Economics and Public Policy 3 (6) : 86 - 105

ISSN 1906-8522

ECONOMIC ANALYSIS OF LAW AND THE EFFICIENCY OF THE JUSTICE SYSTEM IN RELATION TO ENVIRONMENTAL LAWSUITS: THAILAND's EXPERIENCE [1]

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Abstract

The economic analysis of law is a valuable theoretical concept that is used to analyze the efficiency of the justice system. This paper illustrates such concept to identify inefficiency elements in the legal process, which comprise the cost of operation in the process, *Ca*, and the cost of the judgment's error, *C(e)*. Qualitative procedural efficiency, such as the neutral treatment of a judge, is also discussed but not a main focus of the study. The paper first reviews the literature on environmental lawsuit cases and subsequently develops indicators to analyze judges' decision making. The environmental cases can be categorized into three case types. The first type is *Lok-Ron* cases (global warming case), in which the government sues ordinary, non-capitalist citizens for allegedly aggravating the global warming problem by practicing deforestation or by utilizing state-owned land. Both *Ca* and *C(e)* inefficiencies are prevalent in *Lok-Ron* cases. The second type is legal cases arising from the local's concerns on the protection of public resources. Despite the citizens' good intention and efforts, the legal system makes the task harder because of *Ca.* The third type are legal cases involving impacts from environmental pollution, where the affected have filed against both the polluters and the government for nonfeasance and are likely to face another form of injustice such as an underestimation of the compensations, which is fundamentally *C(e).* All inefficiencies in term of costs are resolved by the concept of cost minimization and fair cost distribution.

Key Words : Law and Efficiency, Environmental Lawsuits

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[1] This paper is briefed from research that original version was named *Justice – Judgment – Environment.* The research is funded under Reform Thailand Project which is collaborated with National Health Foundation. Author grateful to Pokpong Chanvit, Patcharawee Brahmawong, Chol Bunnag, Trin Aiyara and others for helpful comments and discussions.

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1. Introduction

The efficiency of the justice system is important because efficiency is justice in itself. For example, justice is inaccessible if the cost of accessibility is high and unaffordable. Even when justice is affordable, but the benefits from suing are lower than the cost, the plaintiff will likely not sue and will never achieve justice. The state, as a designer of the justice system, should be concerned about efficiency. Thus, it should reduce the cost of the system and fairly distribute cost among stakeholders, such as the state, polluters, and externality receptors. However, justice efficiency is rarely evaluated in Thailand. Therefore, this study has three primary objectives, namely, to illustrate the efficiency indicators, to evaluate the efficiency of Thailand's justice system in terms of the economic analysis of law, and to challenge policy implications in the micro and macro level.

2. Theoretical framework

This paper uses the *economic analysis of law* theory, which has been popularized in the US since the 1920s. During that period of introduction, legal realism was more concerned about law in action than law in text, and economic perspectives contributed consistent analytical solutions (Butr-indr, 2012). Two economic principles have greatly contributed to the analysis, and these principles are instrumental rationality and cost minimization.

Instrumental rationality in economics means representative agents in the model are constantly trying to maximize their net utility function. In a legal process, if a person is affected by pollution, he may consider the costs of and benefits from prosecution. Under the economic principle of rationality, the affected party will prosecute if the benefits are higher than the cost. *Cost minimization* is hypothesized as an objective of a benevolent government. Under this principle, the state should be concerned about reducing the cost of the justice system because lower cost provides the citizens with a higher chance of achieving justice. Considering the polluter pay principle (PPP), the government should distribute the cost more to polluters than to externality receptors.

3. Methodology and data collection

Given the deficient disclosure of the final court judgment in Thailand, this paper uses secondary data from two relevant studies. The first paper is a literature review of Malailoy &

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Pongboonjan (2011) entitled *Repertoire of Thailand's Groundbreaking Environmental Legal Cases: 30 Outstanding Cases*. The paper provides empirical evidence about the court's decision making in many cases. The second paper surveys the perception of attorneys, non-governmental organizations (NGOs), and local citizens toward the developments needed in the justice system. The second paper is entitled *Attestation of Property Rights in Forest and Land Legal Cases* written by Hattasan & Trongngam (2011), lawyers of citizens who sued the government and the capitalists in "cobalt-60," which was a radiation emission case. Also included in the review is supplementary literature from qualitative studies and books about the court's judgment on environment-related cases in Thailand.

To synthesize the two sources of data, namely, the evidence of court's judgments and the stakeholders' perspectives, this paper uses qualitative [economics] analysis [of law] and descriptive statistics as the main methodology.

