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# Advantages and Restrictions of Tort Law to Deal with Environmental Damages

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Article abstract

The idea prevailing in mainstream environmental law literature is that ex ante safety regulation is preferable to tort law remedies to deal with environmental issues. The main reason usually invoked to prefer ex ante regulation is that generally, tort law takes its part only after the harm has already been done; and that is considered not compatible with the objective of avoiding environmental harm. On the contrary, from the law and economics point of view, I will argue that tort law systems have some important properties that make it compatible with the goal of reducing environmental risks, and that it can be superior to ex ante regulation in avoiding environmental harm. Consequently, the purpose of this paper is drawing up a general framework to describe the relative advantages of tort law and their related conditions to deal with environmental harm.

# Advantages and Restrictions of Tort Law to Deal with Environmental Damages

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**ABSTRACT**

*The idea prevailing in mainstream environmental law literature is that ex ante safety regulation is preferable to tort law remedies to deal with environmental issues. The main reason usually invoked to prefer ex ante regulation is that generally, tort law takes its part only after the harm has already been done; and that is considered not compatible with the objective of avoiding environmental harm. On the contrary, from the law and economics point of view, I will argue that tort law systems have some important properties that make it compatible with the goal of reducing environmental risks, and that it can be superior to ex ante regulation in avoiding environmental harm. Consequently, the purpose of this paper is drawing up a general framework to*

**RÉSUMÉ**

*Dans le domaine du droit de l'environnement, l'idée dominante est que la régulation ex ante est préférable à l'utilisation de la responsabilité civile pour résoudre les problèmes de pollution. L'argumentation invoquée pour cette préférence de régulation ex ante est que la responsabilité civile fonctionne en général dès que le dommage est déjà produit, ce qui devrait être incompatible avec l'objectif de prévention des dommages en droit de l'environnement. Par contre, à cet argument, je répondrais que selon la perspective de l'analyse économique du droit, le système de la responsabilité a certaines caractéristiques qui font qu'il fonctionne parfois mieux que les autres par rapport aux objectifs de réduire les risques de la pollution de l'environnement,*

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*describe the relative advantages of tort law and their related conditions to deal with environmental harm.*

*mais aussi, qu'à certaines conditions, il peut être supérieur à la régulation ex ante pour jouer un meilleur rôle dans la prévention des dommages à l'environnement. L'objet de cet article est de décrire quels sont les avantages relatifs au système de la responsabilité civile dans le domaine environnemental et dans quelles circonstances, explicitement, il est le mieux pour choisir entre les deux.*

**Keywords :** *environmental harm — tort law — law and economics*

**Mots-clés :** *pollution — responsabilité civile — analyse économique du droit*

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## 1. INTRODUCTION

**1.** A well known argument is usually invoked to prefer *ex ante* safety regulation to tort law[1] for dealing with environmental issues, at least in matters affecting broad and indeterminate groups of victims : that is, plainly, that tort law takes its part only *ex post*, namely only *after* the harm has already been done, whereas conventional wisdom focuses on avoiding environmental harm over any idea of compensation. Therefore, *ex ante* safety regulation is considered preferable to tort law remedies as the chief tool of environmental policy. In spite of the idea prevailing in mainstream environmental law literature, when the tort law system is analyzed from the law and economics (L&E) approach, it would be seen as a tool not only *compatible* with the goal of reducing environmental risks, but also having significant advantages over *ex ante* safety regulation. In this line of thought, the purpose of this paper is drawing up a general framework to describe these relative advantages and their related conditions.

**2.** From the L&E approach, the body of legal rules is considered as an incentive system having significant influence in future human behaviour.[2] Consequently, this approach relies firmly on the feasibility of making *ex ante* analysis to predict the individuals' future behaviour facing alternative changes in legal rules. Some utility maximization criteria and underpinnings of rational choice theory are usually assumed when drawing this analysis. Then, from this point of view, it is assumed that individuals react to positive and negative stimuli : if one can predict that by performing some activity the result will be negative, one will avoid that conduct and vice versa.[3]

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1. I will use the terms *tort law* or *liability* to refer both to *negligence liability* and *strict liability*.

2. Two papers are considered precursors of this approach : Ronald H. COASE, "The Problem of Social Cost", (1960) 3 *J.L. & Econ.* 1-44, and Guido CALABRESI, "Some Thoughts on Risk Distribution and the Law of Torts", (1961) 70 *Yale L.J.* 499.

3. Mitchell POLINSKY, *An Introduction to Law and Economics*, 3rd ed., Aspen Publishers, 2003; Richard POSNER, *Economic Analysis of Law*, 4th ed., Little, Brown and Company, 1992; Robert COOTER, Thomas ULEN, *Law and Economics*, Addison-Wesley Educational Publishers Inc., 1988; Steven SHAVELL, *Economic Analysis of Accident Law*, Harvard University Press, 1987; William LANDES, Richard POSNER, *The Economic Structure of Tort Law*, Harvard University Press, 1987; Richard POSNER, *The Economics of Justice*, Harvard University Press, 1981.

