# Integration of Environmental Education and Environmental Law Enforcement for Police Officers

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### ABSTRACT

The purpose of this research was to establish an integrated model of environmental education (EE) and environmental law enforcement (ELE) to improve the efficiency of functional competency for police officers in Bangkok Metropolitan Police Division 9 (MBP Div. 9). The research design was mixed methods of quantitative and qualitative approaches including survey research, in-depth interview, focus group and action research. Data collection was performed firstly by questionnaire from 350 police officers, and in-depth interview from 3 advisory level officers, before designing the integrated model, then doing focus group, and evaluating the model efficiency by actual implementation with 50 police officers from 10 stations in MBP Div. 9. The data were analyzed by percentage, mean score ($\bar{X}$), standard deviation (S.D.), and t-test. The research findings revealed that most of Thai police officers were knowledgeable and skillful for the ELE, but low actualization on their role and responsibilities for the EE to preserve natural resources and environments. This is the reason why the integrated model to solve this problem was composed of 6 main factors including (1) Environmental Education: concept, principle, objective, approach, resource, and evaluation; (2) Policy; (3) Leadership; (4) Incentive: finance and non-finance; (5) Networking: associated worker, and environmental network; and (6) Environmental Law Enforcement: knowledge, and practice. After the model was available to 50 police officers for evaluating its efficiency, it appeared to be the effective model because its mean score after was higher than before implementation with statistically significant difference at 0.05. The practical recommendation is that most police officers need to obtain the EE to inspire their empowerment before performing the ELE to improve their functional competency on natural and environmental conservation.

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## Introduction

Environment is "*the Common Heritage of Mankind*" which concept is that all human beings have to preserve the environment to maintain their livings in good and proper environment sustainably. Thus, the current situation shows the illegal deforestation, forest encroachment, public area encroachment, animal and plant trafficking, natural resources and environmental smuggling including the pollution released to environment continuously from the group of influential people both domestically and internationally (Royal Thai Police, 2011; Department of Environmental Quality Promotion, 2006).

Environmental education is the educational process emphasizing physical environment and social environment knowledge both abstract and concrete to initiate the changes and affectations to human beings for establishing attitude, behavior, and values to conserve or develop the environmental quality, individual and people living quality (Weerawatananon, 1989).

Law enforcement is the process to prohibit destroying environment concretely which depends on the attitude of police officers. The researcher anticipates the process of law enforcement that police officers are still lack of understanding, skill and experience necessity for inspection, investigation, arrestment and inter-agency coordination. These agreed with other studies showing that the government officials (associated workers) responsible for law enforcement in national and local level conducted their duties ineffectively (Ratacharoen, 1999; Sakulworrawit, 2006; Wanapitak, 2011).

Environmental education process is used to create environmental awareness which is drive of police officers influent to their behaviors for obtaining attitude, knowledge, skill, participation and evaluation ability to preserve and develop natural resource and environment. The researcher has proposed the resolutions for police officers to be aware of environment effectively by developing the integrated model of environmental education and environmental law enforcement for police officers.

### *Research Objective*

The purpose of this research was to present an integrated model of environmental education and environmental law enforcement for police officers to increase their efficiency of functional competency with some other specific objective as the followings:

1. Studying the existing situations and the police officers' opinions related to environmental issues, and environmental law enforcement in the responsible area;

2. Designing the integrated model of environmental education and environmental law enforcement for police officers;

3. Evaluating the integrated model by actual performance to police officers from 10 stations under the Metropolitan Police Division 9 (MPB Div. 9)**.**

Theoretical concepts applied in this research are environmental education, law enforcement, integration concept, and crime control theory as the followings:

*Environmental Education Concept:* Environmental Education is defined in the same meaning whether it is the educational process provided to people to establish the knowledge and understanding related to physical and social

environment both abstract and concrete (Steidle, 1971; Stapp, 1979; Lucko, 1982; Weerawatananon, 1989; Chankaew, 1993; Rawang, 2009). This process will affect and influent into the people to create the awareness to be responsible and to cooperate in solving the environmental problem, also to develop their operational skill to prevent and protect the environmental quality affected to well-being sustainably. Therefore, it is agreeable to the objectives of workshop arranged by UNESCO (1976) which defined environmental education objectives including: 1) establishing awareness, 2) providing knowledge, 3) establishing attitude, 4) providing skill, 5) establishing assessment ability, and 6) strengthening the cooperation or participation. These objectives anticipate the people to be able to understand and create the attitude responding to environmental problems affected to their family and communities. People must contribute their responsibilities and behaviors to develop and solve the environmental problem maintaining well environmental quality.