The classification of cases depends on the categorization of the Thai Supreme Court. The court categorizes environmental cases into two, namely, natural resources and environmental pollution. The categorization is dependent on the nature of the case. On the one hand, if the case involves conflict in the right over a territory or resources, it should be considered a natural resources case. On the other hand, if the case is solely about pollution without any rights issue, it should be classified as an environmental pollution case. The natural resource category is further sub-divided for better analysis. The first category is the *Lok-Ron* case (the state sues the citizens), and the second is the protection of a community's common case (the citizens sue the state).

4. Results: Efficiency of the Thai justice system in relation to environmental lawsuits

4.1 Measurement of the efficiency of the justice system

The efficiency of the justice system can be measured in three dimensions, namely, cost, procedural quality, and quality of result (Gramatikov, Barendrecht, & Verdonschot, 2008). The measurement of each dimension requires a tailored and careful approach if reliable results are desired. Considering many limitations, this paper intends to illustrate the following literature from a baseline element such as the cost dimension.

Table 1 Efficiency of the justice system and indicators for each dimension

Cost	Procedural quality	Quality of Result
Out of pocket expenses, such as attorney fees, court fees, and transportation costs, among others	Procedural justice, such as participations, neutrality of the entire justice process, consistency of judgment, and accuracy	Distributive justice such as equality and proportionality to need
Cost of time spent or opportunity cost, which includes the duration of the justice process	interpersonal relationship equity, such as respect and non-condescension	Restorative justice or the awareness of harm, acceptance, and corrective justice
Emotional cost or stress	Informative justice or the appropriate information about the justice process as well as the cost and benefits of suing or compromising	Transformative justice, which means that the justice should support peaceful society or social welfare and interests[4]
		Formal justice or the transparency of the justice process

Source: Gramatikov, Barendrecht, & Verdonschot (2008)

Based on **Table 1**, all indicators can be compressed into two variables. *Ca* is the cost of the legal process, including out-of-pocket expenditures and opportunity cost. Some elements in the procedural quality of justice can also be internalized as cost. For example, inconsistency or risk is hard to qualify. *C(e)* is the quality of the result, which if interpreted in economics is the cost of error judgment. For example, if the polluter causes externality that amounts to approximately $500, and the judge decides to charge him $400, then the cost of error judgment is $100. Cost distribution is a part of *C(e)* because its effect supports distributive justice and the polluter pay principle (PPP).

[4] Justice should eliminate conflict among people in a society. The court's decision making may lead to conflicts outside of court, or to "inefficiency in term of result" if the judgment of the court cannot harmonize the people or is not generally acceptable by society.

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4.2 Global warming case

Lok-Ron case (Global warming case) is a natural resources case in which the government sues the non-capitalist citizens as polluters who add to the global warming problem by practicing deforestation or by utilizing state-owned land. Examples of this case type are civil red case (decided case) number 789/2552, and crime red case numbers 2223/2550, 230/2552, and 1737/2550. These examples have similar characteristics, most especially in terms of the people sued by the government, all of whom were marginalized, such as tribes in highlands, settlers in rural areas, or low-educated groups.

These cases have three inefficiency issues, namely, judgment without proof of right and multi-cultural ignorance, horizontal inconsistency, and bad compensation model.

4.2.1 Judgment without proof of right and multi-cultural ignorance

The *National Forest Reserve Act* is necessary for understanding inefficiency in this study. The act authorizes state officers to announce reserved forestry areas by satellite map without conducting a field survey. This approach can result in errors and trespass private lands. Thus, the government allows people who disagree with the state's decision to veto the announcement. However, tribes and low-educated citizens have difficulty in understanding this act and in accessing official documents. Hence, they are easily charged with a technicality, that is, the illegal deforestation on their own land, if they do not complain at the first procedure (see Bunprasert & Korwutthikunrangsri, 2011).

For some of the actual cases, judges consider the case with the presumption that the government's claim is credible without reproving the right over the land. For example, the judge's decision in the case of *Phu-Pah-Daeng* wildlife sanctuary, red case number 789/2550, read:

> "…that the defendants are fighting with a continuously running coordination committee and that the territory ownership is to be clarified are claims made by the defendants to exert their self-defined rights, which is a problem in utilization policy for reserves or forest areas and needs to be considered separately from this legal case, hence the Region 6 Appellate Court's ruling on the defendants' status of wrongdoers is upheld" (see Malailoy & Pongboonjan, 2011).