**3.** The economic analysis of tort law relies on the fact that any harm done in a community not only poses a private distribution problem, but also impacts on the community's wealth as a whole.[4] And it is assumed that *ex ante* an accident happened, the injurer would react differently if he could predict that he must pay for losses. On the contrary, if he expected not be liable, he would disregard any losses affecting people other than himself. Refining that simple reasoning, it is possible to expect that the level of care the potential injurer puts into his activity will not be identical in both cases, not even in any intermediate point between those poles. That is, the potential injurer's behaviour can be understood by taking into consideration his own interest: if he must pay for losses, investing in care to avoid the harm will be a rational decision.

**4.** From this approach, it can be stated that the tort law system is considered as an incentive system for individuals to either perform some behaviours or not. Therefore, the appropriate design of the liability rule allows generating correct incentives for the agents who behave according to their own private interests to achieve the best possible social situation.[5]

4. R. POSNER, (1992), *op. cit.*, note 3, p. 23; S. SHAVELL, *op. cit.*, note 3, p. 3.

5. The notion of "efficiency" is relevant to define when a situation is socially desirable. The neoclassical theory paradigmatic notion of efficiency is Pareto's notion. However, the notion of efficiency generally used in the context of the present analysis is the maximization of wealth or Kaldor-Hicks' stating that a measure – for instance the enactment of a legal rule – will be efficient as long as the profit that some individuals "get" from the measure is bigger than the lost suffered by those who "lose" from the same situation. Then, the application of this criterion implies that: it is only socially desirable to eliminate, prevent or reduce those activities that produce more costs than social benefits; the way to avoid damages is relevant since all measures to prevent them have a cost. How to influence this social cost and benefit relationship will depend on each particular situation. Concerning this point, the economics analysis of torts law points out some variables as relevant, which take into consideration the influence, position and possibilities of both injurers and victims. See R. POSNER, (1992), *op. cit.*, note 3, pp. 12-16.

## 2. ADVANTAGES OF TORT LAW OVER *EX ANTE* SAFETY REGULATION

### 2.1. ADVANTAGES CONCERNING ACCESS TO INFORMATION

**5.** As a starting point, a fundamental source of advantages of tort law over *ex ante* safety regulation may be highlighted: private agents *can obtain information* on risks, costs and benefits of reducing these risks, probabilities that an accident happens, at a lower cost than any public agency.[6] This private information will be voluntarily disclosed to these private agents when the victim makes a claim addressed to obtain compensation for his harm. In fact, he knows more about his injury than any other party. Then, this information will be transmitted to the injurer when the claim is made.[7] In this way, the injurer has the necessary information for taking measures to minimize the expected harm costs.

**6.** Conversely, a relevant issue of asymmetric information between the regulatory agency and the regulated agent (injurer) usually arises in any *ex ante* scheme.[8] Public agents have to get information from victims and injurers at least twice: first, to draft the regulation; second, to control its observance (and neither victims nor — principally — injurers have incentives to disclose this information).[9]

**7.** The costs related to gathering private information for drafting the regulation and monitoring its observance can be very high, therefore, the enforcement procedure can become

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6. With regards to this idea, Hylton argues: "The crucial feature that I want to highlight is its reliance in private information. The plaintiff knows more about his injury than any other party. The defendant knows more about his burden of precaution than anyone else. The negligence system gives both parties an incentive to persuade the court that their version of the appropriate regulatory rule is appropriate. Courts use their common knowledge, as well as information provided by the parties, to decide which parties' version is more persuasive, and to determine general conduct norms that will apply to future cases"; Keith HYLTON, "When Should We Prefer Tort Law to Environmental Regulation?", (2002) May *Washburn L.J.* 525.

7. K. HYLTON, *loc. cit.*, note 6, 525; Wendy WAGNER, "When All Else Fails: Regulating Risky Products Through Tort Litigation", (2007) March *Geo. L.J.*698-700.

8. K. HYLTON, *loc. cit.*, note 6, 525; W. WAGNER, *loc. cit.*, note 7, 697-700; Wendy WAGNER, "Choosing Ignorance in the Manufacture of Toxic Product", (1996) 82 *Cornell L. Rev.*798-799.

