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**REFORMING THAILAND'S
FINES SYSTEM—A PATH
TO FAIRER PUNISHMENT
AND SOCIAL JUSTICE**

**PRINCIPLES OF BUDGET
ALLOCATION
FOR RESEARCH**



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REFORMING THAILAND'S FINES SYSTEM-A PATH TO FAIRER PUNISHMENT AND SOCIAL JUSTICE*

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ABSTRACT

This paper examines Thailand's current fines system and proposes reforms to address issues of inconsistency and unfairness. An analysis of existing laws reveals wide disparities in fine amounts, with many fines losing deterrent effect due to inflation over time. The current fixed-rate system also fails to account for offenders' economic status, disproportionately impacting low-income individuals. Drawing lessons from variable fines systems (day-fines) implemented in Finland, Germany and the United States, the paper recommends adopting a similar approach in Thailand. Key steps for implementation include: 1) defining the scope of offenses, 2) establishing standardized punishment units, 3) determining economic factors for assessment, and 4) creating mechanisms for data access and automatic fine adjustments. The proposed reform aims to create a more equitable and effective fines system that considers both offense severity and offenders' means. Gradual implementation is suggested, starting with select offense categories. This research contributes to ongoing efforts to modernize and enhance the

fairness and effectiveness of Thailand's justice system.

Keywords: fines system, variable fines systems, legal sanction

1. INTRODUCTION

At a country level, punishment is a process employed by the State to modify the behavior of people in a society, aiming to deter and responding to undesirable actions in the society. Penalties include death penalty, imprisonment, fines, detention, and asset forfeiture in criminal justice. However, as criminal penalties increasingly applied, leading to a state of criminal law inflation, the government has started implementing alternative forms of punishment to replace criminal sanctions. These include administrative fines or civil sanction (monetary fines). This situation reflects the role of fines as a significant punitive measure in Thailand.

Thailand's past approach of setting fixed penalty fines in legal provisions has created many challenges. Inconsistent fines specified in laws create unfairness for penalized individuals, as they often ignore offenders' economic status. This disproportionately affects disadvantaged people. The proposed reform of Thailand's fines system can not only present significant access to justice issues for disadvantaged people but also avoid the expenditure of unnecessary resources on resolving this issue.

This article analyzes issues with the current attempt of the Thai Government to reform Thailand's fines system. It is divided into four parts: (1) overview of Thailand's fines system, (2) the inconsistencies and unfairness associated with imposed fines, (3) lessons

* This article summarizes a study on a guideline to implement a day-fines system based on economic status, which was presented to the House of Representatives. It is adapted from a previously published Thai version on the TDRI Report.

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drawn from fines systems in selected countries, and (4) conclusion and recommendations.

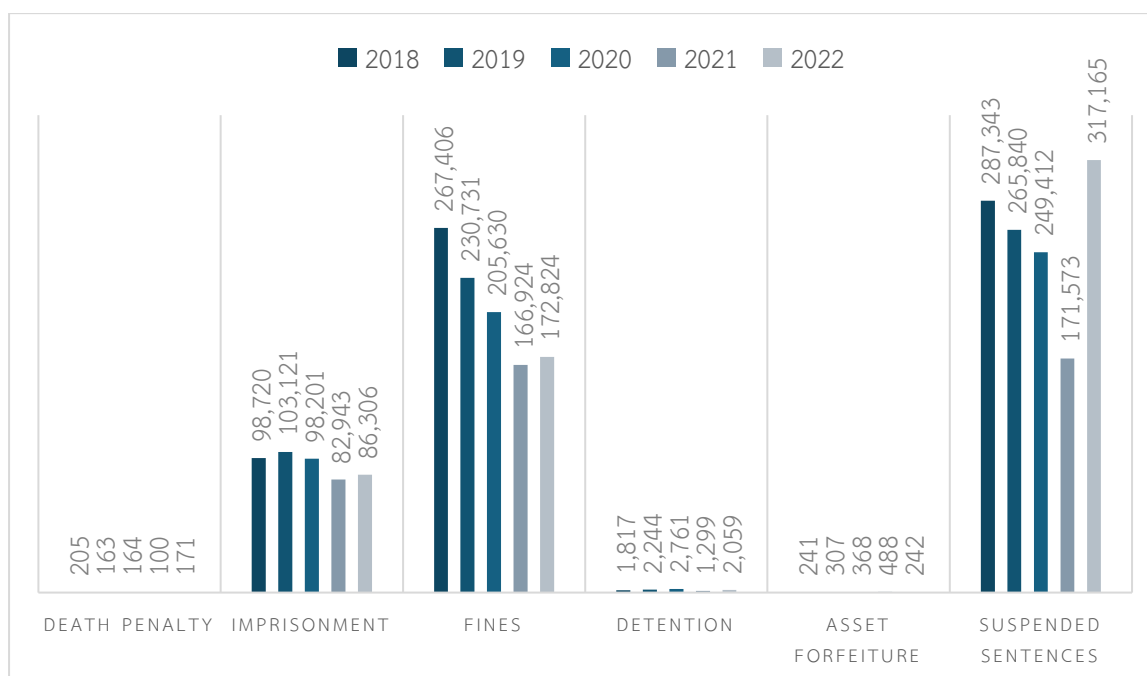
2. OVERVIEW OF THAILAND'S FINES SYSTEM

Fines are monetary punishments for infractions, misdemeanors or felonies. Fines are intended to deter crime, punish offenders, and compensate victims for losses (Council of Economic Advisers, 2015). Statistics from the Court of Justice from 2018 to 2022 show that

fines are the main punishment currently used in primary courts, surpassing imprisonment and detention (excluding suspended sentences), as shown in Figure 1. These statistics represent only a portion of data relating to fines and do not include administrative fines imposed by administrative agencies.

Thailand's current fines system comprises different types of fines, including fines penalty (criminal fines), administrative fines,¹ civil sanction,² and Pinai fines (or regulatory fine)³ (Figure 2).

Figure 1
Statistics of Punishments in Primary Courts, Thailand 2018–2022



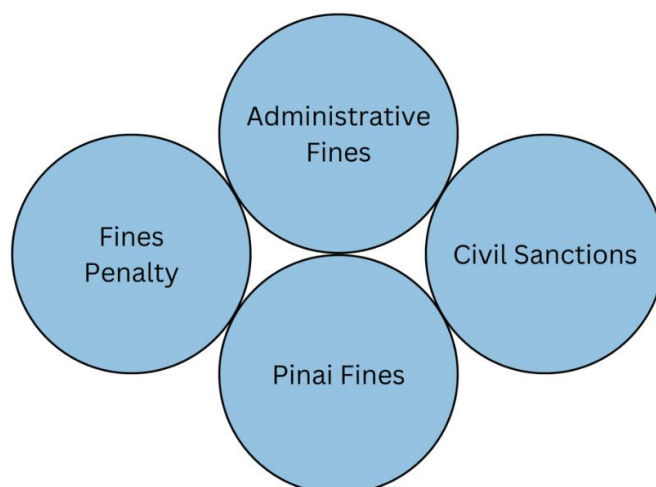
Note. This figure is based on statistical data on rulings by primary courts. From *Annual judicial statistics Thailand*, collected by The Office of the Judiciary from 2018 to 2022, 2024, August 15. (<https://oppb.coj.go.th/th/content/category/articles/id/8/cid/69>).