Several cases similar to that of the *Phu-Pha-Daeng* wildlife sanctuary exist. Such cases involve both the state and the marginalized people who have to bear the cost of the legal process, which could have been avoided by communication and compromise. Hence, public cumulative *cost of legal process* is increased. Meanwhile, the presumption that land being claimed by the government is state owned leads to a higher chance of wrongful judgment, such as higher marginalized people's *cost of judgment's error* and terror.

4.2.2 Horizontal inconsistency

Although many cases of global warming are judged like the aforementioned example, others are handled differently. *Mae-Sot*[5] court's decision in *Baan-Klity-Larng* (Lower Klity's village), red case number 230/2552, read:

> "…The prosecutor's witness once attended a meeting with representatives from Lower Klity and Sub Nakasathira Foundation, altogether reaching an agreement in which the forestry officers will be lenient by extending away the limit, which had been on a white demarcation line, of the local people's utilization territory, to solve the problem of the people's originally allotted plots for utilization exceeding the publicly allotted areas, so that the people will not be arrested for utilizing the plots without felling trees or expanding the utilization areas further." In addition, "That the defendants had continuously utilized the problematic plot until receiving the lenient treatment from the forestry officers has made rightful the defendants' possession of the problematic plots" (see Malailoy & Pongboonjan, 2011).

This case indicates that NGOs have a significant role in increasing the bargaining power of defendants. If the group of suspects defended individually, the result would be doubtful. In the case of *Baan-Mae-Omki* (Mae Omki's village), red case number 1737/2551:

> "…The defendants had utilized the problematic land plot before the government announced the plot as part of the national forest reserve. That the defendants inherited the plot from their parents caused the

5 Name of district in *Tak* province, north of Thailand

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> defendants, who are ordinary rural people, especially Thai-illiterate Karens[6] who had settled in the village of Mae Omki for a long period of time and had utilized the problematic plot before the announcement, to understand that the government leniently allowed the plot to be utilized by the same people as before, demonstrating that the defendants acted by mistakenly understanding that clearing the plot was allowed, hence an unintentional act. Therefore, the defendants' act is not guilty as charged" (see Malailoy & Pongboonjan, 2011).

The court's decision indicates that multi-cultural factors can be internalized as bifurcation of judgment. On a positive note, red case numbers 230/2552 and 1737/2551 can be considered as an indication of hope and development. On the downside, these cases show horizontal inconsistency in the court's decision. The inconsistency can be interpreted as a "risk" of the result, or *C(e)*. Poor households are less likely to be willing to bear risks out of respect to wealthier households that share identical preferences (Alderman & Paxson, 1992). Therefore, *the cost of judgment's error, C(e)* affects the poor more severely compared with others.

4.2.3 Bad compensation model

For a more critical analysis, we presume that the state's charge is true in all global warming cases, and marginalized people are indeed the wrongdoers. The justice system is still unfair and still distributes cost, *C(e)*, among marginalized polluters based on the ideological point of view through bad evaluation and compensation model. This section illustrates three notices about the inefficiency of the evaluation, namely, principle of compensation, economic model, and method of data collection.

First, the *principle of compensation* can be categorized into two types: [1] *compensation by action* and [2] *compensation by cash*. For example, if Mr. A practices deforestation, the judge may have three legal options to force compensation or recovery on Mr. A. First, the judge may order Mr. A to engage in the forest's rehabilitation through various ways such as re-afforestation. Second, the judge may use an economic model to estimate externality and recovery cost from the polluter, Mr. A, and then implement pecuniary sanction on him. The third solution is a complementary approach that orders compensation both by action and by cash.

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6 or called in Thai Ka-Rieng, who are highland tribe people in the Northern Thailand

For example, the administrative court's order, number 603/2551, to the Marine Department of Thailand stated that the department should compensate by action to help the beach recover from erosion caused by the department's dam establishment. The order also required the department to compensate by cash, particularly to the people who were affected by the externality.

Compensation by action should clearly be more accurate than compensation by cash to recover public damages. Real actions from wrongdoers are necessary to recover decadent forests until such time that the biological and physical status of these forests is reclaimed. However, in compensation by cash, the government will use the money that is based on the value calculated by the model to reclaim the forest on behalf of the public; thus, the accuracy rate depends on the *model* and not on the actual value. Moreover, compensation by action has high incentives for wrongdoers to ensure efficient rehabilitation. Otherwise, the wrongdoers will incur higher cost. Thus, social cost, such as timing cost, will decrease. By contrast, the mark-to-model solution will disincentivize the efficiency of state officers because no matter what they do, the cost is lump sum.