*Law Enforcement Concept:* Law is a crucial tool to organize social to be integrity, both government organizations in the roles of regulatory body and private sectors including people and other private organizations who are assigned by law for being regulatory body and legal practices agency (Kruengarm, 1987; Pollakul, 1988; Saenguthai, 1995; Chansomboon, 1990; Mullikamarn, 1999). Therefore, the law defines the structure as norm and social behaviors. If there are violations of norm, there should be the procedures to suppress and correct those violations. Processes to regulate the criminal acts protecting the social are called Law Enforcement.

*Integration Concept:* Learning is the important factor of educational management. Persons involved in education have attempted to find educational method in educational management for the learners to change their learning processes. This aims the education will develop Thais to be well human-beings in physical, mental, intelligent, knowledge, moral and ethics. It cultivates people to realize their values, self-understanding, considerable and being able to solve the conflicts correctly and suitably by thinking in global and social holistically and creatively. The holistic learning management is the integration of learning management by various methods emphasized teaching in the actual situation, self-learning, conjoint learning, learning from nature, practical learning, measurement and evaluation correlated to learning activities by assessing the practices, and actual situations (Jessadawirote, 2005). Concerning the course integration, there are different formations depending on the objective of teaching and learning: 1) integration of knowledge and learning process, 2) integration of cognition and affection, 3) integration of knowledge and conduct, 4) integration of school learning with the actual life of the learners, and 5) integration of subject areas.

*Crime Control Theory:* This theory is emphasized on the effectiveness of the justice process related to crime control, crime detention and crime suppression respectively. Whereas the police officers are not able to control and suppress the crime or conduct legal penalties, people will expect that the peace would be lost from their society. Incredulity and lawlessness will be increasing, therefore the people who respect the law will be the victim of the crime and their liberty will be affected. The important objective of penalty process will provide guarantee to the society. To achieve that goal, efficiency improvement and enhancement of the justice system composing of investigation, criminal case, litigation, proven guilty

and being sentenced from judge are needed (Chansomboon, 1990; Saenguthai, 1995).

## Methodology

The scope of this study consists of several contents including environmental situation, environmental law enforcement, police officers' opinion on environment within the objectives of environmental education, and opinion on environmental law enforcement. Study area is in Bangkok focusing on the MPB Div. 9 composed of 10 Police Stations.

### Population and sampling

The main population of the research was 1,607 police officers. However, the samples in this research were divided into 3 groups composing of; 1) 350 police officers from the MPB Div. 9 by questionnaire collected and Taro Yamane's equation calculation used. 2) 3 advisory level officers in environmental law, environmental education and police officers who are expertise in environmental case penalty purposive, by structured interview. 3) 50 voluntary police officers working at MPB Div. 9 for assessment of the integrated model of environmental education and environmental law enforcement for police officers.

### Data collection

The data of this research has been collected both quantitative and qualitative from various sources by mixed method. The first set of data is the information obtained from the study, concepts, theory and documents concerning the integration of environmental education or environmental law enforcement for police officers to analyze and synthesize. Also, the second set of data obtained from the questionnaires of 350 police officers to analyze statistically: frequency, means, percentage and standard deviation. The third set of data is structured interviews from 3 advisory level officers to analyze both descriptive and content analysis statistically. Then the integrated model of environmental education and environmental law enforcement for police officers was synthesized and established by using processes as follows: 1) verifying the validity of data obtained from the questionnaire and interview, 2) collecting all data for analysis and synthesis, 3) drafting and delivering the integration of environmental education model to expert for quality assessment and consistency of model, 4) providing the integrated model to focus group verifying for the implementation, and 5) revising and reviewing model for efficiency assessment. The last data set obtained from integrated model efficiency assessment using statistical analysis; frequency, means, percentage, standard deviation and t-test analysis.