¹ Administrative fines are punishment measures implemented by the government when there are violations of regulations related to business operations. They are intended to impose monetary punishments on those who violate these regulations. However, currently, the government is trying to convert most administrative fines into Pinai fines instead. see *Office of the State (2017), "Criteria for Imposing Administrative Penalties in Legislation," Law Reform, 2024, August 15.* (<https://www.lawreform.go.th/uploads/files/1570531312-obcrk-7npih.pdf>)

² Civil sanction are monetary punishments under Securities and Exchange Act B.E. 2535 (1992) and Emergency Decree on Digital Assets Business Operation B.E. 2561 (2018).

³ Pinai fines is a specific term used in the Act on Imposition of Pinai Regulatory Fines B.E. 2565 (2022). Pinai fines represent an effort by the Thai government to implement alternative punitive measures in place of criminal penalties. This is done by converting criminal and administrative penalties for offenses that carry only fines (without imprisonment) into Pinai fines to avoid criminal sanctions.

Figure 2
Type of Fines in Thai Legal System



The main criminal penalties used in Thai legislation are fines and imprisonment contained in various legislations, including the Penal Code and various Acts. We discovered that 428 laws impose fines as a form of punishment (E-Public Law, 2024). Among these, there may be 388 laws that impose criminal fines, 6 laws that impose administrative fines, 2 laws that impose civil sanctions, and 171 laws that impose Pinai fines (Table 1).

Table 1
Current Fines in Various Laws

Laws Prescribing Fines	Number (of Laws)
Fines Penalty (Criminal fines)	388
Administrative Fines	6
Civil Sanctions (Monetary Fines)	2
Pinai Fines (Regulatory Fines)	171

Note. The types of fines may overlap, as one law may incorporate multiple types of penalties. The data in this table comes from a *Law Index Dashboard*, by E-Public Law (2024) enacted from 1859 to 2023, with the survey data as of 2024, March 13.

The forms of fines vary according to their enforcement methods and their impact on offenders and society. For example, fixed fines in law with a set amount cannot be determined by courts' discretion. This type of fine is mostly used for economic or public interest offences. For instance, the Customs Act B.E. 2469 (1926), Section 27, imposes a fine of 4 times the value of goods for smuggling untaxed items. Another form is continuous fines for continuous violations, which are imposed daily or monthly until the violation ceases. An example is the Public Health Act B.E. 2535 (1992) which imposes a 500 baht fine daily for exceeding the minister-specified building occupancy limit, continuously if the violation persists.

Fines are monetary penalties for crime. They affect offenders' financial status. Determining fines is thus a matter of penalty policy that the legislature must consider the overall economic conditions. This includes setting fine ceilings corresponding to the economic situation and national currency value. The system must also be flexible enough to allow for judicial discretion and the ability to adjust fine rates to fit offenders' status appropriately, taking into account the importance of adaptability in the legal system.

However, the current penalty determination system has a problem of inconsistent and unfair fines, which will be discussed in the following section.

3. INCONSISTENCY AND UNFAIRNESS OF FINES

Two main problems in imposing fines under Thai law are: (1) inconsistency in the amounts of fines imposed, and (2) the unfairness of fines.

A. Inconsistency in Fine Amounts

The consistency in fine amounts stems from the lack of clear standards in setting fines across various laws, resulting in a wide dispersion of fine values. Unahakate (2013) found that nominal fines equivalent to one year of imprisonment ranged from 1,000 to 3,000,000 baht. Even fines issued in the same year could vary greatly. For example, in 2007, nominal fines equivalent to one year of imprisonment ranged from 2,000 to 3,000,000 baht.

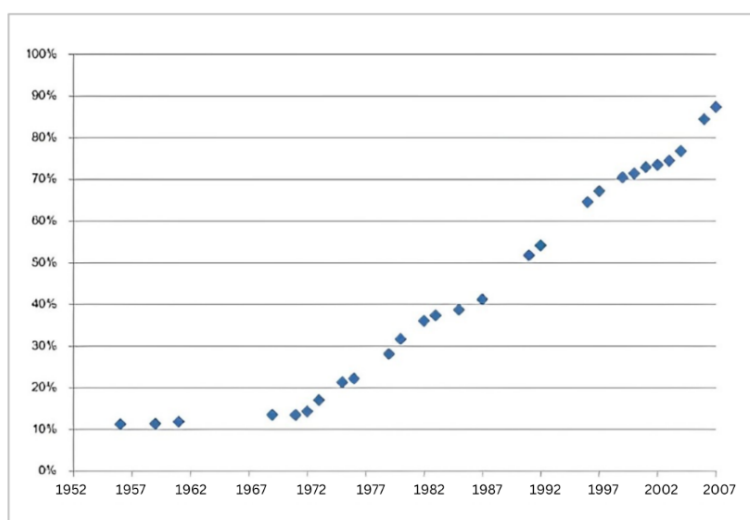
Since 1859, there have been 428 laws (E-Public Law, 2024) with penalty provisions. Most of these laws specify fixed fine amounts

without considering inflation, causing the actual value of fines to decrease over time, especially for long-standing laws (Unahakate, 2013). For example, the Canal Maintenance Act R.S. 121 (1902), adopted 122 years ago, sets a fine of 20 baht for littering canals.

Fines in more recent laws tend to increase over time. For instance, the Penal Code 1956, adopted 68 years ago, shows increasing fines. Unahakate (2013) found that the nominal fine equivalent to one year of imprisonment (assuming the fine is equivalent to 1-year imprisonment) has increased from 2,000 baht in 1956 to 20,000 baht in 2013.

When comparing nominal fine rates with the ones adjusted for inflation, it is evident that the actual value of current fines is significantly lower than their nominal value. For example, a 2,000 baht fine under law enacted in 1956 has an absolute value of only about 225 baht today (Unahakate, 2013) (Figure 3). The decrease in the actual value of fines reduces their deterrent effect. Thus, the executive and legislative branches must work together to adjust fine rates to reflect current conditions better, as stated in the Penal Code, amended in 2015 to set new fine rates.

Figure 3
Current Actual Value of Fines as a Percentage Compared to Nominal Fines in Laws Enacted in Various Years (1952–2007)



Note. This figure is taken from Unahakate, 2013.

However, adjusting penalty rates is rather complicated and requires frequent amendment proposals, which must be submitted to the parliament. The process of law approval by the Thai parliament takes a very long time. Moreover, when a law passes parliamentary approval, the stipulated penalty rates may no longer align with societal changes. It is particularly challenging in unstable political situations where passing laws can be complex.

B. Unfairness of Fines

Apart from the issue of inconsistency, the current fine determination system is also problematic. It has been considered unfair and causes social gap among high and low-income earners. Fines are generally set high to create a deterrent effect. As mentioned earlier, fines directly affect an individual's economic status. While heavy fines may not affect high-income offenders, they tend to significantly impact low-income offenders, potentially affecting their daily lives. This is particularly problematic when laws set fixed fine rates, leaving judges or state officials with little discretion to adjust fines according to an individual's economic status.