9. Steven SHAVELL, "Liability for Harm versus Regulation of Safety", (1984) 13 *J. Legal Stud.*360.

more expensive than the potential harm.[10] On the contrary, due to the way tort law system works, it can generate adequate incentives to avoid this problem : the injurer will only have incentives to take care and reduce the level of activity so as to decrease harm expected costs until he achieves the efficient level.[11]

**8.** Furthermore, since administrative costs[12] related to the enforcement will only arise if the harm is done (when and if the victim makes a claim), these will probably be smaller than those generated by *ex ante* safety regulation. And, on the other hand, the allocated resources for the enforcement are naturally focalized on controlling the activities that are more likely to cause harm. Consequently, those whose behaviour generates the highest risk will have more probabilities of being sued.[13] The simplest model usually employed to analyze liability rules assumes that the likelihood that the injurer would be sued is equal to the probability that the harm would be done since it is understood that injurers will always be held liable for its occurrence.[14] Then, they will be induced to achieve an efficient level of precaution and activity.[15]

**9.** However, the allocated resources to implement *ex ante* safety regulation are not generally focalized on the group that represents the highest risk of causing the harm.[16] Even though public agencies could know in details the risks related to each activity, they would also have to know the benefits that each activity generates for each potential injurer to

10. See Kip W. VISCUSI, James T. HAMILTON, "Are Risk Regulators Rational? Evidence from Hazardous Waste Cleanup Decisions", (1999) 89 *Am. Econ. Rev.* 1010-1021; W. WAGNER, *loc. cit.*, note 7, 697-698.

11. S. SHAVELL, *loc. cit.*, note 3, ch. 1; R. COOTER, T. ULEN, *op. cit.*, note 3, pp. 387-388.

12. I will use the term *administrative costs* to refer to *the costs related to the time, effort and money spent by injurers, victims, their legal counsels and insurers in coming to settlements or going to courts, and the public expenses of the courts, as well as the public expenses incurred by the administrative agencies to enforce the safety regulation.*

13. S. SHAVELL, *loc. cit.*, note 9, 364.

14. S. SHAVELL, *loc. cit.*, note 3, ch. 1 and 2; R. COOTER, T. ULEN, *op. cit.*, note 3, ch. 8.

15. S. SHAVELL, *loc. cit.*, note 3, ch. 2; R. COOTER, T. ULEN, *op. cit.*, note 3, ch. 8.

16. That is because the regulatory authority's information about risk is imperfect; see Steven SHAVELL, "A Model of the Optimal Use of Liability and Safety Regulation", (1984) vol. 15, no. 2, *Rand J. Econ.* 271.

require an efficient level of precaution and activity. Generally, public agents know the average risk of each activity and they require precaution measures according to it.[17]

**10.** Because of the limitations of *ex ante* safety regulation to focalize the enforcement on the agents who generate the highest risk, there is a tendency to distribute the allocated resources to this sort of enforcement in a uniform fashion among the potential injurers.[18] The disadvantage of uniformly distributing the enforcement among potential injurers lies in the fact that the infraction detection probability will be the same for each potential injurer. On the other hand, the benefits that each individual achieves by infringing the regulation will be different. In addition, sanctions will also be uniform in the way that for each sort of infringement, there will be a predetermined sanction that will be similarly applied to all injurers.[19]

**11.** Generally, *ex ante* safety regulation graduates the amount of the sanction according to the severity of the infraction or its outcome, and if the probability of detection is uniform, the higher the sanction, the higher the expected cost.[20] However, if it is desirable that sanction magnitude compensates low probability of detection so that the potential injurer's expected cost was higher than the benefits he can get, the public agent will have to fix the sanction amount in each case according to the benefits that the injurer could get

17. *Id.*, p. 274.

18. Polinsky and Shavell point out that enforcement can be general in the sense that different sorts of behaviours can be controlled by the same agent, and in this case they assume that only a probability of detection is applied for all the potential risky activities. Enforcement can also be specific, and in this case the probability of detection will be independent for each sort of harmful activity; Mitchell A. POLINSKY, Steven SHAVELL, "The Economic Theory of Public Enforcement of Law", (2000) 38 *J. Econ. Literature* 62.

19. Sanctions are generally fixed with a maximum and minimum penalty. For instance, the regulation can determine a fine that has a maximum and a minimum amount of money that will be applied in each situation, according to the severity of the inobservance; the closure of the industry and the lost of the license as sanctions are also regulated observing a maximum and a minimum amount of days, so the public agent has discretion to decide the most suitable sanction among those fixed periods. However, in all these situations, the potential injurers know *ex ante* what the maximum and minimum sanction limits are, and these limits are the same for all individuals.