## Results and Discussions

The results of the study on the integration of environmental education and environmental law enforcement for police officers could be discussed as follows.

### Environmental situation and environmental law enforcement

The local environmental circumstances, there were low level problems of endangered fauna and flora trafficking, public area encroachment, and waste disposal. That related to a few local criminal case records of environmental law. Regarding local environmental law enforcement, there was low arrest of illegal

wildlife trade and deforestation. That related to a few local criminal and environmental case records were arrested.

The knowledge and understanding on environmental law of the police officers were in the average level. It related to the study on the knowledge and awareness of the noise and air pollutions environmental law for noncommissioned police officers under metropolitan police bureau showing that the knowledge of noncommissioned police officers about the noise and air pollutions environment law was moderate (Naksrisuk, 1996). Also, this research results related to study of the Lampang provincial polices had intermediate knowledge on the environmental law (Tangkritkul, 1997). There is study of knowledge and awareness of Chiang Mai police officers concerning environmental law enforcement illustrated that the knowledge of environmental law of Chiang Mai police officer was also in average level (Ratacharoen, 1999).

Besides, on the learning level of environmental education of police officers, they obtained average level. That related to the study of the learning level of teachers in the integration environmental education and 8-educational aspects were average (Worapong, 2008).

The police officers should be aware of the environmental law enforcement conserved natural resources and environment. That related to research on the knowledge and awareness of environmental law enforcement in Chiang Mai municipal police officers, they were average level (Ratacharoen, 1999). Moreover, Thai western part police officers had average awareness of environmental law (Sanguanpunyasiri, 1989). And other study stated that the police officers in traffic division had medium level of traffic and air pollution awareness in Bangkok (Chantaworaluck, 1996).

The environmental law provisions were separated and led to be non-systemic management. This related to the research of the environmental law which was distinguished by environmental problem issues: forest, water or air. Some problems were co-related but the enforcement of each law deals with these problems differently causing non-systemic problem management. (Wanapitak, 2011).

Lacking of law unity, many environmental laws were duplicated and the operations were done redundantly by various departments; the systemic cooperation was required. That was not different from the environmental circumstances, reports of the Pollution Control Department (2005), stated that many various government departments manage and solve the environmental problems created duplicated working, difficult in practices; the environmental law was carelessly enforced and ineffectively led to polluted problems. Moreover, other research found that the main threats of the ineffective environmental law enforcement was lacking of law unity. Many laws were duplicated in polluted operation but different illegal action; complicatedly enforce on the unclear law, authority, and officer's discretion (Nuanchawee, 1998; Sakulworrawit, 2006).

The policies of environmental law enforcement of police officers were not as important as other basic crimes. This agrees with the study that the police officers had less awareness of the environmental law (Ratacharoen, 1999). Most of the functions; arrest, inspection searches, or chief meeting, were about urgent crimes required by the Royal Thai Police Headquarters; important crimes and poverty not on the environmental law.

Police officers lacked of incentive; allowance, financial rewards, gratuity, or awards, to enforce environmental law. That related to Ratacharoen (1999); the department should praise the hard working police officers who worked on the environmental law; not only on crime operations. That reinforces police officers to enforce law effectively.

The police officers were not cooperated with the environmental network or other environmental law enforcement departments. The research of Sakulworravit (2006) suggested that the cooperation between departments was required for different problems solving. The sewerage standards of each department should be the same, and also the Regulations of the Office of the Prime Minister on Environmental Law Enforcement Cooperation B.E. 2550 emphasized on the corporations between private and government sectors to solve environmental problems and to urgently enforce the environmental law on civil cases, criminal cases, and administrative cases of the governmental departments.

About qualitative analysis, the main strength of police officers is responsible directly to suppress the illegal actions on natural resources and environment. Police organization could encourage officers to train officers on environmental law, publish environmental law enforcement handbook and so on. However, the significant weakness were the environmental law training not holistic conducted, lack of environmental awareness, and depreciated on environmental law enforcement. The important opportunities were people knowledge and awareness of environment increasing, strong environmental network, and high technology; the environmental news would be easily, fast, and thoroughly announced. The significant threats were, people poverty which might increase public area, forest, wildlife, and plant breaching. The law enforcement was not integrated.