When classifying offences into “*mala in se*” (inherently wrong acts related to common sense, such as crimes against life, body, and liberty) and “*mala prohibita*” (acts prohibited by the state to prevent violations of public order), it is evident that the latter category is closely related to people's daily lives, with fines being used to punish such violations. Offences that are “*mala prohibita*” are often disproportionately penalized, with some cases having high penalties compared to the offending behavior (Table 2). This is due to past penalty policies that believed setting high penalties would create fear and deter offences.

Setting high fines for these offences may favor high-income individuals who commit offences if they perceive the benefits of breaking the law outweigh the costs. Meanwhile, low-income individuals face higher relative costs for violating the law, as fines directly impact their economic status (Kantorowicz-Reznichenko, 2015). This situation is as if the law was designed with the intention of punishing the rich with fines, while the poor must serve prison sentences.⁴

Furthermore, when offenders do not pay fines, the state can still make their life very difficult as statutory provisions permits imprisonment resulting from unpaid fines. Overcrowding and poor quality of life for imprisoned inmates presents another problem in the justice system.⁵



⁴ In reality, the law may not intend to create such unfairness. However, the problem of income inequality and the impact of economic status when being punished are not used as criteria in considering fines.

⁵ Prison overcrowding is another problem in Thailand's justice system. In this context, when referring specifically to criminal punishment, in the case of other types of penalties, such as administrative sanctions, the law tends to exacerbate inequality through the process of enforcing penalties against the offender's assets.

Table 2
Examples of Offense Groups with Excessively Low or High Penalties

Details	Punishment
Cases with excessively low penalties	
Case of drunk driving resulting in death of others	Imprisonment of 3–10 years, fine of 60,000–200,000 baht, and driver's license revocation (Land Traffic Act, 1979)
Case of illegal storage of hazardous substances	Depending on the type of chemical substance, imprisonment not exceeding 2–10 years, fine not exceeding 200,000–1,000,000 baht, or both (Hazardous Substance Act, 1992)
Cases with excessively high penalties	
Case of fining a grocery store for selling expired products	Fine not exceeding 10,000 baht (Consumer Protection Act, 1979)
Case of illegal fishing and coastal resource destruction	Imprisonment not exceeding 1 year, or fine not exceeding 10,000 baht, or both (Enhancement and Conservation of National Environmental Quality Act, 1992)
Case of villagers cutting trees for subsistence	Imprisonment not exceeding 5 years, or fine not exceeding 50,000 baht, or both (Fisheries Act, 1947)
Case of small market food stalls without licenses	Imprisonment not exceeding 3 months, or fine not exceeding 5,000 baht, or both (Act Public Health, 1992)
Case of small hotels with incomplete licenses	Imprisonment not exceeding 1 year, or fine not exceeding 20,000 baht, or both, and an additional daily fine not exceeding 10,000 baht for as long as the violation continues (Hotel Act, 2004)

Note. The table summarizes the provisions of seven laws to show differences in penalties for behaviors that are either too lenient or too severe. For example, cases with excessively high penalties involve offences related to licensing violations, where the penalties may not need to be too severe. On the other hand, the first group of laws pertains to matters such as life, body, property, and personal liberty, which may warrant more severe penalties.

Efforts have been made to address the unfairness in the fines system, such as introducing court guidelines for discretion considering defendants' economic status when imposing fines and allowing instalment payments for fines (Penal Code, 1956).⁶ Therefore, it relies on individual judges' discretion, that is, considering economic status is not a general practice and may not be applied to all offences. For example, a judge might reduce the fine for theft but may not mitigate the penalty for failing to renew a license. In the case of allowing defendants to pay fines in installments, in practice, it has been found to somewhat alleviate the burden of paying court-ordered fines. However, permitting installment payments is only addressing the

problem at its end result (Secretariat of the House of Representatives, 2024).

Nevertheless, the Thai government has pushed for the law to help reduce the problems with fines, expecting to increase fairness in imposing penalties. The law is the Act on Imposition of Pinai Regulatory Fines B.E. 2565 (2022), or Pinai fines.

Pinai fines is to convert criminal and administrative fines found in 171 laws (specifically for criminal offences that do not include imprisonment) into Pinai fines. This will result in fines that are neither criminal penalties nor administrative sanctions (Kongsiriwong, 2023). The implementation of Pinai fines offers several benefits to the public. For instance, it avoids the creation of a criminal

⁶ The mitigation of punishment considering economic status is by Section 78 of the Penal Code, which is at the judge's discretion to determine whether the defendant is eligible for sentence reduction. However, the Penal Code uses the term 'the defendant is in severe distress,' which raises the issue of proving whether poverty led the defendant to commit the offence.

record, eliminates the need for detention during trial proceedings (as the law prohibits asset seizure or detention), and allows for the payment of fines in installments (Suwanmatajarn, 2022).

According to Section 9 of the Act, offenses punishable by Pinai fines must consider the economic status of the offender when determining the fine amount. This method of calculating fines introduces some fairness in the imposition of penalties (Kongsiriwong, 2023; Suwanmatajarn, 2022).

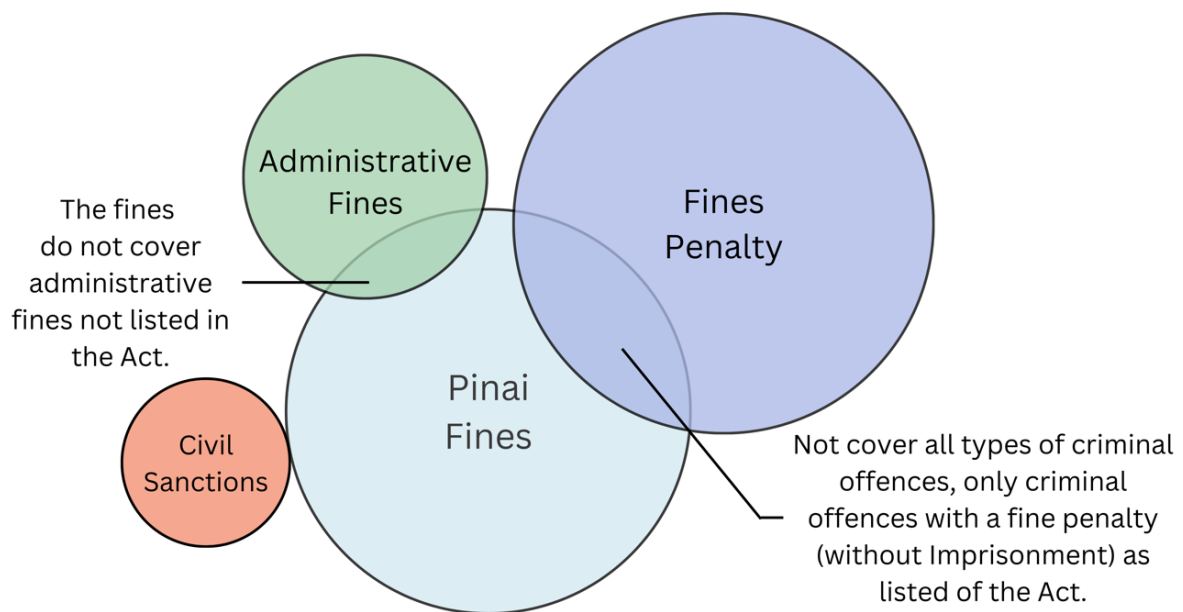
However, some fines remain excluded from the 171 listed items and are therefore not subject to the fine determination method under this Act (Figure 4). These include minor offenses under the Penal Code or other offenses punishable by both imprisonment and fines, such as the case of unlicensed small market food stalls (Table 2). By not applying the fine determination method to all types of fines, particularly in instances where fines are

accompanied by imprisonment—a critical element of penalties under Thai law—the Act may fail to comprehensively address issues of fairness.