In practical cases, the Thai government often charges for the second type of compensation, and the Thai court usually delivers its judgment following the indictment. For example, Bunprasert and Korwutthikunrangsri (2011) illustrate the case of trespassing into a national forestry area at *Pattalung*, a province in the south of Thailand. The judge ordered the non-capitalist polluters to compensate by cash, which included the cost of fertilizer to improve soil nutrition, the cost of the truck that carried water for spraying to increase ground moisture, and the cost of operating an air conditioner that was used to reduce global-local weather warming. Although this approach is grounded on the fact that compensation by action through afforestation does not cover the cost of externality, the trespassing case in *Pattalung* was unlike case number 603/2551 that has actual casualties. The case was actually victimless; therefore, compensation by action through afforestation was more significant.

The case of Bunprasert and Korwutthikunrangsri (2011) also shows a problem related to a *non-reliable economic model*. Assuming that the case of *Pattalung* has visible externality receptors, compensation by cash should therefore be a concern. However, the methodology of calculation remains doubtful. Similar to the inaccurate estimation of the loss of nutritional value, the operational cost of an air conditioner may not accurately represent global warming side effects.

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For example, if the lack of soil nutrition causes the death of wild mushrooms and consequently reduces the income of legal mushroom collectors, the case can be considered as an externality. However, the value of fertilizer is not an externality cost but an internality cost, which can be interpreted as a cost of recovery. The current model of global warming's externalities, which state officers use as basis in charging marginalized people, remains imprecise.

Interestingly, judges are aware of errors, but they do not have an alternative model. In the case of the *Phu-Pah-Daeng* wildlife sanctuary, or red case number 789/2550, the Department of National Parks, Wildlife, and Plant Conservation sued Ms. *Kanthong Pimsena* for trespassing into the national forestry area. The state requested compensation of around 97,645 Baht for negative externality and 32,078.28 Baht as accumulative interest rate (7.5% annually). After the legal process, the judge announced the decision:

> "from investigation, calculation of plaintiff bases on general damage which mismatches with specific situation like trespassing to the forest and cutting trees, therefore it's possible that calculation model cannot represent as a proxy of the case" (see Malailoy & Pongboonjan, 2011).

However, the judge ordered that Ms. *Kanthong* be compensated with 45,000 Baht or approximately half of the plaintiff's proposal. Note that interest rate is higher than the real market rate, which has never reached 7.5% since 2000 (World Bank, 2011).

Evidence shows that problem exists not only in the model but also in the *method of data collection*. In this kind of problem, the result is wrong despite the plaintiff's accurate calculation of externality. Bunprasert and Korwutthikunrangsri (2011) discover that loss of nutrition is estimated by digging target soil, burying a small tank into the dug-up space, and hanging the soil on a grate over the tank. After the rain, the nutrients in the water are tested and then compared to that of the soil in a natural forest. However, the experiment conducted by the plaintiff on the soil field in the *Pattalung* case was incomparable with the field the defendant used daily. The experiment was conducted on a non-cultivated land, whereas the defendant's field was cultivated.

The abovementioned issues indicate that Thai polluters, especially the marginalized people, in global warming cases undoubtedly face high *cost of judgment's error*.

4.3 Protection of community's resources case

The protection of community's resources case, or protection case, is a natural resources case in which citizens coordinate to sue to protect common [and public space] from misconduct by the state's institutions and private firms that are granted with a responsibility or right from the state. For example, the Department of Land may issue a title deed that intercepts the public space of some communities. The members of the community may then coordinate to sue for the cancellation of the deed.

In an economic perspective, this kind of protection should be defined as *public service* because of its characteristics. The first characteristic is *non-excludability*, which means that contributors cannot exclude others from the benefits of protection. The second is *non-rivalry*, which means that benefits do not decrease by sharing benefits. Hence, a free rider problem is likely to arise in protection cases. In other words, no one has willingness to pay, but any gain will be appreciated. Although the free rider problem is not a proxy for the inefficiency of the justice system, the relationship between the two is obvious. Protection cases may have high sensitivity to both *cost of legal process and cost of judgment's error* as a result of the situation created by the free rider problem wherein coordination among protectors entails a higher cost. If the cost of the legal process and the error of its results are high, then protection cases may be low in number.

The inefficiency of the justice system in relation to protection cases can be explained by the ambiguity of the court's jurisdiction and standing to sue issues.

