# LAW ENFORCEMENT AND ENVIRONMENTAL HARM: A DISQUIETING STRUCTURAL COUPLING

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The heart of tragedy is also thought
(Edgar Morin*, Terre-Patrie*, 1993)

## ABSTRACT

This paper develops some ideas discussed in a recent study carried out on the responsibility of expert systems in creating, handling and possibly keeping under control the many features of the *Risikogesellschaft* or Risk-society.

More precisely, it deals with the limits and potentials of positive state law as a high-tech system and the legal professions as learned and skillful agents of such a system as regards both environmental harm and environmental protection.

Two main questions will be discussed: Is formal official law-making in reality a risk-avoiding sociotechnic or not? To what extent can legal practice be used as a problem-solving device for environmental harms? In other words, can law and legal expertise be trusted with the setting up of guiding principles in the matter of environmental issues? Needless to say, the risk-trust and security-liability nexus will be at the core of the analysis.

**RÉSUMÉ**

Cette communication développe quelques idées traitées dans une étude récente sur la responsabilité des systèmes experts face à la création, l'aménagement et la possibilité de contrôler plusieurs aspects de la *Risikogesellschaft* ou Société à risque.

Plus précisément, il sera question des limites et du potentiel d'une loi étatique positive comme système de pointe et des professions juridiques en tant qu'agents d'un tel système concernant le danger envers l'environnement et la protection de l'environnement.

Deux questions principales seront traitées: La création officielle et formelle des lois est-elle une véritable «sociotechnique» pour éviter les risques? Jusqu'à quel point le domaine juridique peut-il servir à résoudre les problèmes reliés à l'environnement? Autrement dit, peut-on se fier au droit et à l'expertise juridique pour une règle de conduite face aux problématiques de l'environnement? Il est, dès lors, inutile de préciser que les liens entre confiance et risque et sécurité et responsabilité seront le sujet principal de cette analyse.

**INTRODUCTION**

As a rule, structural and functional operations of law in society are conceived and represented positively, that is, in a definite and favourable manner. For example, when a discussion arises on the social impact of legal theorizing, implementation of law-policy making and enforcement of binding rules, etc., one is culturally inclined to stress legal devices as protecting, securing and ordering mechanisms. This stereotyped cultural attitude does not stem necessarily from ideological assumptions. It is often a matter of common experience and in a number of circumstances is based on verifiable facts.

Yet, even at a glance, it is apparent that limits, deficiencies and failures are also constitutive variables of the same operations, the space-time recursivity of which cannot be undervaluated, hidden or ignored when dealing precisely with social conditions and with the means and outcomes of their actual performances.

As is well known, such a somewhat "perverse" but complementary side of law-in-society has been stressed by a minority of jurists since the early stages of formal legal positivization and codification, particularly by those legal scholars predicating evolutionist and historical perspectives. Only in the course of the 20th Century, however, has the issue been recognized as a veritable theoretical and technical problem worthy of increasing scientific consideration. During the 1930s, institutionalist approaches - relying on the 19th Century pioneering work of Puchta and Windscheid - took on the topic seriously, recognizing the importance of "material", that is, spurious, elements in any living legal arrangement vis-à-vis the allegedly "certain" letter of "pure" official law. In the 1970s, drawing on scholarly analysis carried out within the framework of the so-called "law-and-social change" movement, claims were repeatedly advanced for a law explicitly oriented to the value of its overall social impact and actual results, that is, for a proper "responsive law" as Nonet and Selzink put it. More recently, focusing on de-reconstruction processes of late-modern society, systemic and post-structuralist approaches postulate the disguising not only of both limits and potentials of the law as regards the rhetoric of officially accepted law-and-society narratives, but also of the risky social consequences of the way in which the whole province of law is structured: a risk endangering, in final instance, nothing less than the survival of a "plausible" (rationally meaningful) and "socially adequate" (based on primary social needs) social dynamic (Luhmann, 1972; 1996; Beck, 1994).

In this paper, I will move along this emerging line of thought. The aim is to enlarge the discussion and support the idea that the development of an ecologically sustainable society necessarily requires not only a selective rejection of certain "positive" legal arrangements, but also a readiness - as Morin would say - to bet on a seemingly impossible task: to develop a new type of law able to effect a coupling in the dialectical relationship between human action, law and nature.

## 1. THE QUESTION AT STAKE: WHAT IS THE ROLE OF LAW IN A RISK-SOCIETY?

As already mentioned, an increasing number of schools of thought now consider both potentials and deficiencies, failures and perversions of the operations of the law in society as intertwined issues relevant to scientific

enquiry.

But one wonders: beyond either limits or potentials, what about faults and liabilities, due to false assumptions and misconceptions, of positive official law in the definition and management of environment and nature? If one reviews official codes, jurisprudence and doctrines, one finds hardly any reference to this topic. Even on a comparative level, it seems that there is no material that will shed light on where the responsibility lies for legal theorizing, law-policy making and legal enforcement as regards the rise of what has been labelled and is now commonly called *Risikogesellschaft*, the Risk-society (Beck, 1986).

Yet, how can one deny that the intermixity of "good" (securing and ordering) and "bad" (disrupting and degrading) consequences of the operations of the law in society is highly problematic precisely because "advancements" of governmental sociotechnics imply also the depowerment of the broader natural realm of all living species, mankind included? Consequently, how can one exclude that even most refined and cautious legal arrangements, manifestly devoted to environment protection, might lead, or add up, to undeclared - but actual and irreversible - social and natural disasters?

