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POLLUTION AND POLLUTER PAYS

Aaron Lercher

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1. Introduction

The slogan "Polluter pays" is here taken to mean that, in certain laws and regulations, polluters are required to pay damages regardless of their degree of fault for pollution. This liability standard is part of two United States environmental laws. The 1980 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) creates a federal government power to respond to threats posed by toxic materials. The 1990 Oil Pollution Act (OPA) creates a federal power to respond to oil spills. CERCLA is popularly known as Superfund, but since the emphasis here is on the liability provisions not the trust fund, the law will be referred to as CERCLA. For a history of US environmental law, written by an authority on CERCLA, see Lazarus (2007).

The slogan "Polluter pays" can also be used more generally to mean that external costs of pollution should be internalized by polluters in some way. These economic strategies are discussed in the chapter on Economic Instruments in this volume. This chapter focuses narrowly on explaining the liability provisions in CERCLA and OPA.

An agent is at fault for wrongdoing when the agent either intentionally does wrong, or is reckless or negligent. But these laws hold those who handle toxic materials and oil to the standard of "strict" liability, which does not require fault. In order to explain the liability provisions of CERCLA and OPA, we need to address two ethical questions. These questions are posed in an anthropocentric setting, since one organism's toxin is another's food or pleasant living environment. First, when can an act or activity be wrong, even when the actor is not at

fault? Second, when can an activity be wrong, even when it is not harmful and only poses a risk? In addition, there are analogous legal questions. Should an act or activity be held illegal, even when there is no intentional, reckless, or negligent wrongdoing? Should an activity be illegal because it poses risks of some kind, although it is not (yet) harmful? We also want our moral demands to be at least consistent with a plausible way of running society. Although the latter requirement is weak, it plays a role in the following argument.

I shall argue that acts and activities should be held illegal for posing risks of certain kinds, even when the agent is not at fault, and even though there might not be any moral prohibition against such acts or activities. In some cases polluters should be legally required to pay, and indeed they morally ought to pay, even though they may have done nothing wrong. This argument is deontological, and perhaps counterintuitive, so I shall address an objection from a consequentialist perspective that the laws framed on this basis may be irrational.

2. Fault and Wrong-doing in Causally Complex Cases

The kind of situation we are interested in occurs in legal cases. Here is a hypothetical case quoted from a standard legal reference work:

Malloy: The Malloy Corporation produces components for computers that are essential to the modern economy. Its manufacturing plant is located in a community almost all of which is residential. Its manufacturing process generates a toxic chemical as a byproduct. Malloy stores this chemical in storage bins pending shipment of the chemical to an off-site disposal facility. This storage arrangement complies with the requirements of reasonable care and likewise with applicable public regulations. Even during normal and proper operation, it is often necessary to open the lids on these bins for periods of

time. Wind conditions may then arise that can disperse the chemical from the storage bins to the property of Malloy's neighbors; over time, such dispersion is quite likely but not certain. When and if dispersion occurs, the toxic fumes emanating from the chemicals can easily induce serious illness in those living on the property. (American Law Institute 2010: 240)

In this case, the Malloy Corporation is not at fault. It exercises reasonable care. For simplicity, let us stipulate, more strongly, that Malloy is exercising all reasonable care that is currently possible. The Malloy Corporation's activities have not, as far as this case tells us, caused harm. These activities pose a serious risk of harm, however. By the (weak) law of large numbers, a predictable rate of harmful results will emerge over time.

Malloy's activities are also probably not what the neighbors expect or understand well. Malloy's chemical processes are parts of complex chains of events, including random events such as wind conditions, as well as the complex physiological events that would happen if someone were harmed.

The Malloy example, although it represents a common type of example, nevertheless goes against any intuitive belief that wrongdoing implies fault. As long as the reader agrees that Malloy is doing something wrong, this example counts as evidence against the otherwise plausible claim that fault is necessary for wrongdoing,

In this case, however, it is unclear what exactly is wrong here. Malloy is not at fault as long as it is exercising reasonable care and we have more strongly stipulated that it is exercising all possible and reasonable care. But perhaps Malloy should not have built its factory at that location in the first place, and perhaps it was at fault then. Being at fault in the distant past does not fit well in most legal processes, except perhaps the most monstrous crimes. Also, the

surrounding community may be held equally at fault for negligence in its zoning law. So we want to focus on the immediate case.