4.3.1 Ambiguity of the court's jurisdiction

In many cases, citizens charge the state's action, such as trespassing or overruling on the land rights of communities. When citizens are the plaintiffs suing the administrative court for interruption, the judge of the administrative court sometimes avoids abrupt considerations and sends the accusation to the Court of Justice. This action from the judge can be explained by the fact that defining rights, including whether the land is a public or private property, is under the jurisdiction of the Court of Justice. These duplicative processes generate high *cost of legal process*, and likely to make the protectors suffer from bearing the high cost of coordination.

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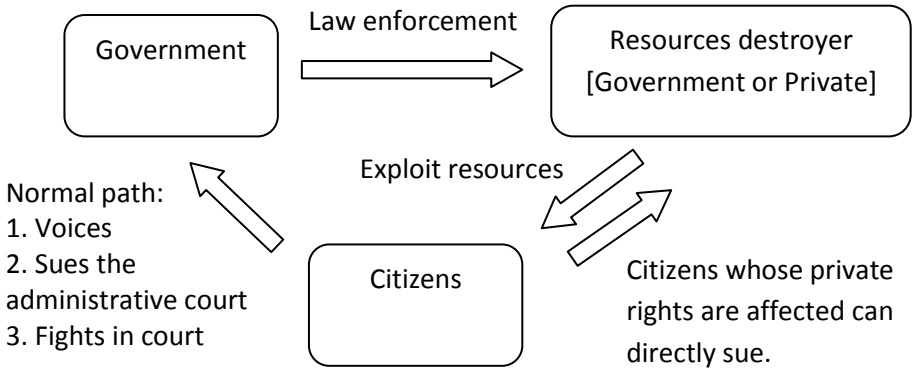
4.3.2 Standing to sue problem

Although states, firms or citizens clearly damage natural resources or illegally invade public space, ordinary people who are aware of such violations have no right to sue if they are not affected by the damage like outliers are, the private rights of whom are violated. This principle, called the *subjective right*, is concluded in cases such as those with Supreme Court decision numbers 647/2513, 1410/2513, and 2604/2540 and in an international case, such as that of the *Buzen* Power Plant by Meebunsarng (2011).

Figure 1 Legal process under the subjective right principle



For example, *Or-Bor-Tor* (sub-district administrative organization) and participants sued the Minister of Agricultural Ministry and his partisans for allowing film-making activities in the area, which caused damages to the *Aow-Narng* (*Narng* bay), the port to *Ma Yha* bay. The Supreme Court's decision in this case (red case number 5818/2549) is stated below.

> "…Do plaintiffs number 3-19 [who are not members of *Or-Bor-Tor*] who claim themselves as members of traditional community in *Krabi* [province where locate at southern of Thailand] have right to sue or not? From the Constitution article 46, the law does not clearly define scope and meaning of traditional community, in addition, this article requests organic law which still do not exist when plaintiffs number 3-19 sue defendants. Therefore, plaintiffs' numbers 3-19 have no right to sue and have no right to repetition" (see Malailoy & Pongboonjan, 2011).

Many problems exist under the subjective right principle. First, as shown in the left-hand side (LHS) path and the right-hand side (RHS) path of **Figure 1**, people who need to protect natural resources from exploitation have to follow LHS path procedures that comprise many steps, require longer time, and have higher cost than RHS. Second, in the context of exclusive developmental state, wherein the government plays the leader of capitalists or excludes political minorities from economic developmental process, persuading the government or a firm to stop exploiting resources is difficult. This difficulty can be attributed to the first step on the LHS path, that is, citizens' voices, not having a price. Literature delving on social exclusion in Thailand is extensive. Examples include the studies of Buergin and Kessler (2001), Phongpaichit (2002), and Rigg (2002). All these issues lead to one conclusion, that is, high *cost of legal process (Ca)*.

4.4 Environmental pollution case

Pollution or, in economic terms, negative externality, is a case in which the polluter emits pollutants without being issued rights over resources. The court's decisions show two significant points about the efficiency of the justice system: government's ignorance and bad compensation model. To illustrate the problems, this part randomly presents three classic environmental lawsuit cases, which include the emission of Cobalt-60's radiation, emission of hazardous lead in *Klity* river, and emission of *Map-Ta-Phut* (Eastern industrial estate of Thailand).

4.4.1 Government's ignorance

All three emission cases in Thailand share a similar characteristic, that is, government ignorance.