Elsewhere I dealt with the responsibility of expert systems, professional expertise in particular, in creating, handling and possibly keeping under social control the many features of the Risk-society (Olgiati, 1998). Here I will try to take a step further, by focusing directly on positive official law in relation to both environmental harm and environmental protection. The broader current debate is now focused on the "reflexive modernization" of social order in contemporary society (Beck, Giddens and Lash, 1994). However, its rationale lies in empirically testable questions.

As a matter of fact, when one considers the disruptive impact of current human action on environment and nature, two main questions cannot but come to the fore: (1) is official law liable to a degree for what is increasingly perceived by society at large (and defined by the same law) as "environmental harm"? And if so: (2) are there parts of positive law still reliable enough to be used in some way as generalized regulatory devices as regards human manipulation of environment and nature? To rephrase the questions: (a) does positive law - as a functionally differentiated social system, as a technostructure and as a scientific discourse - have anything to

do with the increasing degradation and disruption of nature and environment in contemporary society? If that is the case: (b) how far can positive law be trusted when it claims to provide problem-solving guarantees, security and order as regards basic/natural living conditions? How far can the "good" side of it prevent or impede a prospective environmental annihilation? As one might have already realized, these questions are becoming pivotal to both legal action and social dynamics. A deep introspection and monitoring of the overall role of positive law in the dual aspect of society and nature is therefore a matter that sociolegal studies can no longer undervalue or repress.

## 2. THE HISTORICALLY DETERMINED FAULTS OF THE LAW

From a historically determined perspective, it is axiomatic that law is neither neutral, nor autonomous, and even less detached from the social/natural systems affected in the context of a Risk-society. In this respect, to question the social liability of law is quite a rhetorical oddity. Wherever one looks at present, one cannot but recognize a simple, although disquieting, fact: that, in one way or another, law has been and still is considered one of the most evil of mechanisms as regards the spreading of environmental harm, for it contributed and still contributes to the production and dissemination of a number of artifacts leading to the degradation of life and nature.

In a chapter of her book *Diritto per la natura*, Tallacchini explicitly takes on the issue, recognizing that law is not at all "innocent" in relation to the current state of environmental affairs. Law directly and indirectly, by means of omissions as well as performances, sets up (and still persists in favouring) various conditions leading, throughout causal chains and/or functional links, to the incalculable high-tech environmental harm that distinguishes contemporary ecosystems.

Yet, in Tallacchini's view, this generalized attitude of law has to be ascribed not so much to the peculiar type of current law, but to two theoretical "mistakes" made by legal doctrine in the course of centuries: (a) the lack of sufficient consideration for nature in the relationship between nature and human action; and consequently (b) an excessive emphatisation

of anthropocentric claims about nature's "gifts". Hence, due to a sort of "ignorance" and analytical "indifference", law never really "met" nature: the one simply ignored and/or manipulated the other. This is the reason why, according to the author, the law's "faults" are "particularly extenuated" by the fact that they do not concern primarily "structures and necessary characters" of what jurists call "juridicity", but rather the discursive formations of its sociotechnic mechanisms of implementation, that is, the "map of misreading" - as Sousa Santos would put it - set up by deficient and erroneous legal "perceptions" about nature. Thus, having realized the consequences of such "mistakes", from now on "juridicity" has "the chance to elaborate non-disruptive models" to implement a "systemic/relational" interaction between environment and mankind. This should be done not by searching for a new type of law, but by refining "principles and norms already existing at different levels in positive environmental law" (Tallacchini, 1996).

The thesis about an "inadequate" representation of nature in legal terms is certainly relevant. Also in *Images et usages de la nature en droit*, edited by Gerard, Ost and Van De Kerchove, one finds a detailed comparative account of the instrumental use of nature on the part of the law because of negligent and therefore misleading conceptualizations of the natural realm (Gerard, Ost and De Kerchove, 1993).

But, how can one underestimate that the construction of an imaginary and false reality is among the constitutive "structures and necessary characters" of the "juridicity" of positive official law? That legal fictionality about nature is not a "mistake", but a high-tech rationalizing device of theory and practice of legal positivization (Olgiati, 1999)?

Significantly, the fictitious, erroneous, or imperfect legal representations of nature in ancient laws or in current living laws of certain aboriginal tribes did not lead at all to the kind of systematic environmental harms that both mankind and nature suffer today. Therefore, it is clear that one has to add up something more substantial than a mere theoretical "indifference" or operational "ignorance" to account scientifically for the responsibility of positive official law as regards harm to nature in contemporary society. In other words, one cannot claim a "juridicity" above suspicion. One has to face the fact that, at present, what is seriously questionable, in terms of functionality and legitimation, is the ecological unsustainability of the regulatory regime of positive official law as such, not

merely the historical rejection, due to obsolescence, of some of its erroneous conceptual tools.

## 3. THE LAW OF NATURE'S LEGAL DESTRUCTION

The fact that positive official law is not neutral, nor autonomous and much less detached from the grand sociotechnic projects of sociopolitical governmentality, does not require to be stressed here: the amount of literature at our disposal on this topic is so vast as to prevent us from discussing it in detail.

What is relevant for our present concern is simply that it conveys that the social liability of positive official law, as far as the rise and spread of environmental harm in contemporary society is concerned, is a dependent variable of its constitutive structuration. In turn, this constitutive structuration is a dependent variable of what might be called "the epistemology of domination" which historically permeated modern (western) society (Popitz, 1995).