Moreover, Pinai fines does not prioritize the necessary changes in fine rates. The law only stipulates converting criminal offences or administrative penalties into Pinai offences. The basic fine rates used for calculation are still tied to the penalties specified in the original laws, which do not reflect the actual fine rates. This also does not solve the problem of high-income individuals being able to pay fines as if they have a license to commit offences (Kongsiriwong, 2023).

The issues of inconsistent and unfair fines have led to further studies on finding alternative approaches to replace the current fines system, which will be discussed in the next section.

Figure 4
The Current Scope of Fines after the Implementation of Pinai Fines



Note. This figure explains the scope of Pinai fines, which does not yet cover fines for all offenses, especially offenses in the Penal Code and other laws not listed in the Act on Imposition of Pinai Regulatory Fines B.E. 2565 (2022). This includes cases of Civil sanctions where the law does not specify the use of the Pinai fines system.

4. LESSONS LEARNED FROM FINES SYSTEMS IN SELECTED COUNTRIES

In order to tackle the fines system in Thailand, two main problems of inconsistency and unfairness must be addressed. This can be approached in various ways, such as creating a fine index through classification or categorization, as used in the United Kingdom, which sets a standard scale of fines corresponding to offence levels. The day-fines system, which considers offence units alongside offenders' daily income to calculate an appropriate fine rate (Unahakate, 2013). In this paper, the authors study variable fine systems in Finland, Germany, and the United States which addresses the inconsistency in fine rates and the unfairness in fine penalties.

The day-fines system operates by specifying the number of offence units, which vary according to the severity of the offence. More severe offences have higher severity units, with levels decreasing accordingly (Wongdee, 2020). This helps address the inconsistency in penalty determination. In addition to considering the severity level, the offender's economic status is another factor in determining penalties. The method for calculating fines under the income-dependent variable fines system can be expressed as a formula (Unahakate, 2013) as follows:⁷

$$\text{Fine} = \frac{\text{Number of offence units (day-fine)}}{\text{Net income of the offender}}$$

Considering the economic status of offenders as a factor can help compensate for Thailand's current fine rate determination system. It demonstrates the difference in fairness between people of different economic statuses (Ruangpanyawut, 2022). This responds to the goal of punishment principles, which aim to impose different penalties for different levels of serious offenders (Areerak, 2017).

In addition to creating fairness by punishing people at different economic status levels, these variable fines system can also address the problem of fines not adjusted for inflation. This is because offenders' daily net income inherently reflects changes in currency value (Unahakate, 2013).

Another important issue is about crime deterrence. It is argued that variable fine rates could affect the goal of fines in creating fear and deterring offences. Fixed fines provide certain benefits, especially when offenders can foresee the consequences of the offences. However, heavy fines can have high risks when people are unable to pay. When offenders are not in the position to pay fines, the penalties will fail to achieve their goal in deterring offences (Areerak, 2017).

The application of the variable fine rate system may vary depending on each country's economic and social context. Many countries have implemented a variable fines system to punish offenders, particularly as an alternative to imprisonment to prevent prison overcrowding (Table 3). Accordingly, this paper reviews the principles and laws of Finland, Germany, and the United States as examples of countries with extensive experience implementing day-fines systems.

1. Finland

In Finland, the day-fines system was incorporated into the Penal Code (Rikoslaki) in 1921, driven by the need for a fair fines system (Lahti, 2021), in line with inflation (Wongdee, 2020). It applies to minor offences such as traffic violations, intoxication, and theft. Police officers and prosecutors determine fines based on legally set amounts, which are flat fines. Prosecutors must verify if offenders can pay the set fine. If payment is impossible, prosecutors bring the case to court for judges to order imprisonment instead of fines (Parker, 1993). In court, judges must further determine the fine amount.

⁷ This formula is called "day fines formula".

Table 3
Day-fines in Europe and the United States

Count.	Year	Max. no. days	Min. no. days.	Result of default
Finland	1921	120	1	Prison
Sweden	1931	150	30	Prison
Denmark	1939	60	1	Prison
Germany	1975	360	5	Prison
Austria	1975	360	4	Prison
Hungary	1978	540	30	Prison
France	1983	360	1	Prison
Portugal	1983	360	10	Prison
Lichtenstein	1988	360	2	Prison
Spain	1995	730	10	Prison
Poland	1997	540	10	Prison
Unites States*	1988	120	5	Prison

Note. This table adapted from Kantorowicz-Reznichenko, 2015.

* The fines system varies by state.

According to the country's penal code, judges determine the fine amounts during court proceedings based on the offence's severity and the offender's economic status. Specifically, judges consider the offender's daily after-tax income and multiply it by the number of offence units (day-fines) corresponding to the offence's severity. The law allows judges to impose fines ranging from 1 to 120 days or up to 240 days for multiple offenses. The product of this multiplication is the fine to be paid (Lahti, 2021).

Offenders are required to disclose their income to the judge. The daily income calculation is based on offenders' most recent tax information, not exceeding 1/60th of their average monthly income. This is after deducting taxes, state fees specified by ministerial decree, and daily living expenses. The court may use information from other sources to determine daily income if necessary. Government officials and judges have access to this information. If false income is reported to receive a lower fine, the offender will be punished for false income declaration (Lahti, 2021).

Finland's day-fine system has since become a model for other Scandinavian countries and other parts of continental Europe.

2. Germany

Germany fully incorporated the day-fine system into its Penal Code (Strafgesetzbuch: StGB) in 1975 (Albrecht, 2021). The Penal Code was amended to apply the principle of fines as a replacement for short-term imprisonment and calculate fines on per day basis (Wongdee, 2020). The effort to amend this time is the result of studies dating back to 1962, when the draft Penal Code E 1962 was proposed to introduce a day-fines system. However, the draft law was not immediately passed due to debates over the appropriateness and scope of the penalties. Ultimately, the final draft of the law was approved by the parliament, retaining the essence of the Penal Code E 1962 (Nagreacha, 2020; Wongdee, 2020).

The fine calculation is based on two key factors: (1) the number of day-fine units, set by the Criminal Code from 5 to 360 days, with courts having the discretion to reduce it below 5 days and up to 720 days for multiple offences; (2) the day-fine unit calculated from the offender's personal and financial circumstances (including assets) and the offender's actual average daily net income. Each day-fine unit must be set at a minimum of 1 euro and a maximum of 30,000 euros. As a result, the

offenders of the same offence may receive different fines (Wongdee, 2020).

Under German law, gathering information on the offender's economic status begins with a detailed police investigation. Police inquire about the offender's occupation, work situation, living conditions, and income. This information is used to prepare the case file and is provided to the court to assess the offender's financial status. German courts have limitations in directly accessing the offender's tax payment information, which may lead to inaccuracies in evaluating the offender's economic status (Nagrecha, 2020; Wongdee, 2020).