20. M. A. POLINSKY, S. SHAVELL, *loc. cit.*, note 18, 62.

for infringing the regulation. This information will only be available to the potential injurer, who will have no incentives for disclosing it.[21]

**12.** Whereas in the realm of tort law system the expected accident cost ideally equals the harm probability multiplied by the harm magnitude, in *ex ante* safety regulation the expected cost for infringing the regulation equals the sanction's magnitude multiplied by the probability of the sanction enforcement. In the first case, the expected accident cost will depend on the own potential injurer's level of precaution and activity, then he will have incentives for minimizing it. Nevertheless, the expected cost for infringing *ex ante* safety regulation will not depend on the potential injurer's level of precaution and activity. Therefore, as long as the benefits for infringing the regulation are higher than the expected costs, the potential injurers will have an incentive for infringing the regulation without considering the risk increase cost.[22]

### 2.2. ADVANTAGES CONCERNING THE AGENTS' INCENTIVES

**13.** There is another factor that has a favourable effect on tort law over *ex ante* safety regulation. In tort law, victims are the ones who enforce the legal rule, and their incentives for making claims seem to be stronger than public agents' incentives for controlling the potential injurers. Whereas the victims can obtain benefits from their claims, public agents cannot obtain such benefits. The latter earn fixed salary and can be motivated by job promotions, but their income is never closely related to their job efficiency.[23] Analyzing this kind of situations, Becker and Stigler pointed out that the variations in the benefits of the potential transgressors of the regulation are generally higher than the benefits that public agents can get by preventing or sanctioning the infraction. Therefore, the enforcement quality will be lower as soon as the benefits for not observing the regulation increase.[24]

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21. K. HYLTON, *loc. cit.*, note 6, 525; W. WAGNER, *loc. cit.*, note 7, 698-700.

22. S. SHAVELL, M. POLINSKY, *loc. cit.*, note 18, 47-48.

23. Gary S. BECKER, George J. STIGLER, "Law Enforcement, Malfeasance and Compensation of Enforcers", (1974) 3 *J. Legal Stud.* 4 and 14; K. HYLTON, *op. cit.*, note 6, p. 5.

24. G. S. BECKER, G. J. STIGLER, *loc. cit.*, note 23, 4.

**14.** Furthermore, there is no relationship between the public agents' individual interests and potential victims' interests, who should be protected by the former. This means that public enforcement is vulnerable to both bribes and public agents' political motivations.[25] This problem arises in two different instances : first, at the moment of drafting the regulation, when legislators could be bribed by pressure groups to turn the rules in their own interest.[26] Second, at the moment of applying the regulation, when public agents can be bribed with a similar order of purposes.

**15.** The possibility of getting a settlement between injurers and victims before making a claim exists, but victims will have incentives for doing this as long as the harm is compensated. Therefore, the result will be efficient.[27]

**16.** The difference between a deal concluded between the public agent and the potential injurer, and a deal between the victim and the injurer can be illustrated in the following example. Let's suppose that the potential injurer is a company that pollutes the air, and that the company can avoid pollution by installing a filter that costs $15. Let's also suppose that the regulation states a sanction of $20 if pollution is detected, that the monitoring administrative costs are $15, and that the inflicted damage if pollution occurs is $10. If the company installs the filter, the harm is prevented and the total cost would be $30. But the company can also bribe the

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25. Since the Jenser & Meckling's work, this is known in the literature as "agency costs"; Michael JENSEN, William H. MECKLING, "Theory of the Firm : Managerial Behavior, Agency Costs and Ownership Structure", (1976) 3 *J. Financial Econ.* 305-308, in K. HYLTON, *op. cit.*, note 6, p. 5. Becker and Stigler argue that when transgressions occur continually, agreements transaction cost between transgressors and enforcers are lower than when transgressions occur sporadically; and therefore, the agreements between controllers and individuals being controlled will be more conducive; G. S. BECKER, G. J. STIGLER, *loc. cit.*, note 23, 4.

26. It is interesting to highlight Boyer and Laffont's model conclusions, in which they analyzed politicians' incentives while drafting environmental legislation and the influence of pressure groups who represent different interests; Marcel BOYER, Jean-Jacques LAFFONT, "Toward a Political Theory of Environmental Policy", (1996) 96s-07 *CIRANO Scientific Series*, Montréal. [Online]. http ://www.cirano.qc.ca/pdf/publication/96s-07.pdf

27. The potential injurer will have received the right signal for internalizing the accident cost and it is supposed that he will have incentives for minimizing the total costs.

public agent enforcing the regulation and get a cheaper solution. The company would offer the public agent less than $15. Let's suppose that the company offers the public agent $10 and he accepts; the company would have saved $5 and the total costs would be $35.

**17.** Let's now imagine the same case, in the frame of the liability system. Let's suppose that total claim costs are $15, $10 for the company and $5 for the victim. The company can choose to install the filter, thus preventing harm and avoiding the claim cost (total $20) paying $15. The company can also choose to offer the victim a deal for desisting from the claim. If the company offers the victim $11, the victim will accept the deal and the total cost will be $11, so that the victim will gain $1 and the company (injurer) will save $4. Therefore, a more efficient solution is achieved between the injurer and the victim by the deal.

