

## The Evaluation of the Outcome and Impact of the Study on the Effectiveness of Traffic Law Enforcement

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### ABSTRACT

Thailand's alarming rate of road accidents and fatalities has been a serious cause of concern for public health and safety. These problems can pose challenges socially and economically for the country in achieving sustainable development goals. In this respect, in 2014, the Thailand Research Fund (TRF) launched a series of researches under the theme "traffic law enforcement" providing research grants for practitioners, researchers and scholars to come up with projects related to the enhancement of the traffic law enforcement, as part of a response to tackle the issues of traffic law violations that have contributed to a high rate of road traffic deaths and injuries. The primary objectives of the study are to assist the TRF in the evaluation of the outcome and impact brought by the research series, to indicate the success of the grant provided by the TRF, and to make recommendations for guiding the sponsorship for future researches in the furtherance of the TRF's mission goals. The study undertook both qualitative and quantitative analyses in assessing the research on the Effectiveness of Traffic Law Enforcement according to five different criteria, namely, relevance, effectiveness, efficiency, impact, and sustainability. The study found that the unit of analysis had met the first four criteria, while satisfying the criterion of sustainability had been found challenging due to factors such as time constraint, budget, and researchers' expectation.

**Keywords:** Research evaluation, Traffic law, Law enforcement, Impact, Outcome

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## Introduction

Thailand has been ranked as the country with “ the second highest road traffic fatality rate in the world at 36.2 per 100,000 with an annual estimate of over 24,000 deaths or 66 deaths everyday” according to the recent statistics of the World Health Organization (WHO) (World Health Organization, 2019). Just last year a long-distance cyclist, while taking part in a well-known national rally, was hit and killed by a van that ran a red light in one of the eastern provinces in Thailand. The van sped off right after the incidence. (Bangkok post, 2018) This case is just one of the common examples that indicates a serious problem of traffic law violations and enforcement in Thailand. The rising rate of traffic law violations across nation has contributed to great physical injuries, deaths (Royal Thai Police, 2018) and economic losses amount to 3 to 5 % of the national GDP (World Health Organization, 2019). While the government has sought to come up with new measures to improve road safety and public attitudes in respecting the law, the impacts of these measures are yet to be evaluated.

Considering the alarming rate of road fatalities the country has faced, the Thailand Research Fund (TRF) took an initiative to launch a series of researches under the theme “ Traffic Law Enforcement” providing research grants for practitioners, researchers and scholars to come up with projects in relation to the enhancement of the traffic law enforcement, with an aim to be part of responses to the serious issue of traffic law violations. With this respect, the Study on the Effectiveness of Traffic Law Enforcement was among other projects that received the grant pursuant to the theme. The project had been conducted and completed between 2014- 2015. The project proposed various combined solutions drawing collaboration from three primary areas, which deal with the operations of the police, the function of the court, and the civic culture.

Evaluating the products and impacts brought upon by the granted projects after their completion is part of the TRF’s mission goals to ensure the application and utilization of the researches’ outputs whether in a form of national policy, legislation, a cultivation of knowledge and social awareness. (Thailand Research Fund, 2013) These mission goals are based upon the principle of accountability, and to promote informed funding decisions where funding resources can be allocated in researches that generate social impacts. (Penfield, et al., 2014). The implementation of the researches’ outputs is also expected to create long-term impacts, especially in terms of the reduction in traffic road fatality rate. Pursuant to the TRF’s mission, this research evaluation project has the primary objectives (1) to assess the outcome and impact of the above-mentioned research, (2) to indicate the success of the grant provided by the TRF, and to (3) make recommendations for guiding the sponsorship for future researches in the furtherance of the TRF’s mission goals.