Furthermore, judges still have extensive discretion in enforcing day-fine penalties, and deductions for living expenses such as rent, and food are not considered equally. Another problem is that judges and prosecutors assume that offenders can pay the fines, leading to high fines in some cases (Nagrecha, 2020). This may result in fines being unaffordable for low-income individuals and making fines less consistent than they should be.

3. United States

Day-fines were first introduced in the United States through a pilot program in 1988, which became the starting point for implementing the day-fines system for fines in the United States (McDonald et al., 1992).

In the United States, variable fines are enforced at the pre-trial stage and during court trials. Courts mainly apply this fine method to misdemeanors and economic crimes, such as antitrust violations (Areerak, 2017). This variable fines system is implemented in state-level laws in Arizona, Connecticut, Iowa, New York, and Washington (Cole et al., 2017).

In court proceedings, judges impose day fines on offenders based on the severity of the offence, similar to other countries, without

considering the offender's intent. Judges also determine the offender's daily net income by deducting necessary living expenses and other financial obligations, considering their financial status. The fine is then calculated by multiplying the number of day fine units by the daily net income.

The United States law system does not have a fixed day-fine unit system. Studies show attempts to set day-fine units by comparing the severity of different case types, ranging from 5 to 120 days. Less severe cases typically receive 5-day fines, while the most severe cases can receive up to 120-day fines (Niphaspong, 1999).

One notable aspect of the variable fines system in the United States is its emphasis on poor offenders, those without income, or particularly vulnerable groups. For instance, when an offender is unemployed or has no income, the court calculates their net income based on the income of their spouse or caregiver as the basis for determining the offender's net income (Tuner & Petersilia, 1996).

However, in the United States, tax collection agencies are not authorized to disclose offenders' financial status and tax payment information to courts for trial purposes. Federal and state laws also prohibit financial institutions from revealing offenders' financial information (Wongdee, 2020). Nevertheless, courts retain the authority to investigate the economic status of those being sentenced before imposing punishment, verify the accuracy of the information, and require offenders to present tax documents to the court (Niphaspong, 1999).

From the lessons learned from various countries above, it is evident that the principles of variable fine rate determination in foreign countries share similar characteristics: consideration of economic status and determining the severity of punishment by considering fine units in days in a similar manner (Table 4). However, there are two significant differences.

Table 4
Comparison of Day-Fines Systems in Selected Countries

Topics	Finland	Germany	United States
1. Year Introduced	1921 (Lahti, 2021)	1975 (Albrecht, 2021)	1988 (McDonald et al., 1992)
2. Day-fine Units	1–120 days (Lahti, 2021)	5–360 days (Wongdee, 2020)	5–120 days (Niphaspong, 1999)
3. Types of Offenses	Minor offenses, traffic violations, intoxication offenses, or theft (Parker, 1993)	Offenses under the Criminal Code, used as an alternative to short-term imprisonment (Wongdee, 2020)	Misdemeanors and economics crimes (Areerak, 2017)
4. Economic Status Assessment	Considers data and income that the offender paid taxes on most recently, deducting taxes/fees that must be paid to the state and daily living expenses (Lahti, 2021)	Considers occupational status, work, living conditions, and income (Wongdee, 2020)	The court has the authority to investigate the economic status of the offender before imposing punishment (Tuner & Petersilia, 1996)
5. Data Access	Government officials and judges can access information and income data that the offender paid taxes on most recently (Lahti, 2021)	The court has no direct access to the offender's tax payment information, must rely on data from police investigations (Wongdee, 2020; Nagrecha, 2020)	<ul style="list-style-type: none"> • Tax collection agencies have no authority to disclose financial status and tax payment information • The court has the authority to verify the accuracy of information and require the offender to present tax documents to the court (Niphaspong, 1999)

First, it may be noted that the income-based fines systems in the three countries stem from different basic concepts. Finland applies it to minor offences, which can be resolved at the prosecutor level without court intervention. This approach results in Finland's fine units (day fines) being relatively low, ranging from 1 to 120-day fines, depending on the offence's

severity. However, Germany and the United States tend to apply this system to more severe offences, such as economic crimes, as an alternative to imprisonment. Thus setting higher punishment units up to 360 days.⁸

Second, income calculation differs in each country, depending on the accessibility of offenders' information and assessment methods.

⁸ In the United States, the day-fine levels may not be as high as in Germany, ranging from 5 to 120 days, but there is a tendency to apply it to high-severity cases as well.

5. CONCLUSION AND RECOMMENDATIONS

Thailand's current system of a number of fixed fine rates leads to ineffective punishment due to inconsistencies in fine determination, resulting in highly variable fine rates. Fixed fines are also not corresponding to inflation. Another issue is the unfairness of fines, as the law sets fixed amounts without considering the offender's economic status, neglecting the inequality in economic status of individuals. The ability to pay a fine may not make the offender to feel a sense of loss and therefore may not feel deterred from committing repetitive offenses. When the benefits of violating the law outweigh the costs, offenders may choose to break the law, exacerbating the inefficiency of fines. This situation contrasts with low-income offenders, who are more severely impacted by fines, as heavy fines significantly affect their economic status.

The fines systems in the foreign countries studied reveal that implementing a variable fine rate system can help solve problems and achieve effective punishment and social fairness. Adopting a day-fines system would require four crucial factors:

(1) Defining the scope of applying the variable fines system, as foreign case studies show it is used for low- and high-severity offences or economic crimes.

(2) Establishing punishment units by setting fine rates according to severity levels to classify different offences and determine fine units consistent with defined severity levels.

(3) Determining which economic status factors are to be taken into consideration and what information is to be used for assessing net incomes, considering actual expenses and determining costs incurred from legal compliance, such as taxes and fees.

(4) Establishing guidelines for using information in assessments would require judges or state officials to use data to determine net income.

We recommend reforming Thailand's fine rate determination system by taking into account the following factors:

First, the day-fines system should be applied to all offences in Thailand. Since Thailand has penalties dating back to 1902, including 428 laws with fine provisions, there is high inconsistency in fines. The scope of implementing the variable fines system should cover all types of fines, including fines penalty, administrative fines, civil sanction, and Pinai fines, to ensure consistency across the system. This day-fines system should be equally applied to individuals and legal entities. Differentiating the punishment system between types of persons might lead to other inconsistencies in law enforcement. Additionally, the variable fine rate system could enhance the ability to punish corporate offenders by reclaiming economic benefits from law violations. Amending all offences with fines to a day-fines system would help emphasize and address the shortcomings of Pinai fines, which aim to create fairness but do not yet cover all types.

Second, punishment units should be established to define the severity of offences from low to high levels. This will determine punishment units or day-fine units for calculating offender penalties. The fine per punishment unit should be calculated based on the offender's opportunity cost.

Third, economic status factors should be considered in fine assessment. This may require specifying which factors will be used to assess the offender's net income. Potential data to consider includes net income calculated from taxes after deducting actual expenses and expenses for dependents. However, a further consideration is whether tax exemptions/ deductions resulting from government policies, such as savings, donations, or other factors, should be excluded from the calculation of net income used for tax purposes. This is because these deductions can distort the actual income.