### 3. TORT LAW RESTRICTIONS WITH REGARD TO ENVIRONMENTAL POLLUTION CASES

**18.** Despite tort law advantages, this tool also has general and particular shortcomings for dealing with environmental pollution cases. Therefore, when the assumptions of the simplest economic model (developed to analyze liability rules) are relaxed, it can be concluded that: a) not always will the victims have incentives to make claims; b) neither the victims nor the potential injurers can have adequate information concerning harm magnitude, its causes and consequences; c) in some cases it is impossible to identify the injurers; or d) the injurers are not able to pay fully for harm done (because the harm exceeds their assets).[28]

**19.** The aim of the following section is to present some criteria for determining in which cases tort law would be a superior tool, and in which cases it would be better to propose other alternatives, in a joint or alternative fashion.

28. S. SHAVELL, *loc. cit.*, note 9, 271.

### 3.1. ADMINISTRATIVE COSTS

**20.** In the simplest economic model drawn up to analyze liability rules, it is assumed that victims will have no expenses to make a claim; therefore, all individuals who have suffered harm will claim to be compensated. Consequently, it is possible to achieve a private enforcement of rights and the injurers will receive the right signal for internalizing the costs related to the harm.

**21.** If the assumption that administrative costs equal zero is relaxed, the result will be that not all victims will make a claim and, therefore, injurers will not always receive the right signal for making their decisions. However, in this context, tort law advantages will still be present, but not for all cases.

**22.** Under this new assumption, it can be stated that victims will only claim as long as the cost related to it is lower than the compensation they expect to receive.[29] As a result, the victims' incentives in each case will depend on their respective circumstances.

**23.** Moreover, if victims suffer small losses, there will be fewer chances that they make a claim. In cases of environmental harm there tends to be a high number of victims who suffer minor harm. The problem arises when not all victims suffer losses that exceed administrative costs, and in such a case, they will have no incentives for making a claim.[30]

**24.** With regard to this point, it is important to highlight two fundamental aspects for understanding the implication of this analysis. First, even though it is *a priori* desirable that the victims claim so that the injurers will receive the right signal to adopt an efficient level of precaution, this does not mean that this claim will always be socially efficient. If it is assumed that making a claim generates costs for the plaintiff — professional fees, time, evidence, etc.-, it will also generate costs for the defendant. There are also costs associated to the use of the justice system. Therefore, even though the private cost of making a claim is lower than the benefit they are

29. This means, the total amount of the suffered losses because of the accident since it is assumed a full compensation.

30. S. SHAVELL, *op. cit.*, note 3, p. 266; Cherie METCALF, "Litigating Environmental Quality : An Economic Approach", (2004) *J. Envtl. L.& Prac.* 306.

expecting to achieve, the victims' claims can be inefficient. The victims' claims will only be efficient as long as the social costs are lower than the social benefits generated by the risk reduction incentives associated with the claim.[31]

**25.** Second, rules can be drafted to generate adequate incentives to claim. For instance, if legal rules entitle victims to obtain a full compensation of their harm *plus* all their litigation costs, the victims' incentives could be modified according to the proposed goal.[32] Shavell remarks that imposing the injurers all these litigation costs will imply that claims become free for the victims and, therefore, victims will have incentives to fill lawsuits, even though the benefits are lower than the costs related to it.[33]

**26.** It can be stated that the existence of many victims does not imply *per se* that the claim will be inefficient. On the other hand, rules can be drafted to reduce administrative costs. For instance, legal procedures such as different kinds of public attorney's claims[34] or class actions[35] can reduce administrative costs. Nevertheless, even when the claim is made by a victim's representative, the victim's cooperation will still be required. Then, it is normal to assume that the

31. See S. SHAVELL, *op. cit.*, note 3, pp. 265-276.

32. Concerning this point, Cherie Metcalf tried to demonstrate a different effect of a "full indemnity" rule under strict liability and under a negligence standard, with and without uncertainty; and she concluded : "The use of a full indemnity cost rule will reinforce both the inefficiency of the choice of environmental protection under strict liability and the stickiness around the (efficient) standard of care under a negligence standard. A full indemnity rule appears desirable under a negligence standard, since full compensation of victims can be achieved without distorting environmental protection. [...] When uncertainty is combined with legal costs, the result is to discourage use of litigation as a means of enforcing a socially optimal level of environmental quality. Changes to cost allocation rules alone cannot avoid inefficiencies when uncertainty is present. Therefore, polluters are likely to choose a level of emissions that is too high compared with the socially optimal choice" (author's italic); see C. METCALF, *loc. cit.*, note 30, 307.

33. S. SHAVELL, *op. cit.*, note 3, p. 268.

34. For instance, it would be the situation of the ombudsman who, under the current Argentinean National Constitution, can file a law suit to re-establish the constitutional right to a clean/safe environment.