In the first case, a garbage collector stole Cobalt-60 from a private firm that did not carefully manage the radiation matter. After the garbage collector sold the matter to garbage resellers, three people died—an aborted embryo and two adults—and ten were physically injured. The study of Aroonwong and Chockchaichumnankit (2551) shows that the Ministry of Science and Technology (MST), as the radiation-regulating body, failed to compensate cash and to force the private firm to be accountable for the injuries and casualties. Moreover, in terms of procedural justice, the minister of MST claimed that the garbage collector was a thief who had no right to receive compensation.

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In the second case, a lead mining firm illegally dumped toxic substance into the river without suitable pretreatment. The toxicity affected the locals, referred to as the Karens. After three decades, the Karens realized that something was wrong with their health. Mortality rate was increasing, with young adults dying before reaching the age of 30. Lead levels in their blood were over the standard level. For example, *Nanumeir Thongpah*, a 34-year old Karen, had about 27.18 microgram per deciliter of lead. The Karens believed that the firm did not respond to their request because they were an ethnic minority, and that the government did nothing but watch them suffer (Buntaotuk, 2011).

In the third case, the *Map-Ta-Phut* industrial estate had high concentration of plants and a high volume of pollution emission. The Administrative Court's notices were clear. The meeting to discuss concerns about pollution in *Map-Ta-Phut* was initiated in 2006. Information obtained from the meeting indicated 20 suspicious particles, which were found to cause cancer. Patients in the main district of the *Rayong* province were three to five times more prone to developing leukemia compared with those in the rural districts. The *Department of Industrial Estate* was prepared to announce *Map-Ta-Phut* as a pollution-controlled area. However, the owners of the private firm disagreed with such announcement. The court believed that the capitalist's ignorance was the main reason for the postponement of the announcement. Afterwards, a subcommittee was created, eventually drafting an *operational plan for pollution treatment*. However, the pollution continued to worsen. Therefore, the Administrative Court decided to proceed with its announcement, labeling *Map-Ta-Phut* as a pollution-controlled area (See Malailoy & Pongboonjan, 2011).

The role of the government as a barrier to achieving justice makes ordinary people take higher *cost of legal process*. Their situation is worsened by pollution, and they bear the cost of the legal process of charging the polluter. However, in many cases, the government makes them feel more inferior.

4.4.2 Bad compensation model

As in global warming cases, environmental pollution cases also have problems on the compensation model. By contrast however, environmental pollution cases have different sources of inefficiency. This part explains the three cases of inefficiency, namely, the limitation

of law to cover laggard side effects, illogical underestimation of loss, and distribution of polluter's burden forced by the court.

The first case of inefficiency is caused by the technical limitation of law. Normally, judges can preserve the right of change in their decision. However, this right is limited to a certain number because if not, cases will overload the court. Therefore, Article 444 in Thailand's *Civil Procedural Code* allows judges to change their decision in a two-year interval, which is counted starting from the day when the decided case was activated. However, some factors such as radiation's externality can occur after two years. Hence, this limitation leads to higher *cost of judgment's error* [*C(e)*].

The second case of inefficiency is caused by inexplicable or illogical underestimation. For example, in the Cobalt-60 case, the judge decided to require compensation for the opportunity cost of injury covering only the days when medical attention was received. Whether or not the injured person received medical care, he still cannot work because of his injury. *Buntueng Sila*, a 20-year old man, lost his leg as a side effect of radiation. The judge decided to require compensation for the opportunity cost related to *Buntueng's* productivity loss covering only 20 years. If the judge calculated the value of the compensation based on the general retirement age, *Buntueng* should have been given 40 years' worth of compensation (see Aroonwong & Chockchaichumnankit, 2551).

Table 2 Underestimated compensation from pollution case, Cobalt-60

List of Damages	Administrative Court's Decision			Decision of Court of Justice		
	Accusation	Decision	Difference	Accusation	Decision	Difference
Cost of medical care prior to lawsuit	385,366	337,261	48,105	8,050,366	73,436	7,976,930
Cost of medical care for 15 years	48,634,900	0	48,634,900	48,634,900	141,100	48,493,800
Productivity loss (present time)	864,500	2,653,667	-1,789,167	846,500	0	846,500
Productivity loss (future)	12,066,000	216,000	11,850,000	12,066,000	0	12,066,000
Other indemnities	26,000,000	1,040,000	24,960,000	29,000,000	280,000	28,720,000
Opportunity cost for dead person	27,500	21,613	5,887	27,500	0	27,500
Funeral cost	320,000	233,760	86,240	320,000	34,740	285,260
Cost of being orphaned	2,144,000	720,000	1,424,000	2,696,000	110,000	2,586,000
Sum	90,442,266	5,222,301	85,219,965	101,641,266	639,276	101,001,990

Source: Modified from Punkere, Malailoy, and Paisarnpanitkun (2008)

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Table 2 shows the compensation discrepancies between the Administrative Court and the Court of Justice. The case was split and was decided in two courts because the injured were ignored by the MST. They had no choice but to sue either the government agency through the Administrative Court or the private polluter through the Court of Justice. The system of justice in the Administrative Court is inquisitorial, in which the judge can investigate the actual facts of the case. The Court of Justice uses the accusatorial system, in which the plaintiff suffering from the pollutant is responsible for the investigation.