Since the early stages of the techno-scientific revolution in the western world, a number of government projects systematically pursued in legal terms the exploitation of an allegedly boundless nature as object. However, only by means of the positivization of law did the rights of individual freedom and legal claims over the property of natural resources turn into a veritable legal sanction to destroy natural environment as such. As Rèmond-Gouilloud has shown, it is by virtue of positive official law that possessive individualism over nature reached the paradigmatic status "*de jouir et disposer des choses de la manière la plus absolue*" (French Civil Code, Art. 544) to the point of pursuing legally its total annihilation (Rèmond-Gouilloud, 1989). Equally, it is by virtue of positive official law that the mechanicist reductionism of any natural resource under the occasional will or utility of an individual social actor has been formally legitimized as a veritable human "progress" (Edelman, 1985). Last, but by no means least, it is by virtue of the same type of law that *de factores communes omnium* systematically becomes *de jure res nullius* and consequently left at the merciless disposal of anyone able to assert an unrestrained power of apprehension, partition and consumption (Hardin, 1968).

In short, if one considers sources and conditions of environmental harm in contemporary society with an unprejudiced mind, one cannot underestimate the specific role played by the legal technicalities of positive official law in the subsumption of nature, under the label of formal-rational rights of sovereignty and property, in order to foster specific techno-political forms of governmentality. If this is the case, as historical evidence shows, it follows that one should not, for the time being, reasonably expect any substantial solution of environmental problems by trusting, supporting and implementing that type of law. More precisely, it follows that one should immediately look for a radically different legal system to approach ecological crisis correctly.

Surely, the above statement sheds light on a hard truth as well as on a hard task. But it should not be surprising: it is sufficient to focus on theoretical and practical limits, loopholes and difficulties occurring at present in the enforcement of what is now called "environmental law", to realize that the beginning of a veritable legal transition as regards legal arrangements about nature is already in progress. So much so, that the transition is based on an increasing erosion of the pivotal traditional tenets of positive official law. To give an idea of the tortuous character of such an epochal legal change, let us briefly review some items drawn from a significant part of the most advanced "environmental law", that is, international legal stuff. It will be easier, in turn, to discuss the challenges that are at stake and the strategies that should be adopted.

## 4. LEGAL LIABILITY FOR RISKY ACTIVITY AND ENVIRONMENTAL HARM

Leafing through current international statutes and conventions devoted to environmental issues one finds that, as a rule, risk concerning or related to environment is defined broadly as the result of a "dangerous activity against due diligence". One also finds that in order to be legally relevant the same risk must imply a "significant harm", not a mere danger or damage. For those with legal experience, it is evident that the current jurisprudential use of these definitions explicitly signals a significant overlapping - or, better, indeterminacy - about the assessment of traditional legal principles.

As a matter of fact, these definitions recall either the principle of "no liability without (intended) fault" or the principle of "strict (causal) liability", two contradictory standards whose alternating enforcement had a predominant role in the development of western industrialism (Pozzo, 1996). The rationale that justifies the current juxtaposition of "fault" (as in the case of "psycho-physical man-size liability", otherwise labelled "negligence rule") and "causality" (as in the case of unauthorized intrinsically dangerous corporate activities) is due to the rise of a new "legal climate" including three contrasting voices: one stemming from the so-called "economic analysis of law", one rising to the fore from what might be called "ecological legal activism" and one advanced by the guardians of official law to "secure" certain interests accordingly.

A typical case of the impact of such a "legal climate" is the Lugano Convention (1993). Not by chance, it takes into consideration only risks derived from those activities performed in the course of conducting business and which might create a significant harm for (1) man, (2) environment and (3) property. Yet, if one tries to verify the degree of enforcement of each of the above items or to ascertain remedial measures provided for each of them, one is at the mercy of the selective and one-dimensional operations of the law. In fact, as court cases repeatedly show, the "property approach" - not the social/natural "necessity" to safeguard nature - is still considered the primary linkage between man and nature. Obviously, the same approach is at the core of court decisions for it is still also the dominating guideline of official legal culture as regards environmental law policy-making. An example might offer a better understanding of the point. Let us consider the recurring "transpositioning" of means between the aim of legal liability for environmental harm in liability law and the purpose of economic analysis of legal liability in environmental matters. As it is well-known, according to general legal standards, the official aim of liability law is to (1) compensate the victims, (2) deter further injuries, and (3) stop the spread of the harm. In turn, the purpose of the economic analysis of legal liability is (1) to look for incentives for organizational efficiency, that is, to internalize (prevent) the cost of the (external) harm, and (2) to react efficiently (to reduce costs) to potential (costs of) risk-spreading. It is also well-known, however, that in international law, the notion of responsibility is defined as an obligation of states, not of individuals or corporations. In turn, liability is related to a "significant harm" implying the obligation of a monetary compensation (not reparation or restoration of the *status quo ante*). Consequently any lawyer knows that it is always extremely difficult, if not almost impossible, to

answer directly to basic questions such as: who is responsible for what? who are the victims? who can claim for compensation?

All the above notwithstanding, in the face of mounting public opinion concerned with ecological risks at a global level, neither the principle of strict liability nor the principle of negligence rule, each one taken alone, satisfies anymore either law- and economy-analysts or policy-makers (Shavell, 1980; Skogh, 1997). The one might undermine the search for efficiency because it might be too costly, the other, though context-based, because it leads to a veritable "right to reproduce the harm". In other words, general standard rules, such as the well-known "polluter pays" principle, are far from satisfying all at once, society, nature and ... property!

In this context, therefore, it is by no means fortuitous that ecological legal activists are looking for new strategies. More precisely, they seem to pursue two complementary tasks at present: (a) to explicitly challenge the notion of "sovereignty" as the very central pillar of positive official law (see, for example, Rio's Conference, "Earth Charter") in order to emphasize all the consequences that this challenge implies as regards the material and ideal "boundaries" of positive law, and (b) to move forward a quest for a non-contractual system of "nature's rights" in which the principle of "ecosystemic sustainability" could play a pivotal legal role (see, for example, Deep Ecology's and Shallow Ecology's Manifestos). This is done also to contrast any sort of economicist reductionism of technocratic pragmatism that permeates as we will discuss shortly current and prospective environmental law-policy.