35. This common law institute allows a victim or a group of victims to make a claim representing a whole affected group. In each case, the scope of the represented group will have to be restricted. For example, a consumer affected by a defective product could claim a compensation representing all the consumers affected by the defective product. To an interesting review of the advantages and limitations of class actions, see C. METCALF, *loc. cit.*, note 30, 314-320.

higher the number of victims, the higher the related transaction costs and the difficulties to achieve an efficient outcome.

**27.** Alternatively, a high number of injurers can have a negative influence on both victims' incentives for making a claim and the probabilities that the claim will be socially desirable. The existence of several injurers implies that administrative costs will be higher, not only because of the need to make several claims, but also because it can be more difficult to determine each injurer's liability.

**28.** One of the possibilities offered by some legal systems is that victims file a claim for full losses against only one of the injurers.[36] In this case, the injurer who actually paid is allowed to recover from the remaining injurers the amounts that exceed the damage he contributed to cause. This solution tends to strengthen victims' incentives for making a claim. However, further considerations on the administrative costs related to this device must be relevant to evaluate its social convenience.

**29.** Another alternative adopted by most legal systems for reducing administrative costs is to give victims the possibility of making claims jointly against all the injurers.[37] Even though each potential injurer will have his own court costs, since there is a shared interest among all the injurers in avoiding responsibility, cooperation among them for reducing their litigation costs appears possible.

**30.** In the situation in which there are too many injurers, the most severe problem that arises, again, is that transaction related costs for reaching a deal among them, and between them and the victim, are high. An efficient solution could be that the injurers and the victim agree about compensation and, in this case, the latter does not make a claim. At the same time, the injurers could implement a measure for avoiding harm. However, the possibilities of achieving a cooperative deal for reaching an efficient solution are inversely related to the number of injurers.[38]

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36. For instance, in the USA, the OPA (*Oil Pollution Act*), s. 1001.

37. For instance, the American CERCLA (*Comprehensive Environmental Response, Compensation and Liability Act*) liability system adopted this legal solution.

38. Marcel BOYER, Donatella PORRINI, "The Choice of Instruments for Environmental Policy: Liability or Regulation?", in *An Introduction to the Law and Economics of Environmental Policy: Issues in Institutional Design*, Timothy Swanson Ed., Research in Law and Economics Series, Vol. 20, 2002, Elsevier Science Ltd., p. 8.

### 3.2. THE PROBLEM OF IDENTIFYING THE INJURERS AND THE VICTIMS

**31.** The problem of identifying the injurer as well as the victims arises as a relevant obstacle to the use of tort law in pollution cases.[39] In most of these cases, there are several victims who are not related among them, which make it difficult to identify them. Moreover, most of the time victims who suffer minor harm do not make a claim.[40]

**32.** Furthermore, identifying the injurer is sometimes difficult. First, when there are too many injurers, it is impossible to identify each individual's level of responsibility for the victims' harm. This may happen because there are too many unknown injurers (*e.g.*, the case of air pollution due to carbon dioxide emissions), or because it is impossible to determine the causes of the harm done. It can also be impossible to determine who is the injurer, due to the circumstances in which the polluting activity usually takes place (*e.g.*, sea pollution due to oil spills in high seas).[41]

**33.** When it is difficult to identify who the injurer is, victims will have to spend money to discover his identity, and it is possible that they do not have the adequate incentives to do so. Moreover, victims can behave as *free riders* waiting for other victims to start the investigation and taking advantages of the information without paying its costs. *Ex ante* safety regulation can be more convenient than tort law in these cases since it could have allocated specialized resources for investigating these situations at a lower cost.

**34.** On the other hand, sometimes the causes and consequences of environmental harm are unknown, for instance, when harm appears long after pollution took place, such as cases of congenital harm in children due to their ancestors' exposure to pollution. Because of this, the notion of *intergenerational equity* is used to show the relevance of studying and

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39. Kenneth ABRAHAM, "The Relation Between Civil Liability and Environmental Regulation : An Analytical Overview", (2002) *Washburn L.J.* 381-382.

40. Because of that, damages not always reflect true social costs. See C. METCALF, *loc. cit.*, note 30, 329; S. SHAVELL, *op. cit.*, note 3, p. 266.