Fourth, guidelines for using information in assessments should be established. Besides data provided by offenders to judges or state officials, it should be determined whether information from other sources can be used to consider and verify income accuracy. A significant issue in Thailand, differing from the studied countries, is its large informal economy, with many individuals and businesses outside the tax system. This ranges from non-filing taxes to partial income concealment and profit shifting between affiliated companies (Ma, 2023). A study by Atipat Muthitacharoen (2022) found that in 2019, out of 39 million in the workforce, only 10 million were in the personal income tax system, with only 4 million paying taxes, accounting for just 10% of the workforce. This situation complicates the assessment of economic status factors. Therefore, considering a person's economic status may require additional factors such as the guaranteed minimum wage in each province and poverty status from government welfare cards.

To implement the reform of the fines system to accommodate variable fine determination, the authors propose initiating the fines system reform with the following steps:

Step 1: Defining the scope for implementing the day-fines rate system. While the ultimate goal is to apply this system to all types and categories of offences, initially, it may be applied to selected types of offences for testing purposes. The focus could be on offences that have general impacts on the public and where the effectiveness of penalties is crucial, including the following groups:

(1) Petty offences under the Penal Code, as these are minor offences.

(2) Traffic law violations are offences that the general public is likely to commit in daily life, such as those under the Land Traffic Act B.E. 2522 (1979).

(3) Environmental law violations, as offenders may violate these laws by considering the potential benefits of non-compliance to outweigh the costs. Examples include offences under the Factory Act B.E. 2535 (1992) or the

Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992).

The act may allow for the future designation of types and offences that adopt the day-fines system. This could be done by issuing a Royal Decree to change specific offences to use the day-fines system.

Step 2: Establishing punishment units to replace each offence's minimum and maximum fines. The punishment units are determined based on the severity of the offence, corresponding to imprisonment terms. For example, one month of imprisonment equals 30-day-fine units, six months equals 180-day-fine units, and one year equals 360-day-fine units (Unahakate, 2013). For offences without imprisonment, a 5-day fine unit might be applied. This process may require studying and compiling a list of all laws with fine penalties to create a standard fine scale, categorizing each offence by severity level. Then, a law should be enacted at the Act level to establish methods for adjusting all fines.

For example, *the Traffic Act B.E. 2522 (1979), Section 160 Tri, stipulates that whoever drives while intoxicated by alcohol or other intoxicants shall be liable to imprisonment for a term not exceeding one year, or to a fine of five thousand to twenty thousand baht or to a fine not exceeding 360 day-fine units, or to both, and the court shall order the suspension of such person's driving license for a period of not less than six months or revoke the driving license.*

Step 3: Determining the fine per punishment unit by calculating the offender's opportunity cost from imprisonment. If an offender earns the minimum wage of 400 baht per day and works 240 days a year, the opportunity cost of continuous imprisonment would be 96,000 baht per year. Therefore, the initial fine per punishment unit would be 263 baht per unit.

Step 4: Creating mechanisms for data access. This may require legal provisions to establish mechanisms for accessing tax information, welfare rights, or financial obligations to analyze economic status beyond

the offender's testimony. It may also be necessary to define offences for falsely declaring economic status.

Step 5: Establishing mechanisms for automatic fine adjustment to address fines that do not change with inflation. This would require issuing secondary legislation to update the fine per punishment unit annually, maintaining the actual value of fines without needing new legislation. However, further consideration may be needed on how to implement this mechanism.

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PRINCIPLES OF BUDGET ALLOCATION FOR RESEARCH*

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Keywords: research budget allocation, science, research, innovation, cost-benefit analysis, benchmarking

Evaluating investment in science, research, and innovation is a critical task for research funding agencies. These organizations often develop an index to serve as a criterion for allocating budgets to various grant recipients. This index functions as a screening tool for research funding proposals, ensuring that the allocation of funds (ex-ante) maximizes outcomes. It also addresses public interest in investment by assessing whether every baht invested in research and development in science and technology yields a worthwhile return. Ultimately, this approach demonstrates accountability in the use of public tax money.

The allocation of research budgets in science, research, and innovation is essential for generating economic and social returns. By efficiently distributing these funds, the country can enhance its competitiveness, leverage innovation to boost productivity, and improve the quality of life for its citizens. Additionally, this strategic allocation prepares society to meet future challenges effectively.

In the past, the Thailand Science Research and Innovation (TSRI), previously known as the Thailand Research Fund (TRF), provided research funding at both program and project levels. Therefore, TSRI must evaluate

the outcomes of previous funding allocations to determine which programs and projects effectively utilized their funds and achieved significant impacts, as well as those that have yet to demonstrate considerable results.

This study aims to review research evaluations to identify the factors that contribute to the success of projects, both those with and without significant impacts. Key findings from the study are presented in this TDRI Quarterly Review, beginning with an analysis of the outcomes and impacts resulting from TSRI's investments in science, research, and innovation. The discussion covers the factors that drive these impacts and provide recommendations for funding allocation at the research program level to maximize the value of investments in science, research, and innovation. Additionally, the study offers suggestions for benchmarking the impacts generated by various types or sectors of investments in these fields.

EVALUATION OF THE OUTCOMES AND IMPACTS OF INVESTMENT IN SCIENCE, RESEARCH, AND INNOVATION

The review of the outcomes and impacts from TSRI's investments in science, research, and innovation reveals that the sample data from the evaluation database included 32 programs and a total of 379 research projects. The evaluation results indicated that evaluators or experts employed diverse methods for both qualitative and quantitative assessments, making it difficult to compare projects. Furthermore, the scores varied across different criteria. Notably, approximately 34% of the research projects utilized five evaluation criteria: relevance, effectiveness, efficiency, outcomes and impacts, and sustainability. Additionally,

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around 23% of all research projects applied the Organization for Economic Co-operation and Development (OECD) evaluation method, while approximately 21% used the CIPP Model (Context, Input, Process, and Product). Only a small fraction—about 6%—of all research projects employed quantitative investment evaluation techniques such as Net Present Value (NPV), Benefit-Cost Ratio (B/C Ratio), Internal Rate of Return (IRR), Return on Investment (ROI), or Social Return on Investment (SROI) (as shown in Table 1). Consequently, analyzing project data quantitatively to determine the factors influencing high or low ROI is challenging due to the differing evaluation criteria used by various evaluators. In addition to these findings, several important characteristics of the quantitative evaluation of investment value in these projects emerged as follow:

1. Clearly Defined Beneficiaries:

Evaluations of value—whether through Cost-Benefit Analysis (CBA) or Social Return on Investment (SROI)—are most effective when the project has a clearly defined scope of beneficiaries for its research outcomes.

2. Limitations in Social Sciences:

Quantitative evaluations such as CBA and SROI are less effective for assessing investments in social sciences, humanities, or arts because benefits in these fields are difficult to quantify accurately.

3. Focus on Financial Proxies: SROI evaluations concentrate on returns measured in financial proxies but do not consider opportunity costs. As a result, the financial values derived from these evaluations may not be suitable for allocating research funds to maximize benefits.

4. Overestimation of Value: SROI evaluations often treat the entire research budget as a social cost without accounting for other related expenses, which may lead to an overestimation of value.

5. Variability in Evaluator Skills:

The differing skills among evaluators complicate comparisons of results.

6. Lack of Transparency: SROI evaluations typically present a concise study method that obscures the calculation steps, making it difficult to verify the accuracy of results.