Why then should we disregard fault in the Malloy case? It seems that the complexity of a causal chain can, in many cases, be a reason for disregarding fault.

Day's End: When *B* returns home from work in the evening, he turns on the light switch in the front room of his apartment. Due to circumstances *B* could not foresee or control, one night this ignites a fire in the apartment next door, which quickly kills his neighbor.

(Thomson, 1986: 229)

Again, it is methodologically helpful to note that this hypothetical case does not simply narrate my assumptions. Instead, it provides the reader an opportunity to confirm a moral judgment. Another assumption that I suggest we make here, following Thomson, is that if *B* ought not to turn on the light switch, then "ought": is meant objectively, rather than describing any moral obligation *B* may have perceived or not. Thus if Day's End were in a movie, and the audience had been shown the circumstances connecting the light switch to the fire, someone in the audience might call out, "Don't!" when *B* arrives home and then reaches for the light switch. So I suggest that *B* objectively ought not to turn on the light, and in this sense is doing wrong when he turns on the light.

In the Malloy case, chemical processes constitute a paradigmatically complex causal chain. The length of the causal chain could be extended further, if the chemicals were buried and then uncovered after many years, as in the toxic waste sites covered by CERCLA. The complex processes of mining and transporting oil, covered by OPA, also count as complex causal chains. The long causal chains in making consumer goods have led in the US to strict liability in product liability (Moss 2002: 216-252). Analogously, since most employees lack control over workplace

conditions, this fact has led to strict liability for worker's compensation in the US (Moss 2002: 152-169).

3. Risk Imposition and the Right to Self-Defense

Malloy has not caused any harm yet, as described in the hypothetical case. Cases in which harm is clearly caused by an agent tend not to be regarded as environmental pollution cases. These are cases of poisoning, asphyxiation, or burning, etc. Environmental pollution, in contrast, involves risks of harm, and resulting harms are not usually clear. Malloy, then, has imposed risks on its neighbors. Is this wrong?

In the Malloy case, the fumes really are toxic, not merely perceived as toxic. But in this case, no harm has yet occurred. The combination of lack of harm or at least lack of *proof* of harm, together with risk of harm, is common in cases of toxic pollution. (National Research Council 1991; Cranor 1993; Tesh 2000) There is no uniform method for determining which risks are real, and how to compare them. (National Research Council 2007: 105-111). There are statistical, toxicological, and epidemiological reasons why it is difficult to prove that even highly toxic materials have caused harm in people. The exposed population is normally too small to allow a statistical inference using standard methods. It is difficult to make inferences from animal experiments to human effects. It is difficult to tell how much exposure a population has received, and by what pathways.

In cases in which there is no proof of harm, it may also be argued that there is no real risk (Wildavsky 1995; Sunstein 2002). It is difficult to know which risks are real. But it would be a serious mistake to infer from this difficulty that risks are not real unless people are harmed.

Consider then only real risks. Which of these risks are wrong to impose? This is the ethical problem of risk imposition. This problem is difficult to state clearly and has persistently

eluded an adequate solution (Lewens 2007; Hayenhjelm and Wolff 2012). For this problem, we need to clarify what counts as a relevant harm or loss, as well as the situations in which increasing the probability of this harm or loss is wrong. In the Malloy case there are immediate risks of illness for inhabitants of the neighboring property. But beyond that there are other risks, such as loss of property values, inhabitants' abilities to fulfill work and family obligations, and so on. For the narrow topic in this chapter, we shall see how we can bypass the general ethical problem of risk imposition.

Nevertheless, despite the difficulty of the ethical problem of risk imposition, sometimes it is wrong to impose risks. The following kind of example is often used in ethics literature for discussing problems of risk imposition:

Russian roulette: *B* plays Russian roulette on *A* who does not agree to this and does not know about it. (*B* has various revolvers, with number of cylinders ranging up to very large numbers, which *B* uses in different cases.) In this case, there is a single bullet in *B*'s six-chamber revolver, but the bullet is not under the firing the pin when *B* pulls the trigger. (Nozick 1974: 79)

The reader is likely to agree that *B*'s activity is clearly wrong. But even if it is, it is unclear whether *B* has violated *A*'s rights. *B* has not harmed *A*, and has not even frightened *A*. It may be wrong to impose risks in some cases, but it is difficult to explain which risks and for what reason. So instead of attempting to answer the question of which risks are wrong to impose, I shall argue that *A* has a right of self-defense. The advantage of this approach requires some analysis to explain.