41. Hylton illustrated such cases : "[...] for example, a firm carries drums of toxic chemicals across town and dumps them into a river in the middle of the night, when no one is around to see"; K. HYLTON, *loc. cit.*, note 6, 17.

exploring the consequences that environmental pollution can have in future generations. Moreover, this notion is also used to minimize or avoid environmental changes whose effects can threaten future generations' lives.[42]

**35.** The use of the notion of *intergenerational equity* for this analysis can be problematic because neither the interests of the future generations nor the future consequences of a dangerous action for the environment are clear. However, this notion scope can be limited to the future generations' *known interests.*[43] In other words, even if the future generations' interests are mainly uncertain, they can be limited considering certain current interests.[44] For example, interests related to the preservation of vital resources can be rationally accepted as being shared by both current and future generations. Then, it can be considered desirable that present generations take altruistic decisions for defending future generations' interests concerning life preservation.[45] A clear example of these sorts of problems is climate change. Biodiversity endangering is also a good example. It is well known that biodiversity reduction will have severe effects on future generations since they will loose the possibilities of developing a new drug or having access to food. It is reasonable to expect that in these situations future generations' interests be considered as known.

**36.** However, it is problematic to combine the protection of these sorts of interests with an economic efficiency criterion. Even though an institutional perspective of environmental economics is able to evaluate social and cultural factors beyond an economic efficiency objective, the relationship between efficiency and unknown interests of the yet unborn is still conflicted. Despite excluding these sorts of interests from the analysis, the problem about the uncertainty concerning

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42. David HOWARTH, "Muddying the Waters : Tort Law and the Environment from an English Perspective", (2002) 41 *Washburn L.J.* 477-478.

43. *Id.*, 476-478.

44. This is Howarth's proposition, who draws a distinction between *known interests of the yet unborn and unknown interests of the yet unborn*, and assumes that the latter are too speculative for being included in the analysis; *ibid.*

45. See John M. CONRAD, *Resource Economics*, Cambridge University Press, 1999, ch. 8.

pollution future consequences is still current as long as those consequences can also affect present generations.

**37.** In principle, tort law would not be able to properly function when victims lack accurate information about the harm, or underestimate the harm magnitude, or harm appears long after contamination occurred and are unable to identify the injurer. In these cases, there will be no adequate incentives for the victims to claim for total losses and, therefore, injurers will not receive the right signals for achieving an efficient level of precaution and activity.

**38.** However, this circumstance does not mean that tort law will never be able to work properly for achieving an efficient solution, nor that *ex ante* safety regulation does achieve an efficient solution in these cases.

### 3.3. THE INJURER'S INSOLVENCY

**39.** There are also other restrictions regarding tort law that tend to be specifically severe in pollution cases. One of them appears when injurers cannot afford the harm done (the *judgment-proof* problem).[46] When this happens, potential injurers do not have the adequate incentives for minimizing the accident expected costs since they know that they will not be able to compensate the harm if it occurs.[47] In environmental pollution cases, harm costs usually exceed the injurer's personal assets. Particularly, this occurs in activities that generate a high risk of causing severe harm to numerous victims; for instance, nuclear activities, or transportation and disposal of hazardous waste or highly polluting substances.

**40.** Some legal systems have addressed this problem by broadening the injurer's liability to include third parties who have a contractual relationship with him.[48] For example, the

46. S. SHAVELL, *op. cit.*, note 3, pp. 167-170; S. SHAVELL, *loc. cit.*, note 9, 273; M. BOYER, D. PORRINI, *loc. cit.*, note 38, 3.

47. Generalizing this problem as an injurer's strategy against liability, Hugo ACCIARRI, Andrea CASTELLANO, Andrea BARBERO, "Torts and Social Costs : The Judgment Proof Problem as a Matter of Rational Choice", Working Paper Series, Paper 37, Berkeley Program in Law & Economics, [Online]. http ://repositories.edlib.org/bple/alacde/37 (May 06).

48. See for example, in the United States, the CERCLA, the OPA and the CWA (*Clean Water Act*).

American CERCLA — *Comprehensive Environmental Response, Compensation and Liability Act* — extends liability to the owners and also to the operators.[49] Then, United States jurisprudence has stated that a bank having a financial contract with the injurer can be considered as an operator as long as the existence of such a contract could have allowed it to supervise or monitor the company activities.[50]

**41.** The idea behind this proposal is that some individuals having a contractual relationship with potential injurers can influence them during the contractual negotiations so that the latter internalize the harm costs for restoring the incentives to achieve an efficient level of precaution.[51] For instance, if a financial entity that gives credit to firms performing hazardous environmental activities is also hold liable, the financial entity will have incentives to add to the total price of the contract the expected costs that would arise if harm is done. If the financial entity knows the hazardous activities of the firm that asks for a credit and if it is in a position to control the risk decrease or increase, the contract price could reflect these conditions. The problem is that many times the firm's behaviour concerning the risk decrease or increase cannot be observed and the eventually liable third parties cannot control the potential injurer behaviour.[52]

**42.** Hutchinson and Van't Veld assume that firms can reduce not just the accident probability, but also the magnitude of harm and, consequently, they distinguish between

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49. *Compensation and Liability Act*, Title 42, ch. 103, subch. 1, s. 9607.