## Literature Review

### Impact Definition

The definition of “impact” is crucial to this evaluation project as defining the term helps define the scope and the expected outcome brought by the researches. While the term “impact” has been broadly defined, and variably depends on the focuses or objectives of the assessed projects, a specific definition must be required to help provide a standard for the assessment. In the evaluation process, there are different types of outputs that must be ascertained, such as knowledge, services, products, publications, or even initiatives to be translated into outcome (Penfield, et al., 2014). Therefore, outputs can be in both tangible and intangible forms.

For the purpose of this evaluation, the impact will be assessed based on the outputs such as policy recommendations, draft legislation and rules, and guidelines that have been designed to enhance better traffic law enforcement. As these outputs are primarily aimed at generating social impacts. The evaluators chose to adopt the definition of “impact” according to Research Excellent Framework (REF), which defines the term as “an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia.” (Penfield, et al., 2014). The impact in this context, therefore, refers only to positive changes or beneficial effects that the outputs brought upon the society. Therefore, the impact will be assessed along with research outputs within a specific context, whether within a certain period of time, or within a certain environment

### Conceptual Framework

Assessing the outcome and impact of a project is one of the critical steps for policy implementation whether at the national, local or organizational levels in order to monitor if the project is undertaken according to its primary objectives, accomplishes its goals, and is carried out efficiently. The assessment can help guide future policy decisions and practices. Although there are various methodologies and frameworks for evaluating researches, this study chooses to employ the method adopted by the Organization for Economic Cooperation and Development (OECD) which provides a description of design, implementation and use of assessment and evaluation procedures.

OECD has defined an “evaluation” as “the systematic and objective assessment of an on-going project or program, its design, implementation and results. The aim is to determine the relevance and fulfillment of objectives, development efficiency, effectiveness, impact and sustainability.” (Australian Development Agency, 2009) According to the definition, the evaluation criteria should contain five characteristics covering *relevance*, *effectiveness*, *efficiency*, *impact* and *sustainability*. (Australian Development Agency, 2009) 2) Each criterion has also been defined to assist the formulation of a set of questions necessary for the evaluation of the project as follows:

(1) Relevance is the criterion that aims to determine the relevance or connection in terms of the projects' primary objectives to the national, local and organizational policies, and to determine how well the outcome of each project fits the theme and the research series.

(2) Effectiveness is the criterion that aims to determine whether the output of a project has been carried out according to its primary objectives. Important questions such as how clear the projects' objectives are, whether these objectives are achieved, and how well the outputs correspond to these objectives, must be kept in mind.

(3) Efficiency is the criterion that usually aims at determining whether the objectives are achieved economically, or what the projects' outputs are in comparison to the resources that have been used. However, for the purpose of this evaluation, this criterion has been adapted to focus on the issues of the availability, access and sufficiency of the provided resources in order to maximize the outcome of the project.

(4) Impact is the criterion that takes into consideration the outcome of the project whether it has social, economic, cultural, technical or ecological effects. These effects can be positive, negative, intended or unintended.

(5) Sustainability is the criterion that determines whether the positive effects are capable of continuing or expected to be continue after the project has ended. (Australian Development Agency, 2009)

#### **Applicable Method for the Planning of the Research Evaluation**

Once the project evaluation criteria have been established, the next important step is to design the method for the evaluation. Key issues to consider for project planning include the determination of evaluation questions, indicators (basis for judgement), the determination of data sources and the methods of collection. (Japan International Cooperation Agency, 2004)

#### **Outcome-based Evaluation**

Patton (1997) pointed out the principle of an outcome-based evaluation, which should factor in stakeholders or target groups as well as the desired outcome. Within this process, stakeholders or target groups that are being affected must be indicated to help assess the outcome of the project. Examples of the target groups are such as drivers, motorcyclists, or pedestrians. With respect to the desired outcome, it is an indication of desirable changes in the target groups brought by the output of the project. These changes are such as a change of economic and social status, level of knowledge, skills, personal values and attitudes, or behaviors.