In brief, environment activists are at work to oppose an ecocentric model (Eckersley, 1992) to the traditional State-centric legal system, by revitalizing, in up-to-date terms, the idea that law - as Villey put it - is a result of a natural relation with "the nature of things" and not an artificial product of a mere self-serving human reason (Villey, 1991).

## 5. TOWARDS A "SMART" REGULATION?

A cautionary rule arising from historical experience alerts us to the fact that to be aware of a problem is only to be close to, and not at, its possible solution. In the case under scrutiny, this rule of experience drives us

to realize that at least two problematic issues stem from what has been said so far. The first concerns the extent to which the existing legal norms somehow actually protecting against environmental harm can be implemented and valorized as such, all their limits and deficiencies notwithstanding. This issue presupposes an extremely detailed *ad hoc* recognition of the way in which the structural coupling between law enforcement and environmental harm *de facto* took place and still operates in contemporary society. The second issue concerns the refinement of a general framework able to emphasize the cleavage between the intrinsic limits of traditional legal stuffs and the claim for a legal transition towards new legal paradigms centered on the notion of "nature's rights". In other words - or better, to look at the same issues in another light, two core problems are at stake. First: to avoid (and possibly contrast) extreme nihilism or explicit luddism as regards the "good" side of current enforcement of official law, that is, to exclude the so-called "legal ecosabotage" of environmentalist radicalism, as well as to limit the "civil disobedience" of radical environmentalism (Martin, 1990). Second: to oppose any posssible parasitical outliving of organizational break-ups in the matter of traditional legal arrangements. In fact, it is self-evident that a strong sociolegal resistance on the part of vested interests and corporate bodies can be expected, to the point that it might be even more prejudicial than radical social activism as far as necessary changes are concerned. Surely, the case of official governmental policy in self-styled "advanced" countries, such as the US, is an example of the type of institutionalized resistance that is in progress already.

Hence, the issue is twofold: to try, in any way possible, to curb environmental harm through existing models of environmental law while transcending the pitfalls of opposite sociolegal extremisms, and to devise, in the meanwhile, a context-specific strategy that could pave the way to a completely new prospective regulatory system.

Significantly, by reviewing the most recent documents, programmes and analyses about the creation of a new regulatory system potentially able to slow down, halt and ideally reverse environmental harm, one notices a clear theoretical and practical bifurcation *de jure condendo*. For some, the challenge could be handled pragmatically by means of a more efficient variety of public and private legal mechanisms. For others, by contrast, there is no logically efficient solution, for even the rationality of current thinking has reached a critical threshold. The only realistic way out is, rather, to go

beyond the dialectical opposition between reality and imagination and bet on what seems, at present, still impossible.

To synthesize the proposals of the two groups, one might say that the former advocates a rationalizing "smart" regulation design, while the latter advocates only an "ecology of action" leading to a veritable ecologic legal anthro-policy. Altogether, these two law-policy strategies, in one way or another, challenge the legal approach that is in force at present, that is, the top-down approach that "prudentially" pursues reasonable results by authoritatively mixing legal power and scientific authority.

The proposal for a "smart" regulation has been recently put to the fore by Gunningham and Grabowsky with particular reference to a US context. In their book *Smart Regulation. Designing Environmental Policy*, the authors maintain that "regulation does have a substantial role to play in protecting the environment but that most existing approaches to regulation are seriously sub-optimal". In particular, "both government regulation and market-based solutions showed substantial failings". Consequently, the quest for a "smart" regulation could be recognized as a quest for a "third way".

Such a third legal way is centered on the idea that a more refined law-policy making is possible and could be successful. What is needed is to take into "optimal" account not only conventional top-down regulatory "wisdom", but also bottom-up devices provided by a combination of mechanisms, interests, ideals, etc., stemming from institutional, economic and social contexts. Accordingly, the design implies "optimal" mixes of a plurality of options about different types of environmental sociolegal sources, the majority of which have been, so far, used far below their full potential. In the authors' view, these sources include: self-regulation and co-regulation, environmental audits, environmental management systems, eco-labelling schemes, traditional liability rules, environmental reporting, community right-to-know legislation and good-neighbour agreements.

The majority of these sources operate outside official public institutions. Therefore a "smart" regulatory policy is, by definition, one which creates opportunities to improve environmental performances, "but without the use of greater governmental resources". In a nutshell, a "smart" regulation is a form of "governing at a distance" that "in absence of any consensus on precisely what criteria a successful regulatory strategy should satisfy" tries to combine three "relatively uncontroversial" principles:

effectiveness (for environmental improvement), efficiency (for improvement at minimum cost) and equity (for fairness in sociolegal burden-sharing), to which the authors add, as a corollary, a fourth standard, political acceptability (that is, liberty, transparency, etc.) (Gunningham, Grabowsky, 1998).

As one can see, one has to credit Gunningham and Grabowsky for a clear perception of the sociolegal *impasse* that is at present affecting environmental law. Nevertheless it is quite obvious that their proposal for a "smart" - flexible and pluralistic - regulation does not transcend at all the intrinsic logic of the *ratio juris* of positive official law. It simply suggests a sort of pragmatical use of any sort of sociolegal stuff.