50. "Mirabile" (1985) and "Fleet Factors" (1990-91), cited by Marcel BOYER, Jean-Jacques LAFFONT, "Environmental Protection, Producer Insolvency and Lender Liability", (1995) 95s-50 *CIRANO Scientific Series* 6 and 7. Boyer and Laffont comment the evolution of the CERCLA norm statutory interpretation, which allowed drawing a distinction between "influence" and "control" of the financial entity concerning the company asking for credit, to extend the former's liability only to those situations in which there was a possibility of control. As well, they explore the controversies generated by that regulation and the proposed amendments for supporting the financial institutions' interests. See M. BOYER, J.-J. LAFFONT, *loc. cit.*, note 26, 6-15.

51. M. BOYER, D. PORRINI, *op. cit.*, note 38, pp. 6-8.

52. Emma HUTCHINSON, Klass VAN'T VELD, "Extended Liability for Environmental Accidents : What You See Is What You Get", (2005) 49 *J. Envtl. Econ.& Management*, 49, 157-173.

*probability-reducing care* and *damage-reducing care.*[53] Then, they note that the former is a variable that cannot be observed by third parties, while the latter can.[54] For example, they note that companies transporting oil can train and supervise their crew for reducing the accident probabilities, but these measures are unobservable by third parties. On the other hand, companies transporting oil can provide ships with a double hull, which can reduce the effects of oil spills and this can be easily observed by third parties. From this, they developed a model in which they demonstrated that when companies implement observable and unobservable care for minimizing harm expected costs, the liability extension to third parties induces companies with high levels of gross benefits to internalize the accident expected costs and choose socially optimal levels of care; but it drives companies with low levels of gross benefits out of business.[55] The net effect on social welfare will depend on whether the costs to implement technologies for reducing harm expected costs are lower or higher than the social benefits achieved.

**43.** Hutchinson and Van't Veld's conclusions could be extended to other third parties' liability cases, such as insurance companies. The analysis of the functioning of the environmental insurance market is beyond the scope of this paper. However, it is important to highlight that even though environmental insurances have emerged in developed countries, their implementation is still problematic and most of them only cover some specific risks.[56] The main problem is that in some activities current environmental

53. *Id.*, 157-159.

54. *Id.*, 159.

55. These conclusions are contrary to Pitchford's model, who designs the same model but without drawing a distinction between observable and non observable measures. Moreover, Pitchford assumes that the measures that can be adopted by the company for reducing the expected costs are non observable. Pitchford's conclusion is, precisely, that the liability extension to third parties always implies a social welfare reduction since the moral hazard problem prevents the adequate incentives from happening; see Rohan PITCHFORD, "How Liable Should a Lender Be? The Case of Judgment-Proof Firms and Environmental Risk", (1995) 85 *Am. Econ. Rev.* 1171-1186.

56. Antonio CABANILLAS SANCHEZ, *La Reparación de los Daños al Ambiente*, Aranzadi, 1996, pp. 277-294; Carlos DE MIGUEL PERALES, *La Responsabilidad Civil por Daños al Ambiente*, Civitas, 1997, pp. 252-260.

risks can generate severe harm in the future, but such a possibility is not clear yet.[57]

## 4. CONCLUSIONS

**44.** From here some criteria can be highlighted to determine when the liability system will work as an adequate tool for dealing with environmental pollution cases:

a) when there are present victims who have adequate information about the harm;
b) when victims' harm costs exceed the costs associated with the claim;
c) when the injurers' identity is known, or can be easily discovered;
d) when the injurer has enough assets to afford expected harm costs.

**45.** Tort law will be an adequate alternative for dealing with environmental pollution problems in situations where all the above mentioned conditions occur jointly. These conditions can be summarized into two main conditions: that the potential injurer's probability of being sued is close to 1, and that he has enough assets to afford expected harm costs. Under these conditions, the fact that there is a small number of involved agents, that is, few victims and injurers, will facilitate the functioning of tort law for achieving an efficient solution. In other words, the lower the number of participants, the lower the related transaction costs and the higher the possibilities of negotiating cooperative agreements that minimize total costs.

**46.** When the above enumerated conditions do not occur together, or when one of them is weak, the possibility of combining tort law with other tools, or only using them, should be evaluated. In this way, it is interesting to analyze the possibility of combining tort law with *ex ante* safety regulation, since it is the alternative most used in environmental

57. The difficulty for determining and predicting these risks can be seen with the insurance exclusion cover of the damages that are produced by gradual pollution. Most of environmental insurance policies explicitly exclude these sorts of damages and only cover the damages produced by a sudden and unforeseeable act that took place while the policy was still in force.

pollution cases. Additionally, it is important to determine whether there are cases in which the exclusive use of *ex ante* safety regulation would not be a superior solution.

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