referred to it.
polluter pays principle represents a key principle for European environmental strategies, which states that the costs of pollution prevention, control and abatement should be suffered by the polluter. It means that the directive introduced a strict liability system (objective liability) for specific economic activities, indicated in Annex I, considered dangerous for the environment regardless other factors like fault or negligence. For all other activities not listed in the Annex I, the directive states the fault of the polluter must be proven, so in this case fault and negligence assume a relevant position.

Even if the directive is conceived to provide a unitary legal framework across all the old and new EU Member States, its purpose is not the full and complete harmonisation of environmental liability systems: it fixes environmental goals and allows the Member States freedom to choose the instruments to reach its prescriptions. It means that complementarity is the main feature of the directive: following the subsidiarity and proportionality principles, the European legislator chose to leave the definition of some specific aspects to Member States in order to promote a high level of environmental protection by learning processes and competitive legislations mechanisms. This means also that national legislations might opt for stricter environmental prescriptions. In fact, article 3, paragraph 2, states that “this directive shall apply without prejudice to more stringent Community legislation regulating the operation of any of the activities falling within the scope of this directive and without prejudice to Community legislation containing rules on conflicts of jurisdiction”.

The directive deals with limited types of environmental damages: it only makes reference to damages suffered by the environment and it does not take into account the damages to persons or goods. In fact, in article 2, paragraph 1, the directive states that environmental damages refer to harms suffered by protected species and natural habitats, by water and by the land. Moreover, article 3 paragraph 3 prescribes that “without prejudice to relevant national legislation, this directive shall not give private parties a right of compensation as a consequence of the environmental damage or of an imminent threat of such damage”, which means that the financial compensation cannot be ascribed to any private parties. This statement marks the differences between the functions of tort law and environmental liability systems and gives to the directive the feature of a public rather than a private intervention. The reason is that national legislations already covered those topics, so the European Legislator chose to leave it to the Member State’s discretion.

In summary the directive focuses its attention on:

- biodiversity damages to any species and natural habitat protected by EU or by national law;
- waters’ damages covered by the Water Framework directive, that creates a downgrading of the waters’ quality;
- land and soil contamination resulted from human activity which creates a serious potential or actual harm to public health.

Besides article 4, paragraph 5 is important because it introduces the causation principle: the directive should be applied to environmental damages or threats of damages only when it is possible to find a causal link between the damage and the operators’ activities. In other words, the purpose of the European Legislator, as indicated in the consideration n.13 on the directive, was not the indistinct coverage of
the environmental harms: the damages should be quantifiable and actual and there
must be a causality link between damages and the activities of the agent which
produced the harm. The problem is that sometimes it is not easy to prove the casual
link between certain events like polluted air or soil contamination and humans’
activities. In particular, the identification of the causal link is difficult when the harms
and the damages are widespread. So there is a problem of causality uncertainty to
consider.

There are two specific ways to overcome the problem of uncertainty. The first one is
threshold liability which addresses the total responsibility for the harm to the injurer
once a specific threshold, calculated statistically, is overcome. This approach contains
some inconveniences because if the actual probability of causation is lower than the
estimated threshold then there will be too little liability, too little care, and too much
activity; on the other hand if probability of causation is higher than the threshold, there
will be too much liability, too much care, and too little activity. In summary this
approach is not efficient because it is an all or nothing system. The alternative way to
address causation uncertainty is proportional liability, where the injurer pays damages
based on the probability that his conduct caused the harm. From an economic
perspective, the proportional liability rule provides the optimal incentive for the
prevention of the accidents. In particular, if every injurer and victim is identified, the
parties will take the optimal care and activity level. The only problem stemming from
proportional liability is that only simple factors are considered in the identification of
the probability and there can be problems connected to statistical evidence. The
directive in the Annex I does not specify thresholds, but it indicates only the basic
conditions for the assessment of the significant damage: it is a duty of Member States
to determine the best approach.