As the "relatively uncontroversial" principles of this "smart" law-policy design have serious ideological and practical implications, before discussing the opposite strategy, promoting as it has been briefly mentioned *supra* the quest for a totally different legal system that realistically appears impossible at present, let us focus on a major weakness it entails: the problematic relationship between science and law. In turn, this will offer us the opportunity to have a better understanding of the model currently in force.

## 6. ORGANIZATIONS AND SCIENCE AS HIGH RELIABILITY SYSTEMS?

As we have seen, Gunningham and Grabowski's thesis suggests that by recruiting and combining a range of different regulatory sources, actors and instruments to reduce the burden of governmental interventionism as well as tailoring these items to specific goals and circumstances, it is possible to produce an "optimal" - more effective and efficient - law-policy design to face environmental harm in contemporary society.

To test their thesis, the authors provide in the second part of their book a detailed analysis of two emblematic high-tech contexts: the chemical and agriculture industries. They also briefly consider shortcomings, counter-productive mixes and unintended consequences of the strategy. Surprisingly, however, one can find hardly any reference to the results of the scientific debate that has been going on in the course of the last decades as regards the

problematic reliability of organizational and technoscientific standards or of corporate organization and scientific research methods, such as those typically enforced in the chemical and agricultural industries. The lack of any comment on this topic is even more surprising if one considers that the proposal - unconsciously? - recalls the well-known principle of Ashby's "requisite variety", according to which a perfect - intelligent and rational - regulatory system is one which is able to contrast the variety of disturbances to the variety of incorporated regulatory mechanisms (Ashby, 1956).

In any case - as most advanced studies on "normal accidents" in high-risk technology (Perrow, 1984) have shown - even Ashby's "requisite variety" cannot exclude the so-called "large scale failures of organizational intelligence" (Wilensky, 1967). A typical case in point are the failures produced by "storming and catastrophic sequences" (Radel, 1992) of networking organizational-sets conditioned by mixes of political and economic pressures for competition and change. In brief, these studies demonstrate altogether that the notion of "high reliability organization" (Roberts, 1989), based on both scientific and regulatory standards, is a pure ideological construction, because technological accidents occur, as a rule, not in the breach of the law or contrary to scientific method, but in the course of their actual compliance to them (Baldissera, 1998).

As "normal accidents" in high-tech systems are "normal" because they stem from the intrinsic logic-functioning of the same systems (so that they cannot be reasonably eliminated or impeded) and as the harm that these high-tech systems produce lead, as a rule, in one way or another, to environmental harm, it follows also that the rationale of their core scientific standards is not at all socially and scientifically reliable. In other words, the kind of risk produced by high-tech systems is not a disfunctional outcome of scientific method, but a constitutive "rational" pattern of the current mode of organizational/scientific production. That is to say, it is the most advanced scientific knowledge and know-how, not ignorance, which are at the core of the so-called "organized irresponsibility" of contemporary society (Beck, Giddens and Lash, 1994).

To fully understand the point, it is sufficient to consider that among small- and large-scale failures of high-tech intelligence, a pivotal role is played by the increasing level of unpredictability and uncertainty of theoretical and empirical premises, applications and outcomes of scientific "reason". As is well-known, in contemporary society the basic criteria

providing functional performativity and social legitimacy, that is, trust and credentials, to the scientific domain of both formal knowledge and practical know-how is not faith in God - as it is in premodern society - but calculation (by trial and error) and the discursive (sophistic) neutralization (by means of renowned doctrinary authorities) of the Cartesian doubt, or Socratic ignorance, that science necessarily entails.

Calculation is a method for partitions and intertwinements. As such it not only allows us to distinguish between normal and abnormal (exceptional) circumstances or given factors, but also to take selective decisions about them, just as the general standard of "divide and rule" teaches. Additionally, calculation makes future events and expectations reasonably predictable and programmable. Consequently it makes it possible to technically handle the risks that are inherent to any natural or artificial issue. Statistical calculation of risk, for example, not only allows the programming of certain future actions, but also provides a way to deethicize and depoliticize their potential social consequences, as well as a way to compensate and/or prevent a formal or substantial ascription of responsibility (Douglas, 1994). Indeed, by virtue of calculation, risk might not even be perceived as a real social threat but rather nicely considered as a matter of insurance accountability (Luhmann, 1991).

Unfortunately, however, to a large extent none of the above fit at all with Risk-society. Even a rough evaluation of the type, process and impact of certain risks, created and disseminated - via legalization and commercialization - by high-tech scientific decision-making, has become almost, if not totally, impossible nowadays, for the grid of the variables involved came out of any scientific control.

Firstly, a scientific calculation of risk (by trial and error) cannot be "reasonably" carried out at all, because in a number of cases there are no previously tested experiences and laboratory-like experiments are certainly productive of unpredictable risks per se; hence, the capacity to predict "safety margins" is zero. Secondly, the self-same agents of high-tech knowledge and know-how openly admit that, although risk-analysis - the new-born scientific discipline of risk production - could be promising" in the future, it is basically unreliable so far, due to two major factors: on the one hand, the incalculable indeterminacy of the variables involved in the research (economic costs included), that is, the so-called "indeterminacy effect of deterministic uncertainty", on the other hand the naive, inadequate

and/or misleading assumptions of prescriptive, rather than explanatory, character, arising from a sort of "cultural bargaining" among conflicting - and therefore questionable - issues, values and interests (Wynne, 1994).

Given the above, it is therefore apparent that the only scientific "certainty" about high-tech science at present is just the increasing "uncontrolled blindness" of its development.