The utilization-focused outcome framework suggests important elements necessary for the evaluation. Among these elements, for the purpose of this evaluation, are (1) identification of specific participants, which take into consideration the objectives of the program, (2) identification of expected outcome, which requires certain clear statements of the targeted change whether in terms

of status, knowledge, attitudes or behaviors, (3) indicators for desired outcome, of which selection depend on available resources, timeframe, and data collection demands from the participants, (4) details of data collection, which requires the determination on the types of data to be used, the collectors and their responsibilities, the collection procedures and format, and (5) use, which is another component that helps ensure that the data collected will be useful for the evaluation (Patton, 1997).

## Research Methodology

### Research Design

The project evaluation uses both quantitative and qualitative analyses through the collection of primary and secondary data. The conduct of data collection has been properly approved by the Institutional Review Board (IRB) for ethical purposes.

### Unit of Analysis

The Study on the Effectiveness of Traffic Law Enforcement (Jitsawang et al., 2014)

### Research Instruments

Research tools used for the evaluation of the unit of analysis consist of

- (1) a questionnaire,
- (2) an interview guideline for a focus group, and
- (3) an interview form.

### Data Collection

For a quantitative analysis, the study uses a convenient sampling of population method in which the sampling is taking a portion of population as representative of that population in the Bangkok metropolitan areas consisting of 102 participants. As the study conducted surveys based on the target population as street users rather than residents in the areas, the target population cannot be pre-determined. Among the participants, 3 were below 20 years old (2.9%), 33 were between 20-29 years old (32.4%), 36 were between 30-39 years old (35.3%) 18 were 40-49 years old (17.6%), 9 were between 50-59 years old (8.8%), and 3 were above 60 years old (2.9%).

For a qualitative analysis, the study conducted an in-dept interview with TRF senior officers, and a focus group consisting of researchers involved in the projects evaluated, and relevant government officials.

### **Data Analysis**

The quantitative research was analyzed using descriptive statistics. The questionnaires are divided into two sections. The first section concerns personal information, and general opinions using a nominal scale. The second section consists of 8 and 9 questions concerning personal attitudes, feelings and conduct relating to traffic law violations, with each question answered using a rating scale that featured values from 1 to 3 points (1 = least agree, 2 = moderately agree, 3 = strongly agree)

Average scale 1.00 – 1.50 = least agree

1.51– 2.50 = moderately agree

2.51– 3.00 = strongly agree

### *Method for Evaluation*

By taking into account the primary objectives of the evaluation, which are (1) to assess the outcome and impact of the above-mentioned three research projects, (2) to indicate the success of the grant provided by the TRF, and to (3) make recommendations for the furtherance of the TRF's mission goals, the evaluation grids have been developed to answer the questions based on OECD's five criteria. The target values, such as national and organizational policies, research objectives, public attitudes and expectations, have been set as the basis of judgement.

The evaluation, however, faces certain limitations as the evaluation had not been planned by the TRF prior to the launching of these researches which had been undertaken between 2014-2015. As a result, data such as public attitudes and behaviors prior to the research projects were not collected making it impossible to evaluate changes in terms of the public attitudes and behaviors prior to and after the completion of the researches. In this respect, this type of "causal relationship" (before and after effects) is not employed for the purpose of this evaluation.

### **Findings**

The study found that the unit of analysis has satisfied the first three criteria for relevance based on relevant objectives, effectiveness based on goal accomplishment and efficiency based on accessibility and availability of resources, whereas the criteria for impact and sustainability based on lasting effects of the unit of analysis' output remains inconclusive due to time constraints.

### **Discussion**

In applying of the OECD's evaluation model containing five elements covering relevance, effectiveness, efficiency, impact and sustainability, the study can be elaborated as follows;

## Relevance

In the area of relevance, the study found that the unit of analysis has satisfied this criterion. In arriving at this conclusion, the research objectives of the unit of analysis are identified and described in the following paragraph.