In a Hohfeldian analysis of rights, the most basic form of right is a claim-right: *A* has a claim-right against *B* that *B* carries out action *P*. Other rights are built from these units. For

every claim-right that *A* has against *B* that *B* carries out *P*, there is a corresponding duty that *B* has toward *A* of carrying out *P*. Presumably, for example, *A* has a right against everyone that none of us should poke *A* in the eye, and everyone has the duty not to poke *A* in the eye. In Thomson's (1990) account of Hohfeldian rights, claims against bodily incursion are fundamental rights. Many such claim-rights would have to be specified in an account of a right against risk impositions, and we would need to specify many acts.

Self-defense in a Hohfeldian analysis, however, is a privilege (Thomson 1990; Thomson 1991; Doggett 2011). A privilege is a lack of claims, and does not imply the existence of any claim. This considerably lightens the burden of moral argument. If *A* has a privilege of doing *P* with respect to *B*, this is analyzed: *B* does not have any claim against *A* that *A* should not carry out action *P*.

Assume that *A* has a right against being physically harmed. Then in the Russian roulette case, there are some actions for which *B* has no claims that *A* should not carry out such actions. In particular *B* has no claim against *A* that *A* should not carry out actions of the kind that would prevent *B* from playing Russian roulette on *A*. In such a case, Thomson remarks that the relevant thesis about self-defense is: "No one has a right that we *let* him infringe our rights. No one has a right that we shall not prevent him from infringing on our rights." (1986: 161) In the Russian roulette case, *A* has a privilege of self-defense. I suggest that Malloy's neighbors also have a privilege of self-defense.

4. The Right of Recourse to Government Action

Suppose then that by imposing risks on its neighbors, Malloy has not (yet) infringed the rights of any of its neighbors. Nevertheless, the privilege of self-defense allows the residents of

the neighborhood to take some action. What action? We should worry whether the response is proportionate with the threat. Again, there is a problem of evidence. We need to worry a lot about what kind of evidence one needs to have about the risk in order to act (Cranor 1993).

But again, like the questions about the extent of rights, if any, against risk imposition, we can bypass these difficult ethical questions here. Perhaps the residents are entitled to vigilante action as soon as they learn what Malloy is doing, or perhaps not. Instead we can assume that there is a government, or something like one, which is capable of acting their place.

This assumption about the existence of a government can be made in many ways. We may assume the neighbor residents are capable of convening themselves as self-governing, and as a group they form a government. Or we might assume there is some other authority for the neighborhood residents to call on. We need not assume anything about the nature of the government, as long as the neighborhood residents end up connected with an agency of some sort that is capable of acting in their place. Then the neighborhood residents' right of self-defense does not disappear, but the residents do not act on it. Instead, their right of self-defense is converted into what I call a right of recourse.

We do not need to analyze this right of recourse in order to understand it well enough for our purposes here. There are only a few possible risk management policies that can be employed by a government, whatever government this may be. There are three basic kinds of risk management policy: risk reduction, risk spreading, and risk shifting. Risk management policies then are composed of combinations of these three basic policies (Calabresi 1970; Moss 2002). (It is said that the government of an industrial state is an “insurance company with an army.” To the extent this is true, Moss (2002) is an indispensable overview of the modern state.)

5. Risk Reduction

Risk reduction is not relevant to the Malloy case, if Malloy is already exercising all possible and reasonable care, as was stipulated. But if its degree of care is merely reasonable and non-negligent, there may be room for improvement. Then a negotiation, if feasible, would attempt to find an agreement on whether the neighborhood residents should pay Malloy for an increased level of safety, or whether Malloy should compensate the residents for the risk they are running.