## 7. ENVIRONMENTAL RELIABILITY OF "PRECAUTIONARY" LEGAL APPROACH

The above discussion about the organizational and scientific "intelligence failures" of advanced high-tech systems could not be omitted. In fact, it shows that, due to the structural coupling of such failures, a "smart" approach to environment protection cannot be "efficiently" carried out, whether or not sociolegal pluralism is activated. Even less can sociolegal pluralism pragmatically impede additional "cultural bargaining" of scientific data.

The same discussion however is also relevant here to understand the potentials and limits of the dominating legal model currently in force in contemporary society, particularly in Europe. This model does not emphasize bottom-up sociolegal pluralism at all, but top-down formal-legal security. Labelled "precautionary approach", it claims to enforce top-down "prudential" legal decisions based on a mutual combination of science and law.

In any field of human action, as is well-known, official law-policy has always been extremely keen to use scientific theorizing and scientific data to avoid debatable political solutions, compromises, etc., and to obtain an "unquestionable" legitimation, and this, even more so in periods of great sociopolitical and cultural changes (Gutwirth and Naim-Gesbert, 1995). As early as 1997 in spite of the above-mentioned "intelligence failures" and contrary to self-evident scientific evidence about science's "indeterminacy" and "not neutrality" in the spirit of the EU *Codex Alimentarius*, the EU Commission for Health and Security of Consumers officially stressed the principle of "science reliability" to justify the removal of national commercial barriers based on a plurality of different "questionable"

institutional standards (Sheppard, 1998). Yet, it is fair to note that, according to the EU Maastricht Treaty (art. 130 R, 2) as well as Rio Global Forum's "Earth Charter" (prin. no. 15) "precautionary approach" does not necessarily imply unquestionable "scientific proof", nor "scientific truth", nor even complete sets of scientific data. The principle of precautionary approach recognizes the limits of science. For this very reason, therefore, it turns to official law to authoritatively provide the means to "secure" a certain degree of protection from environmental harm as soon as the harm is "recognized" and signaled by certain scientific standards.

This is done by emphasizing the distinction (but also a potential overlapping) between socio-institutional and environmental "reliability". Accordingly, grids of predefined standards are officially established to monitor a situation whenever socio-institutional and environmental conditions appear "reasonably" mutually incompatible. The purpose of these scientifically determined standards is to mark the so-called "critical load" or the "carrying-capacity-with-safety-margins" of certain risky variables.

As one can see, the approach does not claim a "smart" arrangement. It simply tries: (a) to sort out a scale of scientific/normative indicators about environmental harm, (b) to define legally/scientifically a certain stepping point to indicate the limit of any "safety margin" or "critical load", and (c) to authoritatively enforce the law at the right time. In doing so - and this is the rationale of the approach the relative reliability of scientific authority mixes with the relative efficiency of legal power.in one way or another.

The model is particularly intriguing as it tries to overcome the limits of the law through science and vice versa. Unfortunately, however, the scientific calculation of reference standards is almost impossible in scientific terms at present, because of all the reasons that have been previously mentioned. Neither can the definition of problematic institutional and environmental conditions that have to be taken into account be scientifically determined, as they are grounded in competing social values and interests. Additionally, for formal-legal systematic reasons, scientific scales about "safety margins" have to be related to the legal notion of "significant harm" (see *supra*, par. 4). Thus, only legal decisions negotiated at the political level between scientists and politicians "secure" what sort, why, when and how those scientific/normative standards are *de facto* enforceable.

In other words, the fact that below or above a scientifically recognized critical limit one is "legally sure" to be safe or not, implies that actual conditions for environmental harm are politically "translated" and subsumed under the institutional framework of what is meant by the notion of "legal security". Hence, environmental harm, as such, is not considered by law as an actual social fact, but as a matter of "public order", to be managed accordingly. Surely, the power-knowledge of scientific expertise is officially evoked. But, in final instances, there is no scientific statement that might compel the enforcement of a safety measure. Only a political ("prudential"?) evaluation of pros and cons about the rise of potential "moral panic" in public opinion might determine the divide between "normal", that is, tolerable, and "exceptional" harm.

As it is self-evident, the problem with a precautionary approach is that, not only does it concentrate any decision about the danger of environmental harm in the hands of centralized official authorities but, for mere governmental purposes, it also imposes a legal "normalization" and "*disciplinement*" as Foucault would say of both "normal" and "exceptional" conditions in regards to environmental harm.

Given such a constitutive logic, it is apparent why the approach is far from well-accepted by either mercantile corporations or ecological activities, the ones because they cannot compete freely according to market rules, as they are compelled to deal with preestablished standard grids, that is, they find it more difficult to "influence" and/or "determine" scientific procedures and legal decisions and internalize the costs (Walker, 1993), the others, because they find it jeopardizes their efforts aiming at a "prevention first" policy. Moreover, the approach helps to hide, rather than make apparent, the most disquieting truth about environmental harm: because of the whittling away of any sort of rational cut between normality and exception, environmental harm is a danger any way you look at it and its impact, in the long run, is inevitably catastrophic.

## 8. RESORTING TO THE *RATIO JURIS* OF NATURE'S NATURE

If, in the field of current official law, the above overview of the general state of affairs of legal theorizing, policy-making and law-enforcing

is correct, it is hardly deniable that a substantial legal change is required to halt the spreading of environmental harm in contemporary society.

Given the power of command and interdiction to be found in vested bodies, interests, values, etc... and the unforeseeable complexity of the issue it is clear that such a change should be a radical one: it should imply much more than a mere "rationalization" of existing legal arrangements, or a wider combination of legal sources or a more sophisticated operational coupling between law and science.