The Administrative Court has only two procedures, namely, the Trial Court and the Supreme Administrative Court. By contrast, the Court of Justice has three procedures, namely, the Trial Court, Appellate Court, and the Supreme Court. Hence, the Administrative Court often takes less time to deal with cases compared with the Court of Justice. When pollutant receptors sue both courts, the judge views the two cases as one. Therefore, the compensation derived from a faster decision (Administrative Court) may be excluded from the follow-up decision (Court of Justice).

From this exclusion, the real polluter may take a lower burden than the government agency. When the method is considered within the economic theory, the situation makes more sense. The transfer of burden from the polluters to the state's institution that plays the role of regulator is a credible threat to the latter, motivating them to exert more effort to monitor pollution. However, this scenario is inefficiency in distributive justice [*C(e)*], and it violates the polluter pay principle (PPP).

To resolve the dilemma, when the decided case is implemented, and the government realizes the value of the burden, the government can sue the firm again for cost transmission. In the *Klity* river case, the Karens sued the firm and won (case number 1565/2549, citizens sue firm; 637/2551, citizens sue state). Afterwards, the government sued the polluter firm in red case number 724/2552. In the Klity river case, the result was modified and converted to PPP, but the process of transferring the burden in the third round of prosecution also increased the administrative cost and the case load of the justice system.

5. Policy implication

This section aims to present some implications to solve inefficiency problems in Thai judges' decision making, which is analyzed based on the *Economics Analysis of Law*. The cost minimization of the justice system is the main objective, including the cost of the legal process and the cost of error judgment, given the concern about administrative cost to decrease the cost of justice.

Through a review of perspectives of experts who are court members of environmental NGOs and of academicians, common solutions are suggested. These solutions are to decrease barriers to entry, establish a system on expert witness, and to develop punitive damages.

5.1 Reducing barriers to entry

This solution remains vague because it concerns several concrete policies. However, every proposal focuses at decreasing *cost of legal process*. First, the court should provide translators for ethnic minorities and enhance the procedural quality of justice for them. The positive experiences they will obtain from communication and socialization will increase mutual understanding and decrease the gap between the judge and the marginalized people.

Second, although Thailand has the *Official Information Act (1997)*, in practical cases, people believe that they cannot easily access information regarding filing charges, especially about suing a state's organization. Therefore, the government should decrease red tape and promote informative transparency. Moreover, under an inquisitorial system (cases in the Administrative Court), the judge can help in bargaining and providing access to information, which tend to decrease either *Ca* or *C(e)*, on behalf of the plaintiff and the defendant.

Third, legal ideas, such as rigidly applying a conventional court's jurisdiction and subjective right within standing to sue, should be modified. Hattasan and Trongngam (2011) suggest that stakeholders should develop new text that allows the Administrative Court to justify the case of a state's trespass into a public or common area. Such recommendation is also recognized by Muenpawong (2011), a modern thinker and judge of a Thai court. Her study shows an alternative principle, that is, open standing to sue by the community or the local administrative organization. Open standing will promote judicial review for application to civil law enforcement and orders. Their advice may help decrease *cost of legal process*.

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5.2 Establishing a System on Expert Witness

This recommendation is proposed by Bunprasert and Korwutthikunrangsri (2011). They investigated judges' decisions in various environmental cases, concluding that the standards for the system on expert witness in Thailand remain below the international level. For example, the Thai court usually allows the plaintiff and the defendant to offer evidence without implementing the *rule of evidence exclusion.* Therefore, an illogical computational model is introduced in the court. Consequently, the marginalized people, who have no intellectual support, cannot counter the model by themselves, bearing the cost of injustice because of an avoidable error. If a system on expert witness is standardized, then *cost of judgment's error* may be decreased.