Bribing Malloy: If Malloy installs vapor-capturing mechanisms on its chemical storage bins, the problem of toxic fumes will be eliminated. Suppose the vapor-capture mechanism costs less than the costs of illnesses caused by Malloy's toxic fumes. Then it is efficient for the neighborhood residents to pay Malloy's cost of installing the vapor-capturing mechanisms. None of the neighborhood residents complain. Every neighborhood resident willingly contributes to the bribery fund.

If such negotiations fail, and if Malloy avoids the costs, then action by some other authority, acting as a government, would be required for an efficient outcome. This authority would compel Malloy to install the vapor-capturing mechanisms. It might impose the cost on Malloy or else collect it from the neighborhood residents. Either way, the agreement would reduce risks. Also, both choices are equally efficient. That is, no further rearrangement of goods would improve things for either Malloy or the residents, without also being to someone's detriment. The classic economic analysis of this situation is by Coase (1960).

The reader will probably agree that it is unlikely that the neighborhood residents and Malloy would be able to come to an agreement to reduce the risk due to the toxic fumes, without having to appeal to another authority capable of compelling Malloy to install vapor-capture

mechanisms. Instead it is likely that obstacles of various kinds will intervene, including lack of knowledge, delays, suspicion, uncooperativeness, and the expense of lawyers and courts. These are collectively labeled "transaction costs" by economists and economics-minded lawyers (Calabresi 1970). But suppose that by an agreement or by compulsion, an authority is successful in reducing risks. Then success in this sense is measured by an outcome, installing vapor-capturing mechanisms. Possibly, there could also be measurable health benefits. But that is not assumed here.

6. Risk Spreading

Risk spreading is done by insurance or else something that functions like insurance. Given a probability p of incurring a cost C each year, and given a group of people with the same probability and potential cost, everyone in the group pays pC , plus administrative overhead, each year to an administrator, who pays C to each member when she incurs the cost. The mathematics of the weak law of large numbers implies the existence of a predictable annual cost for a group of individuals with similar risks.

Spreading risks of non-compensable harms, such as illness or injury, would amount to a threat of a harm to everyone in a group. Such threats may be common, but they violate due process rights. So risk spreading spreads costs.

Spreading risks is often rational even if individuals are not risk adverse. Suppose that a hypothetical illness strikes by chance on average once every four years. Then there is only $1/16$ chance (0.0625) of getting it in two years in a row. But over three years, there is a bit less than $1/5$ chance (0.1875) of getting it two years in a row, this chance rises to over $1/5$ (0.2109) over

four years, and it keeps rising. For individuals who are not risk adverse, insurance is a rational way of avoiding the excess savings needed to cover short runs of “bad luck.”

Insuring Against Malloy: Malloy’s neighbors agree to spread the risk of exposure to toxic fumes. Exposure depends on wind direction when Malloy opens the bins of toxic material. Not all the neighbors are exposed at once. The neighborhood forms a mutual insurance organization, spreading risk among themselves.

If every neighborhood resident buys insurance, this spreads the risk. If a toxic emission occurs, then the affected residents will be awarded a payment. Again, the reader will probably agree that, even if this policy were acceptable and rational, it is unlikely that every neighborhood resident will enter such an agreement, without some push from other residents or the government.

7. Risk Shifting

Neither the policies of risk reduction nor those of risk spreading provide everything that one would want from risk management. Risk reduction is an important goal. But achieving it is indifferent to whom bears the cost, and the cost may be borne by neighborhood residents. Risk spreading pays victims after the fact. But potential victims bear the cost of risk spreading. Neither of these policies is a substitute for the residents' privilege of self-defense, which gives them the right to act prior to being harmed in order to prevent their being harmed.

Risk shifting is the only other policy that a government can provide. It is not generally accepted that Malloy’s owners should be exposed to the risks of exposure to toxic fumes in place of the neighborhood residents. So shifting risk means shifting costs. The usual rationale is efficiency. Malloy is better able to anticipate risks and has more control over them than the

neighborhood residents. So Malloy should bear the risks. To the extent the risks are managed by insuring or investing in safer technology, the risk becomes a cost of doing business. Fault may be irrelevant if risk shifting merely allocates this cost either on the neighbors or on Malloy. Another reason for disregarding fault is the complexity of the causal chain leading to harm. Yet another reason is that the burden of proving Malloy is at fault may be too difficult for neighborhood residents, even if Malloy in fact is at fault.