The fact is that the actual conditions of a Risk-society, as well as prospective scenarios, compel us to consider the claim for a new legal system not as a sociotechnical remedy to secure sociolegal order, but as a veritable social/natural necessity to guarantee the survival of any sort of living species. Therefore, not only is a new type of law-policy strategy required, but also and above all a new *ratio juris*. In his book, *Terre-Patrie*, Edgar Morin alerts us to the fact that the task seems realistically impossible at present. Nevertheless, he affirms that this is, willy-nilly, the only chance: just to bet on what, being potentially possible, appears paradoxically impossible here and now (Morin, 1993). Let us, therefore, take on the challenge, and look at a prospective horizon.

As the social necessity for a substantial legal change stems from basic social/natural needs to guarantee sustainable living conditions, that is, from an epistemic prerequisite of a general character and not from arbitrary and occasional power relations, it follows that the first, unavoidable stepping point that one has to face is to become aware of and accept the fact that it is not states - or their functional macro, meso, micro equivalents - but basic social/natural needs which have to nurture the production and enforcement of law. In other words, it should be realized that, from now on, it is not corporate agents, governments, power elites, social groups and the likes, with their ephemeral and questionable power, who are the law-makers, but that *necessitas jus constituit*. In fact, the historically determined necessity to escape from a Risk-society is de facto and de jure the primeval source of the resistance and creativity which are at the heart of any social and natural dynamics of evolutionary reproduction and, as such, is absolutely unconstrainable.

Besides this, it is self-evident that to prepare the ground for a correct legal coupling between society and nature, new, plausible and socially

adequate legal arrangements are also required. This implies the abandonment of any self-referential mechanisms typical of traditional doctrines, as well as the refinement of the so-called law-and-society model, for it should necessarily include, besides law and society, nature also.

In turn, as the historical necessity of the issue necessarily presupposes a collective human effort, it is vital that we not draw a hypothetical model to be translated into practice, but that we set in motion a proper *zukunftsfahig* project, that is, a concerned action system that has to be - to translate in English an untranslatable German term - "ethically pregnant" with open-to-the-future meanings and intentions.

To the extent that the three pillars just sketched above are in force, not only could legal and social thought match both legal and social dynamics, but either one or the other could mix with nature's laws according to explicit mutual learning and dialogue. Accordingly it could become possible to resort to - as Morin would put it - *la raison juridique de la nature de la nature*, that is, the only socially "sustainable" legal standard that one can reasonably imagine at present to restore a non-risk society.

Yet, in order to enforce the whole strategy - and rescue *le paradigme perdu* of human nature by resorting to *la nature de la nature* as a reference guideline, a further issue cannot be avoided: the setting up of an intermediary approach, a sort of "of bridge-theory in action", able to drive and control the change-and-regulation mechanisms (organization by disorganization) that any existing social setting will have to endure.

Such a veritable "meta-system" to quote Morin once again requires a mix of prudence and audacity not only in facts but also in thoughts. Thus, it should deal, firstly and above all, with the deconstruction of two basic concepts: the notion of environment as a legal object and the notion of legal subject as applied to the actor living in it.

Far from viewing environment as an anthropocentric legal abstraction and environmental law as a mere legal field, one has to refer to both as a part of the broader social/natural legal sphere of the so-called *responsabilité écologique* (Ost, 1995). Consequently, the notion of legal subject, as regards environment, cannot refer any more to a bounded "citizenship" and much less to an individual formal-legal abstract entity. In fact, from the point of view of a legal "eco-policy of action", mankind is not

at the centre of environmental universe. Rather, what is at the core is Life in all its forms, characters and conditions. The notion of a "living setting" should therefore come up as a standard rule of reference.

This should not be surprising: scholars from the East, from a culture thousands of years old, as well as thinkers from ancient classical Western culture - Empedocles, Celsus, Pythagoras, and much closer to us, even Darwin - were well aware that all living species are linked by the same natural chains and that these natural chains cannot be broken at whim or by force, as they are rooted in the normative realm of space and time, that is, in the necessity of never impeding or putting an end to nature's order-and-change. If so then, why should one not bet on it?

## CONCLUSION

The above discussion showed a disquieting reality: the liability of current official law as regards the production and dissemination of mechanisms and conditions leading to, or contributing to, the rise of environmental harm in contemporary society. It also shed light on the intrinsic limits of law-policy strategies and regulatory approaches currently enacted to deal with environmental harm. In turn, it offered an admittedly sketchy list of suggestions and hints for a completely new legal system, based on the self-evident, unconstrainable, fact that, in a Risk-society, only *necessitas jus constituit*.

Given the overall state of affairs in contemporary society, a lesson can be gleaned: jurists and lawyers have to become aware that from now on they will endure a double sociolegal task and a corresponding liability. Firstly, they have to abandon miopic cultural stereotypes, for environment is not a legal topic per se, but an irrepressible part of the ecosystem. Hence, the whole toolbox of legal concepts, such as "interest", "harm", "protection", etc. has to be deconstructed. Secondly, they have to reject and dismiss their actual role of *gardiens de l'hypocrisie collective* (Bourdieu, 1991) and take on the general needs of the natural heritage of humanity, that is, the necessity to impede the destruction of both society and nature. In sum, lawyers and jurists must reject traditional clientelistic double-standard skills and opportunistic attitudes, redirect their technical ability and redefine cultural identity and "decent life" for all living species. Otherwise the

power/knowledge that they still hold will be of no use at all.

Indeed, as Hardin put it, "environmental problems have no technical solution: they require a fundamental extension in morality" (Hardin, 1968).

**REFERENCES**

ASHBY, W.R. (1956). *Introduction to Cybernetics*, Wiley, New York.