Another interesting aspect of the directive is connected to the fact that it does not
actually describe the traditional tort law relation actor-judge-plaintiff; rather it refers to
a bilateral situation where a public authority has to monitor and control the
enforcement of the directive and the prevention and the remediation activities.
Anyway an external control is admitted if it is asked. It means that every person or
institution such as NGOs interested in specific environmental matters can ask the
authority for the adoption of certain interventions. From this perspective, the directive
stimulates the cooperation between the States in order to solve in the best way trans-
boundary environmental problems.

Besides the case of harm, the directive does not promote only the restoration of the pre-
existing environmental quality level, but it also has a precautionary profile. In fact,
article 8, paragraph 1 states that “the operator shall bear the costs for the preventive
and remedial actions taken pursuant to this directive”.

Therefore, article 4 points out some exceptions and defences in the enforcement of the
directive. In particular, about the exception, paragraph 1, point a) and b) state that the
directive “shall not cover environmental damages or an imminent threat of such
damages caused by: a) an act of armed conflict, hostilities, civil war or insurrection; b)
a natural phenomenon of exceptional, inevitable and irresistible character”. About
defences, the European Legislator proposed to exclude this possibility, but in the end a
distinction between “mandatory” and “discretionary” defences was introduced.
Moreover, the directive clearly expresses in article 8 paragraph 4 that Member States
have the option to integrate exoneration cases if some conditions indicated to the point a) and b) are fulfilled.

Therefore, as stated in article 14 paragraph 1, Member States have the duty to promote specific interventions to support the development of financial markets and financial security instruments in order for “enabling operators to use financial guarantees to cover their responsibilities under this directive”.

The directive does not have retroactive effects: it will apply only for damages rising after the expiration date for its transposition, April the 30th 2007. It shall not conflict with international agreements such as the Limitation of Liability for Maritime claims (LLMC)\(^\text{18}\). It does not apply to activities linked to the nuclear sector when the potential harming activities are covered by the Treaty that established the European Atomic Energy Community or when there are international treaties, listed in the Annex V of the directive, that deal with those kind of risks. Within April the 30th 2013 Member States have to present a report about their experiences in the enforcement of the directive by indicating the information demanded in the Annexe VI of the directive. Additionally, the European Commission has the duty to present a report describing the effectiveness and the level of enforcement of the directive, providing information about the costs, the contractual conditions of insurance and the other forms of financial guarantees offered in every country in order to help each firm comply with the directive’s requirements.

4. AN ANALYSIS OF HUNGARY

4.1 Environmental policies in Hungary: an overview

Hungary has introduced a centralised organization for the enforcement of environmental law. The most important role is played by the Ministry for Environment and Water Affairs (MEWA, or environmental regulator), for whom duties and competences were enlarged in 1987. Before 1987, the main role was played by the National Office for Environmental Protection and Nature Conservation, which was dismissed after the reorganization of the competences of the MEWA.

To support the MEWA there is a special network: 12 regional environmental governmental inspectorates (REI), established in 1991, which are supervised by the Chief Environmental Inspectorate. There are also other partner authorities that are competent for the administrative processes and the local affair inspectorates, of which the National Park Directorates and the National Health Office are the most influential.

The MEWA has some special powers. He has the authority to ask for specific documents, to collect samples, to start site inspections without giving any prior warnings, to conduct make interviews with employees or to control and to check that the licences and the permits’ limits are respected. Section 64 of the General Environmental Protection Act of 1995 (GEPA) states that the duties of the environmental regulator, the MEWA, are mainly three:

1) to enhance the performance of several activities connected to environmental protection; in particular, he allows the licences for the use of specific substances and he enforces the administrative legal responsibility rules for the environment;

\(^{18}\) Article 4, paragraph 3 of the Directive.
2) the indication of a rating system of substances, products and technologies classified depending on their potential pollution intensity;

3) the constitution of special tasks for environmental prevention activities.

Despite this organization, it has been demonstrated that the power of MEWA is rather weak in the government’s decision making processes.