Risk shifting, finally, is a plausible substitute for neighborhood residents' right of self-defense. Risk shifting gives the residents something, at least, in exchange for giving up their right of self-defense. In exchange, Malloy is made to give up one of its defenses. Malloy is made to give up the defense that it was not at fault. Without that recourse, residents' options are limited. They can just put up with the risks, bribe the risk imposer, move away, or undertake vigilante action. Gibbs (1998) and Bullard (2000) give influential primary accounts of citizen action in this situation. Szasz (1994) analyzes the political context of these events.

Risk shifting assures residents they will not pay the costs of Malloy's risk imposition. Risk shifting can be an efficient means for inducing risk reduction. Malloy is in a better position to reduce risks than the neighborhood residents. But if Malloy is able to spread its risk of compensation for harm to residents by buying liability insurance, this lowers its incentive to reduce risks.

8. Strict Liability in Environmental Law

Now we can explain the liability provisions of CERCLA and OPA. Both these laws entitle the government to act in response to threats. In CERCLA, government recourse is provided for toxic threats to people. In OPA, government recourse is provided for threats to

natural resources. In CERCLA and OPA, risk shifting is combined with risk reduction. In these laws, liability shifts risk, and risk is reduced when the federal or state government orders a liable party to clean up a hazard it has caused. Risk shifting is explained by the need for self-defense, which in practice emerges in a demand for government recourse.

Risk shifting need not be efficient, although efficiency is one argument in favor of shifting risks with complex causes onto those who cause the risks, and presumably are better able to control them. But the goal of risk reduction does not explain the risk shifting provisions in CERCLA and OPA. Indeed, Congress abandoned one important risk shifting provision of CERCLA in 1995 by failing to reauthorize a tax on the chemical and oil industries, which allows some of the risks of these industries to shift back onto the taxpaying public, where they have since remained. A policy of risk reduction alone does not require polluters to pay. But the liability provisions of CERCLA remain in effect.

Liability in CERCLA is for releases or threatened releases of hazardous materials. Liability is strict, joint and several, and retrospective. Strict liability, as has been explained, is liability that applies regardless of any degree of fault. Liability that is "joint and several" means that every person that contributes to a hazard can be found liable for the whole problem. Then presumably secondary suits will sort out the degree of liability after an initial civil action by the United States or a State. The purposes of this harsh "joint and several" liability are to obtain efficient recovery of costs and to force action.

The terms, "strict," "joint and several," and "retrospective" do not occur in the text of CERCLA or OPA. Instead, the laws set out liability in the form of lists of those covered, and the defenses they are entitled to. The text of CERCLA (42 USC §9607(a)) gives an expansive list of persons covered by the law, including any "owner" or "operator" of any entity in charge of

hazardous materials. The text of CERCLA, at the same place, gives a very narrow range of defenses, none of which depends on degree of fault. The defenses are based on (1) “an act of God,” (2) “an act of war,” (3) “an act or omission of a third party.” That is, the only defense is that someone or something other than the defendant caused the problem. The definition of liability in the 1980 CERCLA is nearly the same as 1970 Water Quality Improvement Act covering oil spills, which later was incorporated in the 1972 Clean Water Act (33 USC §1321), to which the 1990 OPA liability rules (33 USC §2703) made no changes (Murchison 2011).

Retrospective liability may seem unfair. But, like strict liability, it makes sense for assigning liability in complex causal chains. For example, at the Love Canal toxic waste site that initially prompted the 1980 CERCLA law, the current owner of the site was the Niagara Falls School Board, which had built an elementary school on top of a thinly covered toxic waste site in the middle of a residential neighborhood. The purchase of the site from the Hooker Corporation (later part of Occidental Chemical), proves, if anything, that the School Board was not capable of understanding and managing the risks, not that it should be held responsible. In this case, remedial action need not depend on who, if anyone, is at fault, whether the School Board or Hooker (U.S. vs. Hooker 1994). Hooker (Occidental) was required to pay for a cleanup simply because it caused the hazard. In order to achieve this outcome at Love Canal, the neighborhood residents sought the protection of the State and federal governments and did not try to negotiate with Hooker or get compensation from the company or School Board (Gibbs 1998). This strategy is explained by the model of self-defense and government recourse.