BALDISSERA, A. (1998). "Incidenti technologici: fasi e sequenze causali", in P. Ceri, P. Borgna (a cura di), *La tecnologia per il XXI secolo*, Einaudi, Torino, p.186-214.

BECK, U. (1986). *Risikogesellschaft. Auf dem Weg in eine andere Moderne*, Suhrkamp, Frankfurt-am-Main.

BECK, U. (1994). "Dalla società industriale alla società del rischio. Questioni di sopravvivenza, struttura sociale e illuminimo ecologico", *Teoria Sociologica*, no 4, p.49-75.

BECK, U., A. GIDDENS and S. LASH (eds.) (1994). *Reflexive Modernization: Politics, Traction and Aesthetics in the Modern Social Order*, Polity Press, Cambridge.

BOURDIEU, P. (1991). "Les juristes, gardiens de l'hypocrisie collective", in F. Chazel and J. Commaille (eds.), *Normes juridiques et régulation sociale*, LGDJ, Paris.

DOUGLAS, M. (1994). "The Depoliticization of Risk", in *Teoria Sociologica*, vol 4, p.13-31.

ECKERSLEY, R. (1992). *Environmentalism and Political Theory. Toward an Ecocentric Approach*, UCL Press, London, New York.

EDELMAN, B. (1985). "Nature et sujet du droit", *Droits*, vol 1, p.25-142.

GERARD, P., F. OST et M. VAN DE KERCHOVE (1993). *Images et usages de la nature en droit*, Publications des Facultés Universitaires Saint-Louis, Bruxelles.

GLOBAL FORUM DI RIO (1993). La "*Carta della Terra*". *Manifesto dell'ambientalismo planetario*, ISEDI, Torino.

GUNNINGHAM, N. and P. GRABOWSKY (1998). *Smart Regulation, Designing Environmental Policy*, Clarendon Press, Oxford.

GUTWIRTH, S. and E. NAIM-GESBERT (1995). "Science et droit de l'environnement: réflexions pour le cadre conceptuel du pluralisme des vérités", *R.I.E.J.*, p.33-98.

HARDIN, G. (1968). "The Tragedy of the Commons", *Science* vol. 162, p.1243-1248.

LUHMANN, N. (1972). *Rechtssoziologie*, Verlag, Hamburg.

LUHMANN, N. (1996). *Sociologia del rischio*, Mondadori, Milano.

LUHMANN, N. (1991). "Die Moral des Risikos und das Risiko der Morals", in G. Bechmann (ed.), *Risiko und Gesellshaft*, Westdeutscher Verlag, Opladen.

MARTIN, M. (1990). "Ecosabotage and Civil Disobedience", *Environmental Ethics*, vol.12, p.291-309.

MILANACCIO, A. (1998). "Dalla lotta all'inquinamento alla società sostenibile", in P. Ceri, P. Borgna (a cura di), *La tecnologia per il XXI secolo*, Einaudi, Torino, p.215-237.

MORIN, E. and A.B. KERN (1993). *Terre-Patrie*, Seuil, Paris.

OLGIATI, V. (1998). "Risk, Professions and the Claim for Human Rights", in V. Olgiati, L. Orzack, M. Saks (eds.), *Professions, Identity and Order in Comparative Perspective*, Onati Paper 4/5, IISL-Onati, p.379-398.

OLGIATI, V. (1999). "Iura Inania: Illusions and Virtuality of Legal Fictions", in A. Podgorecky and A. Czarnota (eds.), *Hidden Structures of Law*, Dartmouth Publ. For IISL-Onati, Aldershot (forthcoming).

OST, F. (1995). *La nature hors la loi. L'écologie à l'épreuve du droit*, La Découverte, Paris.

PERROW, C. (1984). *Normal Accident: Living with High-Risk Technologies*, Basic Books, New York.

POPITZ, H. (1995). *Der Aufbruch zur artifiziellen Gessellschaft*, J.C.B. Mohor, Tubingen.

POZZO ZANCHETTA B. (1996). "The Liability Problem in Modern Environmental Statutes", *European Review of Private Law*, vol. 4, p.111-144.

RADEL, W.W. (1992). "Storming and Catastrophic System Failures", *Industrial Crisis Quarterly*, vol.4, p.295-321.

RÈMOND-GOUILLOUD, M. (1989). *Du droit de détruire. Essai sur le droit de l'environnement*, P.U.F., Paris.

ROBERTS, K.H. (1989). "New Challenges in Organizational Research: High Reliability Organizations", *Industrial Crisis Quarterly*, vol. 3, p.111-125.

SHAVELL, S. (1980). "Strict Liability versus Negligence", *The Journal of Legal Studies*, p.1-25.

SHEPPARD, J. (1998). "Le attività rischiose", *Consumatori Diritti e Mercato* vol.3, p.32-41.

SKOGH, G. (1997). "Development Risk, Strict Liability and the Insurability of Industrial Hazards", unpublished paper, Dept. of Economics, University of Lund.

TALLACCHINI, M. (1996). *Diritto per la natura. Ecologia et filosofia del diritto*, Giappichelli, Torino.

VILLEY, M. (1991). "Law in Things", in P. Amselek, N. McCormick (eds.), *Controversies About Law's Ontology*, Edinburgh University Press, Edinburgh, p.1-12.

WALKER, S.L. (1993). *Environment Protection versus Trade Liberalization: Finding the Balance*, Publications des Facultés Universitaires Saint-Louis, Bruxelles.

WILENSKI, H.L. (1967). *Organizational Intelligence*, Basic Books, New York.

WYNNE, B. (1994). "De-reifying Risk: Science and Social Ordering", *Teoria Sociologica* vol. 4, p.129-149.