4.1.1 Current liability systems in case of violation of environmental law principles

In Hungary, liability rules are prescribed by several branches of law such as civil law, criminal law and, of course, environmental law.

The GEPA states that those who violate the environmental prescriptions by endangering, polluting or damaging the environment are held liable. It means that the polluters have to remedy the damages done and restore the environment to the previous status or to the status prescribed by the law. In other words, the GEPA introduces a system of strict liability regardless of negligence or fault, with limited possibilities for defences.

Moreover, damages caused to third parties as a result of actions or omissions, including the utilisation of or impact on the environment, must be remedied following the Civil Code (Act IV of 1959). The Civil Code points that the injured party has the burden of proof in case of harm: it is his duty to prove the existence of the damage, of the hazardous activity and of the causal link between the two. If the victim fulfils his burden, the injurer can escape liability only if he proves that the damage was originated by an inevitable cause that cannot be included in the ordinary activity’s risks.

Another controversial aspect to consider: should an agent acting in the respect of his permit limits be held liable for environmental damages? The Hungarian Civil Code, Article 100, states that each person cannot act to harm or unjustly endanger the use of land or property by others, mainly his neighbours. As a consequence, agents must always conduct their activities in order to avoid environmental damages. The fact that an owner obtained specific permissions for a polluting activity does not mean that he is immune from any kind of responsibilities. As said before, this approach is well described in Shavell’s works: the combined use of both regulation instruments and liability rules is more efficient because it can lead to the goals of deterrence and compensation in the optimal way. It implies that once the harmed party claims for a compensation in front of the Court, the judge is not bounded by the provisions stated in the administrative regulations, because he can decide to use different parameters to assess what is lawful and unlawful for the use or damage of others parties’ property. In this situation the burden of proof is on the claimant who must prove the causal link between the harm and the defendant’s activity. If the authority makes mistakes in addressing the licences or the permits, it can be held liable as well.

With regards to the disclosure of information (including the environmental ones), in Hungary, the sellers have a positive obligation to inform the purchasers about all the assets transferred by the agreement and, in general, they have to provide all the information concerning the assets. The seller’s breach can lead the buyer to bring warranty and damages claims.
4.1.2 The waste treatment in Hungary

Dealing with liability systems, it is important to distinguish between different fields of interventions. At first let us consider the case of waste. The topic of waste is regulated by the Waste Management Act (WMA) of 2000, when Hungary was not part of European Union, but ready to join it. The Act lists substances and objects that are considered as “waste” and provide indications for the collection and for the waste disposal. The list of waste is indicated in the Annex I of the WMA, and it refers mainly to waste from industrial activities or to processed materials such as oils. In addition, the WMA states that specific types of waste may require supplementary duties.

Generally, the WMA points to 3 categories of waste:

- hazardous waste, which refers to the waste of materials, such as toxic, flammable substances, that can affect human health or the environment because of their origins, compositions or concentration;
- municipal waste, which is created by household activities;
- liquid waste, or liquid which is not drained or thrown in the proper way.

As the WMA points out, the waste can be collected in two different ways. Following the first approach, the waste producer must collect all the substances that come out from his production activity or the activity of others, and he has the duty to ensure the recovery or the removal of such waste. As an alternative he can transfer the responsibility for waste draining to an authorised and licensed operator paying him for the service. In the second case, the waste creator is relived from his responsibility unless he does not follow the mandatory precautions indicated in the WMA.

It is quite clear the reference to the polluter pays principle, even if the Act is antecedent to the promulgation of the directive of 2004: the agents responsible for the pollution or for the waste are liable for its recovery or removal regardless of other factors and, as a consequence, they will burden the connected costs.

4.1.3 Environmental liability in case of contaminated lands

Dealing with contamination of soil and groundwater, in Hungary the topic is covered by the government decree 219/2004, called groundwater decree. It states that the owner or the user of a site must take the necessary remediation measures in case of harm unless he can prove that the responsibility for the contamination is due to someone else’s activity. The polluter pays principle is enforced again.