The primary objectives of the unit of analysis are to conduct the study of the issues affecting effective traffic law enforcement throughout the legal process (arrests, ticket issuance, fine collection, prosecution, and alternative sentences), to examine factors contributing to weak law enforcement, and to propose approaches that help strengthening traffic law enforcement (Jitsawang et al., 2014).

These research objectives are analyzed in terms of their relevance to the policies and plans at three levels, namely (1) the national strategic plan, (2) the current national policies at the time of the research conducts, and (3) the organizational strategic plans and policies.

Under the umbrella of the national strategic plan, although coming out a few years later, these research objectives are still found to coincide with the second strategy of the plan on building its competitiveness in the areas of social and economic developments, and the third strategy on the capacity building of human resources, which covers the issues of creating strong citizenship (law-abiding and socially responsible citizens), and bridging the gap of inequality. (National Strategic Plan Act, 2018) The problems of traffic law violations, as mentioned in the introduction, has serious negative effects on the country's economic well-being as well as the people's quality of life, especially in the area of personal safety and property security. The death rate of vulnerable road users (pedestrians, cyclists and motorcyclists), which has been estimated to be as high as 83% of road traffic deaths (World Health Organization, 2019), without proper intervention, will continue to threaten Thailand's national competitiveness in the global economy.

With respect of the national policies, these research objectives have been found to match with (1) the policy for legal and justice administration reforms, which requires improving law enforcement, and the laws as required by current situations, (2) the policy on promoting life-long learning, which includes creating a "civic-minded culture", and (3) the policy on economic competitiveness and sustainability for better quality of life (Policy Statement of the Council of Minister, 2014). Along the line, the eleventh and twelfth National Economic and Social Development Plan (NESDP) also focus on human development, restructuring the economy toward quality and sustainable growth, and the management of natural resources toward sustainability. (Office of the National Economic and Social Development Board, 2012, 2017). "Creating good environmental quality, reducing pollution and minimizing impacts on people's health and ecosystems" as well as "increasing the efficiency of greenhouse gas reduction" form a major part of the twelfth NESDP's strategies which require the issue of traffic congestion being addressed effectively. (Office of the

National Economic and Social Development Board, 2017) The studies surrounding various forms of traffic law violations, ineffective traffic law enforcement, and proposals to help address these problems through the roles of the civil society, business entities, law enforcement agencies, and the judiciary are all in the same direction with these national policies, which also serve as a governing framework for research activities.

At the organizational level, the Royal Thai Police Strategic Plan for 2012-2021 stipulates the primary missions to improve law enforcement and justice administration, while being responsive to public needs, and increasing public participation and inclusion in the performance of their services (Royal Thai Police, 2011). The TRF Strategic Plan for 2014-2017 (revised 2016) also aims at promoting research issues that help enhance the country's competitiveness to meet the global and national current challenges. These key knowledges include the issues on climate change, health, inequality reduction, and good governance. And above all, its mission is to ensure that these research outputs will be implemented to create positive impacts to the society. These research projects under the theme of "Traffic Law Enforcement" can be perceived as supporting works for the Royal Thai Police, and are within the scope of important issues that the TRF prioritized.

**Table 1** Summarizing the Relevance Assessment

Project	Relevance					
	National Policies (during the research period)				TRF's Law Enforcement Research Series	Conclusion
RDG5740048						
The Study on the Effectiveness of Traffic Law Enforcement	National Strategic Plan	The Eleventh National Plan for Economic and Social Development	Royal Thai Police Strategic Plan B.E. 2555-2564	Thailand Research Fund Strategic Plan B.E. 2557-2560		
	4, 6, 9	1, 2, 4	1, 4	1	✓	Relevant

### Effectiveness

In the evaluation of effectiveness, the research objectives of the unit of analysis are still the core of analysis in answering the two primary questions, namely whether the research accomplished its goal, and secondly whether the research's output led to the accomplishment of the primary goals of the Research Series.