5.3 Developing punitive damages

Traditionally, legal compensation is usually seen as a sanction instrument (criminal law) and an allocative tool (tort law). Today, however, economic analysis of law considers fine as a protective tool that dissuades the polluter or trespasser from illegal actions under the assumption that humans are strategic law breakers. If legislative designers illustrate law for protection, it could be better than compensation or sanction after real damages occur.

The *punitive damages principle* is also used as an instrument to compensate or to punish for imperceptible price, such as the value of death, trauma, and other emotional loss. Like in the Cobalt-60 case, many of the injured acquired unpredictable illnesses that were not covered in a two-year period. In this case, punitive damages should be considered to implement to compensate the injured in advance.

However, awarding punitive damages is not *cristal magique*, which has no limitations and cons. Eisenberg et al. (1997) explain a controversial phenomenon about punitive damages in the US. For example: "An editorial from a leading liberal newspaper presents one commonly held view: 'legislation is needed because punitive damages are widely unpredictable, so arbitrary as to be unfair and are awarded without any guidance to juries, which simple pick numbers out of the air'" (Eisenberg et al., 1997, page 624).

The rational critique about discretionary punitive damage awards can be resolved from an economic perspective, as initiated by Learned Hand, a judge in the case of the US v. Carroll Towing Co. (1947). The rule was then named after him (Hand's rule). The rule can be used to

estimate the cost of wrongful death, which is regularly valued at infinity. The equation for Hand's rule can be illustrated as $B = P*L$, where B is the marginal cost of precautions, and $P*L$ is the expected marginal return from lower probability of existing damages, wherein P is the probability of lost that negatively relates to B, and L is the cost of damages. In other word, "$P*L$" is marginal return from precaution. (see Panpiamrat et al., 2012).

The rule is a really useful method for separating negligence and non-negligence through a controversial concrete concept. For example, the installation of a water treatment machine that costs about 1,000 dollars [B = 1,000] will decrease the probability of emission by 1% [P = 0.01]. If untreated water results in damages amounting to 50,000 dollars [L = 50,000], Hand's rule will explain that the marginal return from the installation of a water treatment machine ($P*L$) is less than the marginal cost (B). Therefore, failure to install is a non-negligent decision. However, if the injured dies from negligence, Hand's rule also explains how to estimate punitive damages.

If the above situation is changed, adoption of new technology will decrease P to about 10%. Hence, a firm's owner who decides not to install the machine will be judged as a negligent polluter. If the pollutant is lethal, ultimately causing death, then Hand's rule can be developed to estimate punitive damages to polluter. The main idea is the estimation of punitive damages when the casualty had zero risk of dying from the actions of the wrongdoer. In this case, the idea is to determine how much the polluter should pay for water treatment machines until it is enough to decrease the risk from polluted water by 100%. Based on previous information, the value of life or death from this case is rated at $L = B/P$ = 1,000/0.01 or 100,000 dollars.

Moreover, an integration of Hand's rule and a system on expert witness is important because an essential indiscernible factor in Hand's rule is the marginal risk or the probability of damages. Specialists are significant resources who determine the accuracy rate of Hand's rule and its *cost of judgment's error*. Although punitive damages and Hand's rule remain unstable and debatable with regard to rationality, they are worth considering. As mentioned in this study, developing punitive damages is not a "cut and paste" task; the developer should modify it for the Thai context.

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6. Conclusion

Table 3 Conclusion of the efficiency status of environmental lawsuit cases

Case	Sub-category	Sources of Inefficiency	Type of Inefficiency
Natural resources	Global warming	Judgment without proof of right and multi-cultural ignorance	*Ca* and *C(e)*
		Horizontal inconsistency	*C(e)*
		Bad compensation model	*C(e)*
	Protection of community's common case	Ambiguity of the court's jurisdiction	*Ca*
		Standing to sue problem	*Ca*
Environmental pollution	-	Government's ignorance	*Ca*
		Bad compensation model	*C(e)*

This paper deals with three main issues. It illustrates the rough indicators to detect partially the efficiency status of the justice system, presents evidence by analyzing the reports on judges' decisions, and designs a draft of implications in micro and macro levels. First, the paper categorizes efficiency indicators into two, namely, legal process cost [*Ca*] and cost of error from inaccurate judgment [*C(e)*]. Second, analyzing the Thai judges' decisions, the paper concludes that the justice system is inefficient, especially for the poor and the marginalized people (see **Table 3**). Finally, implications are collected from environmentalists' perceptions, which prioritize reducing *cost of legal process and cost of judgment's error*. Further issues, which are remarkable in this line of theory, should quantify justice efficiency and analyze it directly through the text of law, which this work cannot perform because of many limitations.

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