Problems may arise when more than one person is liable for the contamination. Following article 102 of the GEPA, in this case all the agents are jointly and severally liable and, as a consequence, they have to face the burden of the remediation costs. In particular, the remediation performance of one party discharges all the others from the relevant obligations.

In case of sale, the purchaser can agree with the seller of the site for warranties, indemnity and other kinds of arrangements in order to take precautions against the risk of liability for likely and eventual environmental damages. In the specific case in which past environmental contaminations are voluntary hidden by the seller, then the
purchaser can still ask for indemnity in order to face the remediation costs. In addition, even if the seller does not have the adequate knowledge about the contamination intensity of a site, the purchaser can ask for indemnity if he can prove that there was a causal link between the damages and the seller’s activity. In this case, given the lack of information on the seller’s side, it is usually quite difficult to prove the causality link. Again the polluter pays principle is adopted.

It is interesting also to talk about the treatment of the damages for aesthetic harm to public assets such as a river. In Hungary, the category of aesthetic harm is not really recognised. Anyway, following the general rules of tort law, in order to obtain compensation the governmental authority should demonstrate that there is an actual damage, that the activity that produces the harm is illegal and the usual causal link between the damage and the activity. In this circumstance the harming party can escape liability only if he can demonstrate that he acted in a reasonable way or only if he can prove that the damage is the result of unavoidable circumstances.

4.2 Environmental liability for past high pollutant activities and privatization in Hungary

When centrally planned economies collapsed and the structural transformation of the country started, privatization represented the most urgent intervention. The Hungarian legislation did not contemplate environmental problems, as happened in other transition economies, at least at the beginning of the process. There were no specific rules about which entities were responsible for the recovery of contaminated plants or specific suggestions about soil cleanup standards or the way in which the clean-up activities had to be conducted. Again, the only general indication was provided by the Hungarian Civil Code: by acquiring property a purchaser gets all the related rights and duties.

There are different reasons that explain this lack of interest for the recovery sites’ activities. At first, the Hungarian’s State Property Agency (SPA) considered the environmental matters in contrast with other more stringent goals such as the maximization of the privatization outcomes and the fast transformation of the economic structure. In addition, Hungarian government did not have enough knowledge and instruments to deal with environmental matters. It means environmental decisions were taken ad hoc. As a consequence, the risk of supporting inefficient policies was consistent.

To make the situation even worse there was the risk of corruption and bribery, common to all transition economies. Corruption and bribery were not a new phenomena in the old centrally planned systems, so they can be understood as a serious problem also in transition period: it is quite difficult to modify the behaviour of people when they are used to specific mechanisms and to specific social norms.

From the analysis of the Hungarian experience it has been demonstrated that the SPA enacted several interventions without taking into account the opinions and the advices of experts, and also without audits. SPA did not understand that more auditing or the diffusion of more environmental information did not mean a reduction in the value of an enterprise or that a firm would not be appealing to investors. In addition SPA supported mass and quick privatization, which represents the best strategy to lose firms’ potential increasing value as seen in the previous sections.
The results of a study (Casnadi et al. 1999) can be useful to describe the Hungarian choices in the first years of privatization. The study takes into account twenty-six hundred contracts memorializing privatization transactions, which directly or indirectly addressed to environmental matters.

Some previous specifications are necessary in order to illustrate the finding of the study. At first, the information records were not complete and fully reliable. Second, Hungarian authority usually ignored environmental problems: they were taken into account only if it was asked by the purchasers. It means that several public properties were assigned to private buyers regardless of environmental liability considerations: only in seventy-nine cases the contracts directly included commitments for the distribution of the cleaning up costs of the site. From these specifications, it is clear that Hungarian environmental authorities did not realize that the lack of environmental information affected the process of privatization in terms of outcome and in terms of trust.

