

## Knowledge Development and Police Involvement in Natural Disasters: A Case Study of Tsunami

Colonel Chatchanan Leeratermpong<sup>1</sup>

### Abstract

The current study focuses on knowledge development and police involvement in tsunami risk areas. Its objectives are to increase the level of police's knowledge in relief operations in the aftermath of tsunami disasters and increase the level of people's knowledge on tsunami preparedness and relief thereof. There are two sample groups; group 1 (PCG) is comprised of thirty 2<sup>nd</sup> year cadets from the Royal Thai Police Cadet Academy, and group 2 (RPG) is comprised of 180 residents and police officers from six tsunami-prone provinces, namely, Krabi, Trang, Satun, Ranong, Phang Nga and Phuket. Both groups were participating in the project "The Knowledge Development to the Public and Police Involvement in natural disasters: tsunami". The study instruments are before and after training achievement tests on tsunami prevention and mitigation and post-training satisfaction feedback questionnaire. Data were analysed by frequency, percentage, mean, standard deviation, and paired t-test. The study results indicated that the average pre-training score of PCG was 16.27, while that of RPG was 13.89. The average post-training knowledge score of PCG increased to 23.43, and that of RPG increased to 20.53. The paired t-test scores of both groups increased after post-training indicating that training has improved their knowledge on tsunami preparedness and relief involvement. And post-training satisfaction feedback evaluation showed that the average score of PCG on satisfaction with location/duration/food was very good ( $4.58 \pm 0.47$ ), while that of RPG in knowledge application was also very good ( $4.51 \pm 0.57$ ).

**Keywords:** Knowledge Development, Police Involvement, Natural Disasters, Tsunami

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<sup>1</sup>Assoc, Faculty of Police Science

Royal Police Cadet Academy, 90 M.7 Sampran, Nakorn Pathom 73110.

E-Mail: pui.rpca@gmail.com

## Introduction

On December 26, 2004 Thailand was hard hit by tsunami waves which caused tremendous loss of lives and properties. It affected about 58,550 persons, – 5,395 dead, 8,457 injured, and 2,817 missing. The tidal waves also affected coastal resources in Andaman Sea. Specifically, the coral reefs were heavily damaged by the waves of water and sand sediment (Asian Disaster Preparedness Center, 2010). The Royal Thai Police is an important agency and works closely with the public in complying with a duty of guarding public order and helping the public in case of any incidents or disasters under section 7 of the Royal Thai Police Act, 2004. The Royal Thai Police promotes local and community involvement in police affairs to maintain order and safety of the public. The Royal Police Cadet Academy organized a training program to educate police cadets on the right responses, preparation, and relief operation in the event of a tsunami so that they would gain knowledge and skills in serving the public when such disaster strikes (Fogelson, 1977). Before graduation and working as police officers, they have to be trained to abide by their duties to build trust with the public and serve as friendly

facilitators to establish good mutual relationship with the public.

Therefore, the researcher has developed a research project called "The Knowledge Development and Police Involvement in Natural Disasters: A Case Study of Tsunami" to improve knowledge and promote police involvement in tsunami risk areas and to increase the level of public knowledge on preparedness and relief operation in the event of a tsunami disaster.

## Materials and Methods

### 1. Research content scope

This research is a Participatory Action Research (PAR) as following;

1.1 The conference, seminar on knowledge management and the test of knowledge and ability of police officers and sample population on their involvement in preparation and relief operation in the event of a tsunami disaster.

1.2 Preparation manual for police officers and public involvement in the preparation and relief operation in the event of a tsunami disaster. It is aimed to transfer knowledge to the police officers and sample population for such situations.

1.3 Determining relevant network groups and offices in each area that can

provide immediate warning and assistance in the event of a tsunami. These network groups include the Asian Disaster Preparedness Center, Thai Meteorological Department, Armed forces Disaster Relief Center, National Disaster Warning Center, Disaster Relief Center of Minister of Defence, Department of Disaster Prevention and Mitigation, Regional and Provincial Disaster Prevention and Mitigation Centers, National and Provincial Tsunami Warning Centers and Civilian Volunteers.

1.4 Assessment of the success of the project by post-training satisfaction feedback questionnaires from the participants.

## **2. Sample scope**

This research has two sample groups as following:

Group 1: Purposively sampled thirty 2017 2nd year police cadets of the Royal Police Cadet Academy.

Group 2: Purposively sampled local residents and police officers in six tsunami-

prone provinces, 30 people each, totalling 180 people.

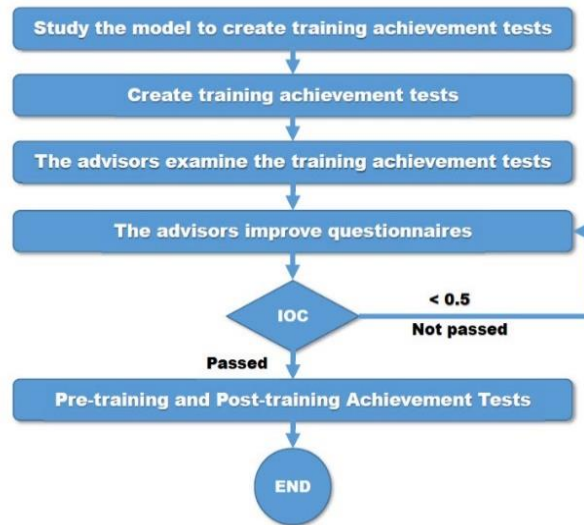
## **3. Research areas scope**

The research locations are tsunami-prone areas in six provinces in Thailand, namely, Ranong, Phang Nga, Phuket, Krabi, Trang and Satun.