In responding to the first question, the study found that the unit of analysis has accomplished its goal in terms of its outputs that comprehensively respond to all the primary objectives.



For example, Unit 1 elaborates different factors affecting effective traffic law enforcement, which include the mentality of road users, the “city” environment, the complex and outdated legislation, the law enforcement forces and capacities, a lack of technological assistance, weak collaboration among the concerned government agencies, a lack of alternative sentences that aim at behavioral reforms, and the social media influences. The information surrounding these causes have been gathered and systemically analyzed to propose comprehensive solutions, namely improving the laws and the administration of the law enforcement such as establishing a traffic court, providing new channels for paying fines and alternative sentences, using social media and technology for better law enforcement and reducing bribes (Jitsawang et al., 2014).

All in all, considering the unit of analysis’ objectives, its outputs consisting of policy recommendations based on educational, legal, technological and social dimensions led to the accomplishment of the primary goals of the Research Series, as they aim at enhancing the traffic police officers’ roles and responsibilities, while seeking to boost their performances through the collaboration with the civil society and private entities in the area of law enforcement.

### **Efficiency**

For the efficiency criterion, as part of the determination of the proper funding, the evaluation focuses on the issues of the availability, access and sufficiency of the provided resources to the researchers in order to maximize the outcome of the projects.

As a result, the study found that the outputs generated by each of the three units are proportional to the resources provided. There could, however, be some areas of improvements, for the unit of analysis, such as the sufficiency of the fund for further researches in other affected areas. The units’ outputs have been viewed by the funder as satisfactory, given the limited amount of resources provided (TRF senior official’s interview, 28 May 2018). In this respect, the budgets have been spent according to the plans, and research methodologies. The unit of analysis was able to complete all the works within the specified timeframe due to an easy access to the research fund. (focus group, 9 November 2018). The resources have been spent according to the plan. The unit of analysis undertook both quantitative and qualitative studies, which involved substantial purposive sampling groups.

In conclusion, the criterion of efficiency is met based on the availability, access and sufficiency of the resources provided to the researchers, which resulted in completion of works within the required timeframes, and the outputs that are proportional to the resources required.

### **Outcome**

In the evaluation of the outcome of the unit of analysis, the impacts are measured through data collected from relevant documents, interviews, and questionnaires. The outcome evaluation is divided into two parts, firstly the utilization of the outputs, and secondly the impacts of the

outputs. For this purpose, the outputs of the unit of analysis will be identified in order to assess their impacts, which form a crucial part of this evaluation

The unit of analysis' outputs consist of policy recommendations, an academic course work, and a public seminar.

In terms of the utilization of the outputs, the unit of analysis' outputs have been utilized at different levels, through various forms, and in an integrated manner drawn from a legal, technological, and educational approach to create public awareness. At a national level, the policy recommendations have been translated into actual policies such as a vigorous enforcement of existing traffic laws, the increasing use of technology (traffic enforcement cameras), social media campaigns for various purposes such as condemning violators, whistle blowing, warning, and education, the facilitation to pay fines, data linkage between the department of transportation and police department. A public seminar on the topic concerning the cultivation of law abiding and socially responsible citizens was held to educate the public. At an organizational level, the output of the research has been partly incorporated into the undergraduate and graduate courses (Jitsawang et al., 2014).

In terms of the impacts of the outputs, the impact of the implementation of the unit of analysis' output is measured through a public survey and traffic case statistics. In the area of public knowledge, the study found that 83.3% of the population have seen stricter traffic law enforcement in their areas. While 28.4% have seen that there has been an increasing use of technology, only 7.8% indicated the decline in the use for law enforcement over the past two years. In addition, 40.2% of the population have seen that the increasing use of social media in comparison to 3.9% who indicated the decline in the use of social media for law enforcement. In the area of public awareness and attitudes, the study found that the public feared traffic law violations at a high level ( $M = 2.52$ ), felt ashamed when violating the laws at a high level ( $M = 2.59$ ), and would choose to violate the laws under certain circumstances at a moderate level ( $M = 1.80$ ).