9. Consequences of Strict Liability

The consequences of CERCLA and OPA are not guaranteed to be efficient. The success of CERCLA might be measured by its effectiveness in cleaning up the sites on the National Priorities List of sites requiring Environmental Protection Agency attention. As of May, 2020, there were 1335 sites on the NPL, and 424 had been deleted from the NPL as not needing further EPA work. At 1215 sites, remedial construction had been completed, after which sites sometimes remain on the NPL and sometimes are deleted (EPA 2020).

The NPL and the costs of CERCLA are a good way to measure the success of CERCLA. Also there are sites that are currently unknown but will be put on the NPL in the future, as well as sites that actually need cleanups but will remain unknown. There is a continuing threat due to toxic chemical waste against which self-defense and government recourse are needed, even if every site currently on NPL is eventually cleaned up so well as to be deleted from the list.

Success is more difficult to measure for OPA, since oil spills are infrequent. The 2010 Deepwater Horizon drilling rig explosion offers an unwelcome opportunity to check on the outcomes of OPA. Environmental, social, and legal consequences of the massive spill that followed the 2010 explosion persist 10 years afterwards. The explosion initially killed 11 drilling rig workers, resulting in a criminal manslaughter conviction for BP. In September 2014, BP was found to have been grossly negligent, which removed limits on BP's civil liability. On October 5, 2015, a \$5.5 billion OPA civil penalty was imposed by a US federal judge, together with \$15.3 billion damages. (EPA 2015; US Department of Justice 2016)

10. Risk Shifting in Context

Risk shifting is unavoidably disruptive to polluters. In the hypothetical case, Malloy might not be able to afford the vapor-capturing mechanisms we have imagined would reduce

risks of exposure to toxic fumes. Then Malloy would either have to go out of business, or else sell its business to a larger company. Political conflict is inevitable, since polluters will seek to avoid such outcomes. This kind of political conflict explains the OPA liability limit. OPA limits liability for offshore releases to removal costs plus \$75 million (33 US §2704) to cover other damages, including economic damages.

This penalty seems far too low in comparison with the cost of the 2010 Deepwater Horizon oil spill. In addition to OPA liability and damages imposed in 2015, BP created a \$20 billion fund for settling economic damage claims, among other costs stemming from the spill. The low liability limit protects smaller oil drillers who are politically powerful in oil producing states. Shifting risks onto these drillers would be disruptive to them, although it seems likely that drillers can efficiently reduce risks. Aldy (2011) and Murchison (2011) discuss risk spreading by drillers.

The disruptive character of risk shifting may make it unattractive to anyone who hopes for a decision procedure that avoids political conflict and which instead aims directly and consciously toward efficient decisions (Sunstein 2002). Risk assessment and cost-benefit analysis, in particular, are ways of planning for efficient outcomes. A consequentialist objection to the deontology of rights and self-defense is that self-defense and government recourse, in comparison, seems haphazard and irrational, and may lead to worse outcomes than good planning. A response to the objection can, I think, be framed more directly and straightforwardly, when based on the account of self-defense and government recourse used in this chapter, than when given in terms of rights, understood more generally or in a more idealized way.

The response is that self-defense and formation of social authorities for carrying it out is a basic feature of human life. At the beginning of this chapter, I said that the setting was anthropocentric. Other kinds of organisms might not be driven in the same way to defend themselves, and do not form societies in the same ways. This response to the irrationality objection is more naturalistic than a response based on more idealized moral theories would be. It should be emphasized that the self-defense justification for government action is limited to cases, such as Molloy, in which citizens' self-defense would be justified.

The argument here has shown how the choice of strict liability policies for managing risks of toxic pollution and oil spills is nearly forced on us. A basic right to self-defense, in a context of government management of risks of industrial activity, drives this choice of policy, even if some lingering ethical questions about fault and risk imposition remain unresolved. The reason for strict liability policies does not depend on how we resolve such lingering questions.

Related Topics

- 18. Moral Basis of Responses to Climate Change
- 30. Energy Poverty
- 31. Urban Sustainability
- 36. Waste and Consumption
- 49. Constitutional Rights
- 57. Precautionary Principles
- 62. Environmental Justice

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