The study divided the Hungarian privatization process in three phases. The first one is the opening of privatization activities. At this time, privatization laws did not deal with the topic of environmental liability for past contamination; eventually only little provisions were given. An example is the Hungarian refrigerator manufacturer Lehel, for which the SPA agreed to cover all the costs for cleaning up the site, even if there were not official specific clean up standard to make reference to. The second period covers the years 1992-1995. During this time, the purchasers or investors began to ask for environmental information and guarantees. In particular, they asked for blanket insurances in order to face the eventual clean up costs or they agreed for lower share prices in order to discount the future and eventual environmental remediation costs. As a consequence the Hungarian government started to introduce new environmental provisions and to adopt new policies, even if there was not a real environmental liability system yet. The third phase began in 1995, when Hungarian officials realized that the purchasers started to ask for more environmental protection, and they were trying to transfer to the Government the responsibility for damages not directly related to past high pollution activities (moral hazard on the side of the purchaser). Given the situation, the State introduced proper laws for the definition of an environmental liability system. In this stage SPA started to educate all the privatization experts about environmental liability, mainly by enacting several internal regulations. During this period of time, the percentage of a purchase price that the SPA would commit to cleanup fell from 100 percent to 10-25 percent range, and buyers had a limited time to claim for contaminated sites, usually three to five years.

Once the environmental problem was recognized, SPA followed different methods. The first one is quite simple: only the uncontaminated parts of the plants were sold, while the dirty ones remained in the hands of the State. In very few cases SPA decided to remove the hazardous waste from the privatized site to a part of the property excluded from the purchase. The state retained the responsibility for the part of the property with the relocated waste, which was placed in bankruptcy. In another case the state negotiated guarantees with the purchaser such as what is called “undisclosed liabilities”, where special funds (financed with part of the gains obtained from the privatization processes) were established to cover the costs of clean up for the damages found at the time of the purchase and for which the SPA was not contractually
relieved. Referring to data, it has been proved that the purchasers claimed for only 4.1 per cent of the funds.

Despite all the efforts, the Hungarian officials did not like the involvement of environmental experts in the privatization activities: they had the fear that more environmental information would slow down the privatization process. And even if SPA\textsuperscript{19} itself started to collect higher amount of information concerning environmental contaminations, more knowledge and more experts were seen as external disturbers, which would reduce the bargaining power of Hungary. In other words, the involvement of the experts in the privatization process was never completely accepted by SPA: experts were always excluded from the upper level decisions.

Notwithstanding all the SPA fears, the State had the strongest negotiation powers during privatization activities and it concluded advantageous bargaining: he often decided the criteria to establish the adequate level of guarantees for example. Another situation that shows the superior contracting power of the State is the following: the new owners could claim against the state for damages not linked to his activity only if he could prove it within the time limit of three years from the day of the purchase. The contaminations founded after this time limit are completely under the responsibility of the new owner.

In conclusion, only since 1995 environmental matters were taken into account little by little. At the moment some problems still remain and privatization activities are not ended yet, but the experiences of the past will be useful in this sense.

4.3 Final remarks

From the analysis made in the previous sections it is quite clear that Hungary has reached a satisfactory environmental liability system.

Anyway, the transformation procedures are not finished yet, as well as the reorganization of authorities, agents and experts that will deal with environmental problems. In particular this process slowed down, especially since 2003, so the training of professionals and the improvement of economic agents’ skills are still necessary: the full enforcement of the environmental liability system requires some additional time. This is the reason for which a survey of 2004 (European Environmental Bureau, 2004) showed that the environmental NGOs’ expectations for a short term environmental improvement in Hungary are quite low.

About informational problems, nowadays in Hungary there are not consistent barriers that impede the access to information, even if the quality of the available information is quite low. Anyway those problems are going to be overcome by the creation of the Environmental Information System. In addition, the environmental information diffusion is also promoted by organised environmental protection movements, that started their activity immediately after the collapse of the old regime and that have exercised a good pressure on Government’s environmental decisions.