## An integrated model of environmental education and environmental law enforcement for police officers

The synthesis on the integrated model of environmental education and environmental law enforcement for police officers used quantitative analysis, qualitative analysis, interview information, related documents, circumstances and suggestions from experts. These could develop the formation of integrated model into 7 units.  They were as follows; Unit 1: Introduction; the explanations of the integration of environmental education and environmental law enforcement for police officers by using theories and researcher's experiences then analyzed. Unit 2: Policy & Leadership; the integration of environmental education concepts, policy, and leadership. Unit 3: Environmental Education; concepts, process, local environmental circumstances, providing knowledge, understanding, creating environmental awareness to police officers. Unit 4: Environmental Law Enforcement; crucial environmental laws, the environmental law enforcement practices, and circumstances of environmental law enforcement. Unit 5: Incentive; definition of finance and non-finance, the integration of environmental education and incentive. Unit 6: Networking; the associated workers who enforced environmental law or environmental networking. Unit 7: Conclusion; conclusions of the integration of environmental education and environmental law enforcement for police officers. Those related other researches illustrated that there was the integration of environmental education and student's lessons (Worapong, 2008), and the integration of environmental education for sustainable agriculture (Thawornratana, 2009).

The integration of environmental education and environmental law enforcement for police officers to achieve objectives of environmental education is able to appraise and illustrate in Figure 1.
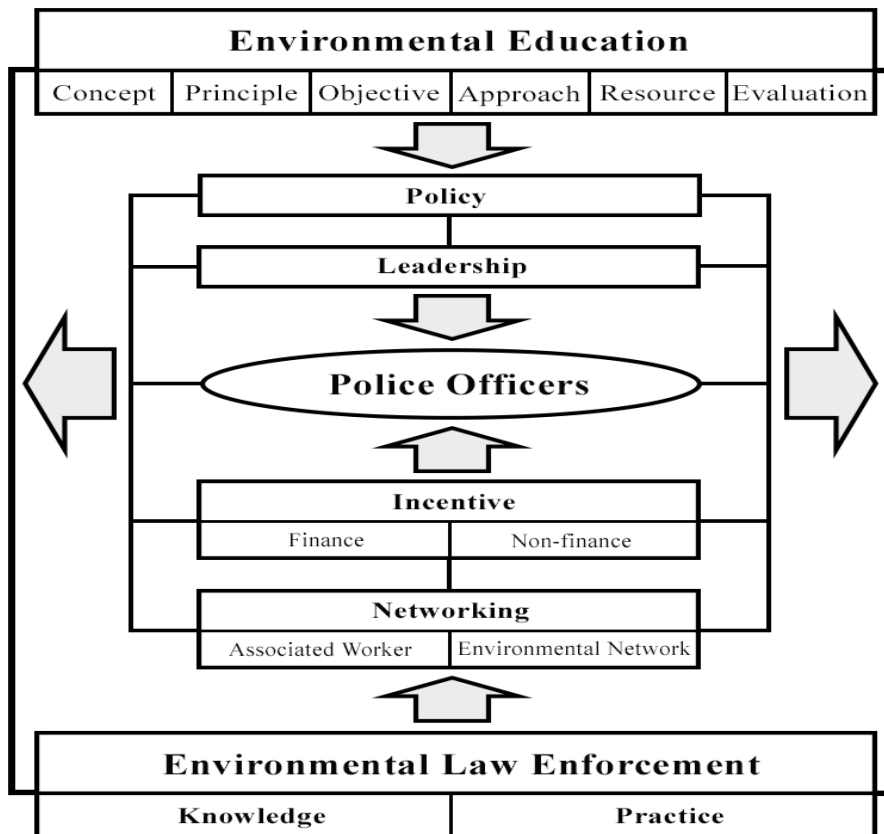


**Figure 1.** An Integrated Model of Environmental Education and Environmental Law Enforcement for Police Officers

According to Figure 1, the integrated model of environmental education and environmental law enforcement for police officers, the purposes were improving police officers to effectively integrate environmental education and environmental law enforcement for sustainable community and social development.