In support of this finding, the statistics of traffic cases between 2015-2018 in the Bangkok metropolitan areas, although show the increasing number of cases between 2015-2016, which rose from 25,779 to 31,983 cases, the number of cases remains relatively unchanged between 2016-2017 (with 31,413 cases in 2017). The first half 2018, which is the only available statistics at the moment, indicates the possibility of a higher number with 18,595 cases (Royal Thai Police, 2018).

The impact of the unit of analysis' outputs is thus well supported by the quantitative study and the traffic law statistics, especially in terms of the public mentality and awareness about complying with traffic laws and regulations.

**Table 2** Summarizing the Outcome Assessment

Project RDG5740048 The Study on the Effectiveness of Traffic Law Enforcement	Utilization of the Project						Conclusion
	Policy/public/academic Uses			Impact Assessment			
	Researchers	Media	Public Survey	Researchers	Media	Public Survey	
	✓	✓	✓	✓	✓	✓	To a certain extent

### Sustainability

In the evaluation of the sustainability criterion, the sustainability of the outputs' impacts must be determined. There are, however, challenges in evaluating this criterion due to limited implementation of some of the outputs, and time constraint of the project evaluation (one-year period), which make the evaluation less complete.

The primary factors that affect the sustainability of the impact generated by the unit of analysis' outputs (policy recommendations, an academic course work, and a public seminar) are the public attitudes and mentality. Public shame and fear of traffic law violations, as indicated by the study, are good indicators of the likelihood of the sustainability of the impact. It will, however, require a certain period of time before the civic culture to sink in. Therefore, if the policy recommendations have consistently been implemented, it should help sustain the impacts.

There are many factors, especially the environmental and situational factors, to take into consideration that affect the sustainability of the impact brought by the outputs. The on-going public infrastructure construction projects, and increasing numbers of vehicles on the roads also contribute to serious traffic problems that encourage the violations and negligence of the laws, hence, breeding undesirable culture. A long-term evaluation for the sustainability of the impacts is also required to help address road fatalities in the long run.

### Conclusion

In conclusion, the TRF has achieved its important mission in supporting the utilization of research projects by providing the grant to this unit of analysis. In evaluating the outcome and impact brought by the unit of analysis, the study found that the unit of analysis has sufficiently satisfy the first three criteria for relevance, effectiveness and efficiency. Although it can easily be said that the research study passes at least 3 out of 5 criteria, the criteria that are most worth-discussing are the impact and sustainability that should carry as much weight in the determination of the success of the grant provided by the TRF.

The outcome and sustainability criteria may be more difficult to satisfy for the research study, especially for sustainability. While the unit of analysis' outputs have been found to be widely utilized at the government policy level, and create impact in the public mindset at a certain level, the sustainability of its outputs still face limitation, and cannot be determined within the evaluation. And because the evaluation had not been planned prior to the launching of the research series, the researchers involved were not fully aware of the expectation in terms of the lasting impact of their outputs.

## Suggestion

### 1. Suggestions for Research Utilization

With respect to recommendations for a policy guideline, as the utilization of research outputs and their impact are fundamental to the success of the TRF's grants, these goals must be clearly communicated to the researchers early in the process to help meet the funder's expectation. In addition, the evaluation should be conducted for a longer period of time for the assessment of the sustainability element to be fully comprehended. In addition, when presenting the outputs, there should be closer collaboration among the concerned government agencies, private sectors and citizens to encourage greater application of the research outputs.

### 2. Suggestions for Further Research

As this evaluation faces a limitation in the timeframe, which renders the evaluation for the element of sustainability to be inconclusive for the determination of the sustainability of its impact, further research is required for a longer period to help predict the sustainability of their impacts.

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