\textsuperscript{19} The major effort made by the SPA in order to have more information about environmental matters was a survey in 1996 to check the hazardous contaminations in the industrial sites for which SPA owned the 50 per cent or more at that time. The information was provided directly by the firms their self. This can let us think that the information might not be completely reliable.
In conclusion some efforts have been made in order to make the environment better, but they are not enough. It is important to recall that in 2004 Hungary did not have a national plan for the promotion of sustainable development yet, a topic strictly related to environmental preservation, because more urgent economic interventions had the priority. The changing process is not finished yet.

5. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCHES

Transition economies have not completed the transformation process yet, careful interventions are still necessary to make their economic development successful.

Several problems arose since the old regimes collapsed, and a ranking of priorities was necessary in order to plan systematic interventions in which environmental needs usually have been left behind for two main reasons. At first the weak industrial system, unemployment, high inflation rate, banking inefficiencies were all serious problems that governments had to solve as soon as possible to let the development process start. Second, the old and high pollutant industrial sites were dismissed and the consequent temporary reduction of many types of pollution contributed to the marginalization of environmental matters.

The first measures taken to reorganize the system after the collapse were privatization and price liberalization. Several problems arose when privatization activities started: there were many high contaminated industrial sites to privatize and to sell. So, the choice of the optimal environmental liability system had been crucial: the institution of an environmental liability system that minimizes investors’ uncertainty, that drives capitals to the highest priority remediation efforts, and that promotes prospective deterrence (Boyd, 1999) was essential.

Even so, in most cases governments neglected environmental considerations in their privatization plans for several reasons, mainly to avoid a fall in share price and to avoid a reduction of privatization’s outcome. Only occasionally they drafted environmental remediation plans in order to spread information useful to investors. In this situation of lack of information, the State lost additional privatization revenues: on average more transparency would have improved State’s reliability and overall firm’s attractiveness.

In addition, the definition of a liability system was necessary for current and future environmental harms. The drafting of a new environmental liability system has been complicated and it has asked for more and more efforts that could eventually contrast with transition economies’ development needs: some compromises have been necessary.

Given those important needs, there would be the temptation to relieve transition economies from a strict enforcement of environmental law, waiting until the legal and institutional systems will be completed, that the definition of property rights and contracts will be refined and that the economic structure will be stronger. On the other hand environmental problems represent an emergency for all the countries of the world: it means that developing economies have to find strategies that can ensure economic development and environmental protection at the same time.
Probably it will not be easy for transition economies, but by providing financial aids, such as the EU made with the new EU Member States, and by the promotion of specific rules or incentives, environmental gains will be significant also in transition economies.

The case analysis of Hungary suggests that past environmental damages were not treated in the proper way especially in the first privatization period: the adoption of wrong environmental policies lead to lower privatization’s outcome.

Even if currently in Hungary law harmonisation has been quite successful and the structure of the environmental legislation rather organic, several actions are still necessary in order to implement and enforce all the EU’s environmental prescriptions. Moreover EU gave some financial aids to cover part of the adaptation costs, but they were not used in the proper way and little attention has been paid to sustainable development: in 2004 Hungary did not have a specific strategy yet.

To synthesise, the Hungarian experience shows how it is actually difficult to enforce all the EU environmental measures: even if some efforts were made, stronger interventions are still necessary.

In conclusion, the enforcement of environmental constraints should be sensitive to the needs of emerging economies in order to let their development process evolve in the right way. Besides policy makers should be more careful in the drafting of new environmental strategies and referring to past environmental constraints they should remember that “a system that seeks to contain and limit existing damage may ultimately be more effective than a system that seeks the most desirable, but perhaps unattainable, goal of immediate, comprehensive site remediation” (Earnhart, 2000).

To carry on this work it would be interesting to analyze the situation in the new EU Member States after April 2007, when the directive 2004/35/EC must be implemented in every State. More information will be available in order to verify the way in which these countries have introduced and enforced their environmental liability systems and to check also how many resources and efforts those operations have required.
Environmental constraints and the development of transition economies: a law and economics analysis

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