Before running development of police officers to integrate the environmental education and environmental law enforcement, the primary circumstance studies were needed. There were 2 aspects; community circumstance and environmental law enforcement in the community. Those led to the integration of environmental education and environmental law enforcement for police officers. These are prior knowledge of police officers.

Integration was applying environmental education integrated to environmental law enforcement via process of environmental education. That emphasized on thinking process, analysis, solving problem, and making decision.

The environmental education which was integrated to law enforcement was the environmental learning process. The learners obtained knowledge, understanding, awareness, attitude, principle, skill, participation, and evaluation abilities, and also law and practices. The learners achieved the environmental education's purposes and effectively enforced environmental law.

Moreover, the significant factors found to be effective for law enforcement of the police officers were policy, leadership, incentive, and networking. 1) *Policy* was important for operations. The environmental law enforcement required clarity, circumstance related, appropriate resources management, and operational possibility. Then the officers could effectively achieve and respond for people's and society's needs. It related to fast changing tendency. The policy creator should have environmental knowledge and related learning process to the environmental education purposes. 2) *Leadership and policy implementation*, the chief paid attention to bringing the policy into enforcement of the environmental law. The chief required appropriate leadership for the organization. The chief had to lead police officers to realize their important roles of environmental law enforcement effectively. 3) *Incentive* for police officers, it was given to the police officers via; allowance, financial reward, gratuity, awarded, or subsidy from the National Environmental Funds. Besides, incentive could be admiration, excellent officer award, salary-raising, and promotion. 4) *Networking* is the associated workers and environmental network organizations. It is important for the cooperation networking among law enforcement organizations such as Forest Department, Department of National Parks, Wildlife, and Plant Conservation, environmental department in the local government, non-government organization, and other national and international environmental foundations such as Wildlife Foundation, Department of Environmental Quality Promotion, World Society for the Protection of Animals (WSPA), and Thailand Environmental Foundation.

Therefore, the police officers could integrate the environmental education and environmental law enforcement and create their own environmental awareness that would be a sustainable environmental development.

## Efficiency Evaluation of the integrated model of environmental education and environmental law enforcement for police officers

The research aimed to measure the effectiveness of the Integration of environmental education and environmental law enforcement for police officers. The researcher had planned the training of the integration of environmental education and environmental law enforcement which was developed for 50 police officers from the MPB Div. 9; 10 police stations with 5 police officers each as the operated group. The process and consequences were as follows;

The comparison of environmental education knowledge level of police officers before and after training by applying the integration of environmental education on environmental law enforcement model (Table 1) found that the levels were increased in awareness (from 2.70 to 3.02), attitude (from 2.76 to 3.25), knowledge (from 2.61 to 3.22), skill (from 2.91 to 3.39), participation (from 2.88 to 3.34) and evaluation ability (from 3.02 to 3.49) respectively. The total comparison on environmental education knowledge has the significant at the level of 0.05, comparing between the mean, before and after training increased from 2.79 to 3.26 successively.

**Table 1.** Mean scores of pre-test and post-test in all aspects of environmental education learning

| Aspect | Pre-test (n=50) | | Post-test (n=50) | | t | Sig |
|---|---|---|---|---|---|---|
| | Mean | S.D. | Mean | S.D. | | |
| 1. Awareness | 2.70 | 0.45 | 3.02 | 0.40 | 7.361* | 0.000 |
| 2. Attitude | 2.76 | 0.37 | 3.25 | 0.38 | 6.988* | 0.000 |
| 3. knowledge | 2.61 | 0.49 | 3.22 | 0.44 | 7.195* | 0.000 |
| 4. Skill | 2.91 | 0.50 | 3.39 | 0.49 | 5.156* | 0.000 |
| 5. Participation | 2.88 | 0.64 | 3.34 | 0.58 | 4.561* | 0.000 |
| 6. Evaluation ability | 3.02 | 0.63 | 3.49 | 0.54 | 4.778* | 0.000 |
| Mean | 2.70 | 0.16 | 3.26 | 0.16 | 14.703 | 0.000 |