## **4. Research Instrument**

The researcher has developed knowledge tests and post-training satisfaction assessment as research instruments as following:

4.1 Developing pre-training and post-training achievement tests based on guidelines and practices relating to preparation and relief operation in the event of a tsunami disaster. This is a knowledge test in 30 multiple-choice questions. Each question has four choices. The achievement test will be administered before and after the training. Figure 1 exhibits steps in developing the training achievement tests.



**Figure 1.** The procedure to create before and after training achievement tests based on guidelines and practices relating to the preparation and relief operation in the event of a tsunami disaster.

4.2 Developing test questions from guidelines in preparedness and relief operation in the event of a tsunami disaster.

4.2.1 Determining the weight and number of tests

The researcher has created a table to analyse behavioural objective weight. The resulting range of behavioural level were knowledge recall, understanding, implementation, analysis, synthesis, and evaluation (Srikanlayaniwat, 2016). This assessment form showed the details of the lessons and behavioural objectives of each unit.

4.2.2 Testing to determine the weights in the table

A test based on behavioural level was administered to ensure that it was consistent with the learning level of the six factors (i.e., knowledge recall, understanding, application, analysis, synthesis, and evaluation). A separate test was then used to test the sample.

4.2.3 Determining question format

The researcher created a test based on the behavioural objective of the training manual relating to the preparation and relief operation in the event of a tsunami disaster. This is a 4-choice multiple-choice test. A correct answer will get one point, while an incorrect or incomplete answer, will get zero point.

#### 4.2.4 Writing the test

The researcher has written the test according to six behavioural purposes.

#### 4.2.5 Reviewing the test

The researcher reviewed the test for accuracy and terminologies. Necessary modifications were administered.

#### 4.2.6 Reviewing updated tests with advisors

Advisors reviewed tests for further suggestions and revisions upon validity and reliability before finalizing the tests.

#### 4.3 The questionnaire on post-training satisfaction feedback

The questionnaire was composed of 3 parts as following.

Part 1 General status.

Part 2: Satisfaction level.

Part 3: Suggestions.

The questionnaire employed a quantitative measurement with 5-level evaluation based on Likert scale (Likert, 1967), where five to one consecutively implied the highest to lowest level of satisfaction.

## Results

The average score of the pre-training achievement test of 30 police cadets group (PCG) was  $16.27 \pm 15.41$ , and increased to

$23.43 \pm 20.53$  after training. While the average score of the pre-training achievement test of 180 local residents and police officers from six participating provinces group (RPG) was  $13.89 \pm 6.92$ , and increased to  $20.53 \pm 2.64$  after training. Overall, both groups have increased their scores after training indicating that participants have improved their knowledge on preparedness and relief operation in the event of a tsunami disaster (Lert5songkram, 2007). More specifically, skills and knowledge improvement were evidenced in mitigation preparedness equipment, network preparation for helping victims, and the speed of communication between agencies in case of disaster.

The post-training satisfaction feedback assessment of both groups with guest speaker were good. Satisfaction in knowledge implementation of PCG and RPG were good and very good respectively. Satisfaction with respect to location, duration and food of PCG and RPG were very good and good respectively.

## Discussions

The results of pre-training and post-training achievement tests and post-training satisfaction assessment indicated that the

training program was a success. The participating police cadets, police officers, and local residents from tsunami-prone provinces of Krabi, Trang, Satun, Ranong, Phang Nga and Phuket have improved their knowledge on preparedness and relief operation in the event of a tsunami disaster. With greater knowledge and help from relevant agencies, namely, the Asian Disaster Preparedness Center, Thai Meteorological Department, Armed forces Disaster Relief Center, National Disaster Warning Center, Disaster Relief Center of Ministry of Defence, Department of Disaster Prevention and Mitigation, Regional and Provincial Disaster Prevention and Mitigation Centers, National and Provincial Tsunami Warning Centers and Civilian Volunteers, impact of natural disasters such as tsunamis could be minimized.

## Conclusions

Based on results, it can be concluded that trainings similar to the one implemented in this study are instrumental in improving knowledge of police officers and local residents in terms of preparedness and correct responses in case

of tsunami. Therefore, local residents in tsunami-prone provinces should be provided with training or education on regular basis for them to get knowledge and be prepared when tsunami waves strike. Additionally the testing method and training program in this study can be used as basis to create training curricula for students and the public.

As for future researches, training projects should be further developed to improve training outcomes and practical applications. Promotion and development of disaster-related trainings should be regularly conducted in disaster-prone areas. Additionally, training programs should also be organized in other areas where disaster has not yet occurred, as the world is changing due to global warming and various causes, natural disasters can happen anywhere, anytime and they can be even more violent. Lastly, as the police force has access to communities, there should also be promotional programs on police involvement in increasing awareness on preparedness and relief operation in events of natural disasters other than tsunamis.

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