7. Inadequate treatment of inflation and discount rates: SROI evaluations often fail to adequately account for inflation and do not clearly justify the use of appropriate discount rates. As a result, the calculated outcomes may deviate significantly from their true value, particularly for research projects that have long-term impacts.

FACTORS LEADING TO THE IMPACT OF INVESTMENT IN SCIENCE, RESEARCH, AND INNOVATION

Analyzing the factors that contribute to the impact of investments in science, research, and innovation is crucial for ensuring efficient allocation of research budgets. This analysis not only helps create returns that justify the opportunity costs of funding but also enhances the country's potential by utilizing innovation as a tool for long-term improvement in the quality of life for its citizens. The analysis employed a method that involved extracting lessons learned from experts and field data. The following key factors were identified as essential for project success and high impact:

1. Research Project Leader with a Business Mindset or Research Entrepreneurship: A successful research project leader embodies a business mindset or entrepreneurial spirit, effectively managing aspects such as project design, team selection, funding requests, and overall project progress. These qualities are critical for maximizing the success and impact of research funding.

2. Focus on Benefit-Oriented Research Design: Projects should prioritize research designs that emphasize creating tangible benefits, such as contributions to knowledge, value addition, or advancements in academic fields. Clearly identifying beneficiary groups enhances the project's overall impact.

Table 1*The project evaluation result of TSRI*

No.	Project evaluation result	Number of research projects	Percentage of total research projects	Number of programs	Percentage of total programs
1	2 criteria: 1) outcome 2) impact	0	0.00	1	3.13
2	4 criteria - pattern 1: 1) relevance 2) Value 3) impact 4) sustainability	12	3.17	1	3.13
3	4 criteria - pattern 2: 1) relevance 2) efficiency 3) effectiveness 4) sustainability +SROI	12	3.17	1	3.13
4	4 criteria - pattern 3: CIPP Model	78	20.58	3	9.38
5	OECD 5 criteria: 1) relevance 2) effectiveness 3) efficiency 4) impact 5) sustainability	87	22.96	5	15.63
6	OECD 5 criteria: 1) relevance 2) effectiveness 3) efficiency 4) impact 5) sustainability +B/C+NPV+IRR	1	0.26	0	0.00
7	OECD 5 criteria: 1) relevance 2) effectiveness 3) efficiency 4) impact 5) sustainability +B/C+NPV+IRR+ROI	0	0.00	1	3.13
8	OECD 5 criteria: 1) relevance 2) effectiveness 3) efficiency 4) impact 5) sustainability +B/C+SROI	0	0.00	1	3.13
9	5 criteria: 1) relevance 2) effectiveness 3) efficiency 4) outcome & impact 5) sustainability	130	34.30	13	40.63
10	5 criteria: 1) relevance 2) effectiveness 3) efficiency 4) outcome & impact 5) sustainability +NPV+B/C+IRR+ROI	0	0.00	1	3.13
11	5 criteria: 1) relevance 2) effectiveness 3) efficiency 4) outcome & impact 5) sustainability +NPV+B/C+IRR	4	1.06	0	0.00
12	5 criteria: 1) relevance 2) effectiveness 3) efficiency 4) outcome & impact 5) sustainability +NPV+IRR	3	0.79	0	0.00
13	5 criteria: 1) relevance 2) effectiveness 3) efficiency 4) outcome & impact 5) sustainability +ROI	5	1.32	1	3.13
14	5 criteria: 1) relevance 2) effectiveness 3) effectiveness 4) outcome & impact 5) sustainability +ROI+SROI	11	2.90	0	0.00
15	5 criteria: 1) relevance 2) effectiveness 3) efficiency 4) outcome & impact 5) sustainability +SROI	2	0.53	0	0.00
16	6 criteria: 1) relevance 2) effectiveness 3) efficiency 4) outcome 5) impact 6) sustainability	17	4.49	3	9.38
17	7 criteria: 1) situation before receiving funding 2) situation after receiving funding 3) social changes 4) social value 5) social and economic impacts 6) problems and solutions 7) recommendation	17	4.49	1	3.16
Total		379	100.00	32	100.00

Note. From *Economic and Social Returns on Investment in Science Research and Innovation*, by Adis Israngkura et al., 2024, Thailand Science Research and Innovation.

3. Continuity of Research Funding Allocation: Sustained funding for specific research projects or programs is vital for achieving success and generating significant societal impacts.

4. Efforts to Develop Mechanisms for Driving Research Results: Successful projects actively develop mechanisms to translate research results into social impacts. This includes collaboration with local agencies and effective communication through media channels.

5. Development of Skills and Evaluation Systems: Thailand needs an agency responsible for evaluating research outcomes using consistent standards. This uniformity is essential for allocating research funds effectively and ensuring high societal impacts. Inconsistent evaluation methods can lead to results that are not comparable, undermining the benefits of research budget allocation.

RECOMMENDATIONS FOR RESEARCH BUDGET ALLOCATION AT THE PROGRAM LEVEL

The allocation of research budgets from the Science, Research, and Innovation Fund is a crucial mechanism for generating knowledge that can be utilized in society. This knowledge can enhance business value, promote good governance in national administration, and foster the production of diverse alternatives and ideas for societal benefit.

Thailand's ability to effectively allocate research budgets to support the production of varied knowledge serves as a vital foundation for developing a society that prioritizes knowledge creation in production processes and policymaking. This approach can lead to a rational society with multiple alternatives for national development. Ultimately, the country can depend on this knowledge base to ensure sustainable and equitable national development in the long term.

To achieve effective and equitable budget allocation, Thailand needs to establish a robust research budget allocation mechanism. This includes creating an appropriate organizational structure for budget distribution, providing incentives for researchers to produce work that aligns with national needs, implementing mechanisms for quality control in research, accumulating and expanding knowledge, and facilitating the transfer of research skills from senior to junior researchers. The Ministry of Higher Education, Science, Research and Innovation (MHESI), along with agencies responsible for program-level budget allocation such as Thailand Science Research and Innovation (TSRI) and Project Management Units (PMUs), should design these mechanisms. Evaluating the success of research budget allocation at both program and project levels is essential to ensure that resources are used fairly and effectively.

Guidelines for Program-Based Research Budget Allocation

1. Establish Policies at the Ministry Level: It is important to coordinate policies within MHESI to ensure that land, buildings and related expenses (such as research institutes or universities), personnel (researchers or lecturers), and budgets are aligned to create operational efficiency. For instance, allocating a substantial budget for renewable energy development will be ineffective if there are insufficient personnel or educational institutions in that field. Therefore, MHESI must support the development of educational institutions, facilities, equipment, and personnel related to renewable energy alongside a consistent research budget.

2. Establish a National Committee: A national committee should oversee research budget allocation among programs TSRI should allocate budgets in accordance with development directions set by MHESI, such as supporting the BCG (Bio-Circular-Green Economy) plan. Given that program-based budget allocations must consider various disciplines simultaneously—science and technology, health sciences, social sciences,

and humanities, as shown in Figure 1—it is challenging to establish quantitative criteria for comparing their importance. Thus, qualitative methods should be employed based on expert committee recommendations.