**Note:** 1. The scale shown between 1-5 represents: 1 = poor, 2 = below average, 3 = average, 4 = above average, and 5 = excellent 2. Data were analyzed using a paired t-test (*indicates post values are significantly higher than pre value at p=0.05)

The environmental education knowledge and understanding levels of police officers before and after training on the integration of environmental education and environmental law enforcement (Table 2) were significantly different at 0.05; the average value increased after being trained. That related to Worapong (2008), the teacher's learning of the integration of environmental education and 8-education aspects.

The total comparison on environmental education understanding, before and after attaining the training course had the significant at level of 0.05 by obtaining the average increased from 10.30 to 12.22.

**Table 2.** Comparison of pre-test and post-test mean scores of police officers in terms of knowledge and understanding about environmental law

| Variable | Pre-test (n=50) | | Post-test (n=50) | | t | Sig |
|---|---|---|---|---|---|---|
| | Mean | S.D. | Mean | S.D. | | |
| Knowledge and understanding about environmental law. | 10.30 | 1.82 | 12.22 | 1.39 | 11.385* | 0.000 |

**Note:** 1. Scores shown between 0-15; 2. Data were analyzed using a paired t-test (*indicates post values are significantly higher than pre value at p=0.05)

From Table 3, the research found that, the environmental law knowledge and understanding levels of police officers before and after training by using the integration of environmental education and environmental law were significantly different at 0.05; the average value increased after being trained.

For the environmental law enforcement, total comparison before and after attaining the training course had the significant at level of 0.05. The average of the environmental education understanding was increased from 2.89 to 3.24. The process of environmental law enforcement was increased from 2.91 to 3.21. Lastly, the networking had improved from 2.90 to 3.21, respectively.

**Table 3.** Comparison of mean scores between pre-test and post-test in all aspects of environmental law enforcement

| Environmental law enforcement | Pre-test | | Post-test | | t | Sig |
|---|---|---|---|---|---|---|
| | Mean | S.D. | Mean | S.D. | | |
| 1. Knowledge and understanding of environmental law | 2.89 | 0.40 | 3.24 | 0.37 | 5.895* | 0.000 |
| 2. Environmental law enforcement procedure | 2.91 | 0.56 | 3.21 | 0.44 | 4.632* | 0.000 |
| 3. Environmental networking | 2.90 | 0.52 | 3.21 | 0.47 | 6.890* | 0.000 |

**Note:** 1. The scale shown between 1-5 represents: 1 = poor, 2 = below average, 3 = average, 4 = above average, and 5 = excellent 2. Data were analyzed using a paired t-test (*indicates post values are significantly higher than pre value at $p=0.05$)

The research found that, the environmental law enforcement knowledge and understand levels of police officers before and after training were significantly different at 0.05; the average value increased after being trained.

Consequently, the integration of environmental education and environmental law enforcement for police officers after being trained had higher environmental knowledge at significance level of 0.05; awareness, attitude, knowledge, skill, participation, and evaluation abilities. The knowledge and understanding levels of environmental law of police officers after being trained had higher environmental law knowledge at significance level of 0.05. The knowledge and understanding levels of environmental law enforcement process were higher at significant level of 0.05.

## Conclusions and Recommendations

### Conclusions

The purpose of this study is to present an integrated model of environmental education and environmental law enforcement for police officers by gathering the information and data from the study of environmental situation, the enforcement of environmental law, the level of environmental education knowledge and the knowledge of environmental law of police officers. The mixed method is used to synthesize and analyze the integration model for effective law enforcement by gathering data from questionnaire, efficiency assessment form, structured interviews and focus group.

The integrated model consists of major crucial factors including 1) environmental education i.e. conceptual, principles, objectives, approach, resource and evaluation; 2) environmental law enforcement i.e. knowledge and practices 3) policy, 4) leadership, 5) incentive (finance, non-finance), and 6) networking (associated workers, environmental network).