3. Restructure PMUs: The roles of PMUs must be restructured to avoid overlapping responsibilities. The operational structures of various PMUs indicate a need for project-based budget allocations tailored to specific academic sectors. However, overlapping responsibilities among agencies like the National Research Council of Thailand (NRCT) or the National Innovation Agency (NIA) may lead to inefficiencies. Clear delineation of responsibilities among PMUs is necessary to prevent duplicate funding requests from researchers.

4. Develop Research Evaluation Guidelines: TSRI should create tailored evaluation guidelines for project-based levels since each research field has unique contexts. Evaluation tools must distinguish between projects within the same field based on cost-effectiveness rather than applying a one-size-fits-all approach. Different fields—such as commercial agriculture versus historical

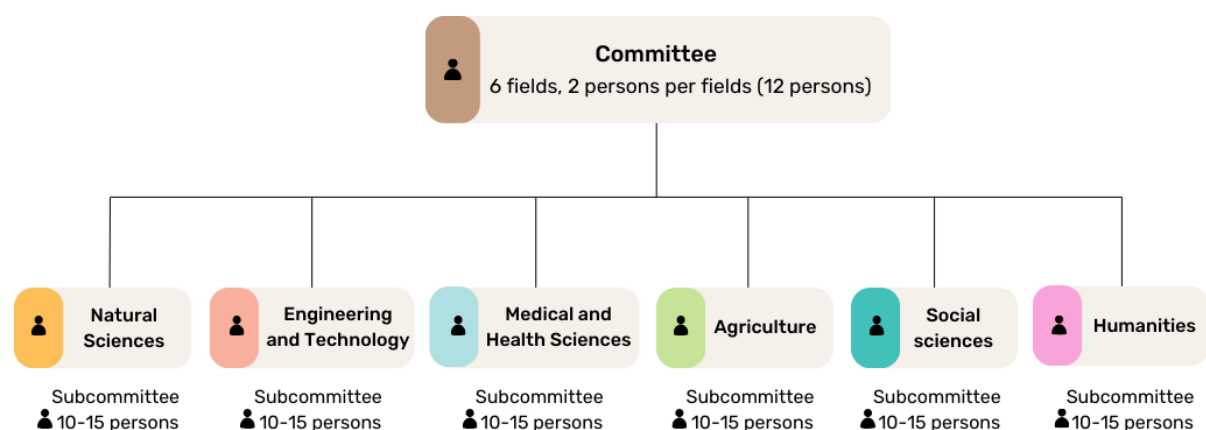
research—require distinct indicators due to their varying objectives.

Evaluating project outcomes and impacts is critical; however, different funding sources often employ diverse evaluation systems that can affect project prioritization and success rates. For example, some funding bodies may focus on commercial outcomes while others emphasize policy-oriented research or researcher development.

The National Science and Technology Development Agency (NSTDA) exemplifies effective evaluation practices by systematically assessing the outcomes of its funded projects through clear criteria based on Cost-effectiveness Analysis (CBA). NSTDA evaluates the impact of its funding allocations annually, determining their effects on the economy, society, and environment based on current-year benefits rather than merely dividing them by project costs.

In summary, implementing these recommendations will enhance Thailand's ability to allocate research budgets effectively at both program and project levels, ultimately fostering a more knowledgeable society equipped for sustainable development.

Figure 1
Example of committee structure in research management of TSRI



Note. From *Economic and Social Returns on Investment in Science Research and Innovation*, by Adis Israngkura et al., 2024, Thailand Science Research and Innovation.

RECOMMENDATIONS FOR DEVELOPING BENCHMARKING

Setting a benchmark to evaluate project success should not involve a single central value for comparing returns from all research projects simultaneously. If a benchmark is to be established for comparing returns on investment in science, research, and innovation across various sectors, this report recommends categorizing research projects into subgroups based on four dimensions: 1) sectors of research, 2) types of research, 3) types of researchers, and 4) urgency of research.

Dimension 1 Sectors of Research:

Sectors of Research can be classified into various fields, including natural sciences, engineering and technology, medical and health sciences, agriculture, social sciences, and humanities. Research or funding in each field cannot be directly compared. For example, scientific research can measure outputs in terms of innovation and tangible benefits to specific beneficiary groups. In contrast, research in the humanities or social sciences may create broader societal impacts or produce knowledge that serves as social critique, making it difficult to identify beneficiaries or assign monetary value.

Dimension 2 Types of Research:

Research can be categorized as basic research, theoretical research, applied research, policy research, or experimental research. Each type holds different significance. For instance, policy research provides valuable options for government action, while basic research lays the groundwork for long-term knowledge development—such as creating a biodiversity database. Although basic research may not yield immediate practical applications, it is essential for future advancements.

Dimension 3 Types of Researchers:

Researchers can be grouped into three categories: junior researchers, mid-career researchers, and

senior researchers. Each group has distinct goals that may not be directly comparable. Senior researchers typically focus on policy-oriented or applied research that delivers noticeable societal value. Conversely, junior researchers may prioritize skill development over immediate application of their findings. The criteria for evaluating each group should differ; for example, junior researchers might measure productivity by the number of publications in mid-career journals, while mid-career researchers might focus on high-impact journals and senior researchers could assess the publication output of their teams.

Dimension 4 Urgency of Level:

Research urgency can be classified into three levels: urgent research, medium-level research, and future-oriented research. Each category has different time frames for application. Some studies address immediate national needs (e.g., solutions to PM2.5 pollution), while others aim for long-term outcomes (e.g., food security or ecological balance). Prioritizing urgent research can help develop knowledge that prepares society for future challenges.

This study presents examples of appropriate indicators within each dimension for each research group to facilitate comparative scoring. For instance, agricultural policy research conducted by senior researchers aiming at future advancements may be evaluated using indicators such as the number of patents filed or the added value/reduced costs achieved. In terms of type of research, policy studies might consider the value added to social welfare. For senior researchers, the evaluation could focus on the number of publications produced by their teams. Additionally, for future-oriented urgency levels, present value assessments of anticipated future benefits could be employed. Consequently, each research category will have its own set of evaluation indicators that cannot be universally applied across categories.

By categorizing research according to these four dimensions, a total of 270 subgroups will emerge for managing project-level evaluations (as illustrated in Figure 2). Each subgroup will have distinct indicators tailored to its specific context. Defining these indicators will enable effective allocation of research budgets within each group and serve as a mechanism for project-level budget distribution. The development of these indicators should involve collaboration between the Thailand Science Research and Innovation (TSRI) and various Project Management Units (PMUs). Proposals among groups should be qualitative in nature.

However, benchmarking cannot be applied to all research projects simultaneously. It is essential to categorize research into different dimensions to establish benchmarks

for evaluating returns on research investments. This includes comparing research within the same field (such as natural sciences, medical and health sciences, engineering and technology, agriculture, social sciences, and humanities), comparing the same type of research (including applied research, policy research, theoretical research, basic research, and experimental research), comparing based on types of researchers (junior researchers, mid-career researchers, and senior researchers), and comparing based on levels of urgency (urgent research, medium-level research, and future research). Each dimension should utilize standardized indicators developed specifically for that research group to ensure that the indicator scores can be compared effectively and support informed decision-making for project approval.

Figure 2

Examples of research projects are categorized into subgroups based on 4 dimensions.



Note. From *Economic and Social Returns on Investment in Science Research and Innovation*, by Adis Israngkura et al., 2024, Thailand Science Research and Innovation.

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