After implementing the model by conducting the training program to voluntary police officers, it is found that their knowledge of environmental education level is increased in awareness, attitude, knowledge, skill, participation and evaluation ability. Therefore, the police officers fully understand their own roles and responsibilities concerning environmental law enforcement to preserve the natural resources and environment sustainably.

## Recommendations

i. Most police officers in MBP Div. 9 need to be trained by environmental education process for inspiring their self-actualization in environment before developing their functional competency or responsibility.
ii. This integrated model of environmental education and environmental law enforcement should be generalized to some other divisions of police officers.

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## Disclosure statement

No potential conflict of interest was reported by the authors.

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## References

Chankaew, K. (1993). *Environmental education.* Bangkok: Aksorn Siam Kanpim Printer.

Chansomboon, A. (1990). *Law Enforcement: 3rd Dimension's Law.* Journal of Administrative Court.

Chanthaworaluck, C. (1996). *The knowledge and awareness of police officers in Thai Traffic Police related to land traffic law and air pollution from vehicle in Bangkok.* Bangkok: Mahidol University. Nakhon Pathom.

Department of Environmental Quality Promotion, (2006). *Annual Environmental Quality Reports.* Bangkok.

Jessadawirote, S. (2005). *Integrated Teaching Management.* 2nd Edition. Bangkok: Book Point Ltd.

Kruengarm, V. (1987). *Constitution law.* Bangkok: Nitibannakarn.

Lucko, B., Disinger, J. and Roth, R. (1982). *Environmental of Education Programmes at the Elementary and Secondary School Level.* Journal of Environmental Education. 13(4), 8.

Mullikamarn, S. (1999). *Constitution and Thai people participatory in natural resources and environment conservation.* Bangkok: Chulalongkorn University Printer.

Naksrisuk, P. (1996). *The knowledge and awareness of warrant level police officers in Metropolitan Police Bureau on environmental law concerning sound and air pollution.* Bangkok: Mahidol University. Nakhon Pathom.

Nuanchawee, K. (1998). *GIS for Natural Resources Management and Environment (Operator).* Environmental Research and Training Center, Department of Environmental Quality Promotion.

Pollakul, P. (1988). *Thai constitution documentation.* Bangkok: People.

Pollution Control Department, (2005). *Thailand State of Pollution Report.* Bangkok.

Ratacharoen, V. (1999). *The knowledge and awareness of Chiang Mai police officers concerning environmental law enforcement.* Chiang Mai University, Chiang Mai.

Rawang, W. (2009). *Systematics Science of Environmental Education.* Ph.D. Program in Environmental Education, Mahidol University. Nakhon Pathom.

Royal Thai Police. (2001). *Database of criminal case.* Central Information Technology Center.

Saenguthai, Y. (1995). *Basic law.* 12th Edition. Bangkok: Prakaipruek Printer.

Sanguanpunyasiri, S. (1989). *The knowledge and awareness of police officers in Western part of Thailand concerning environmental law.* Mahidol University, Nakhon Pathom.

Sakulworrawit, C. (2006). *Problems and obstacles in environmental law enforcement: case study of water pollution.* Bangkok: Thammasart University. Bangkok.

Stapp, W. and Cox, D. (1979). *Environmental Education: Strategies Toward a More Livable Future.* New Yorks: John Willy &Sons Inc.

Steidle, Walter E. (1971). *The Environmental Education Act.* Science and Children Journal. March, 21-22.

Tangkritkul, W. (1997). *The knowledge and understanding of environmental law enforcement of Lampang police officers.* Chiang Mai University, Chiang Mai.

Thawornratana, C. (2009). *Environmental education for sustainable agriculture management pollution.* Bangkok: Mahidol University. Nakhon Pathom.

UNESCO. (1976). The Belgrade Charter. *Connect UNESCO-UNEP Environmental Education Newsletter*, 1(1), 2.

Wanapitak, W. (2011). *Advanced environmental law.* Teaching document, Department of Jurisprudence, Sukhothai Thammathirat Open University.

Weerawatananon, V. (1989). *Environmental education processes.* Bangkok: Odient Store Publisher.

Worapong, S. (2008). *The integration of environmental education for basic education level teachers.* Mahidol University, Nakhon Pathom.