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ATRANS
ASIAN TRANSPORTATION RESEARCH SOCIETY

The Development Potential for Traffic Accident Prevention of Stakeholders in Communities beside Highways in the Northeast of Thailand

November 2008

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The Development Potential for Traffic Accident Prevention of Stakeholders in Communities beside Highways in the Northeast of Thailand

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Abstract

Background:

Over 3,000 people die each day in traffic accidents, and tens of millions more are injured.

Method:

Participatory action research was divided into 3 phases. In the Itui sub-district, Yang Talad District, Kalasin Province, 50 stakeholders and 247 students participated in the study. Data were collected by questionnaire, and by using Future Search Conference methods including the Hiyari-Hatto method. Content analysis and descriptive statistics, as well as paired t-tests and the Pearson Product Moment Correlation Coefficient were used for statistical analysis of the data.

Research Results:

Phase 1

Past Situation: Many problems were observed in the research locale: crashes, drunk driving and falling asleep whilst driving, overloaded trucks, lack of signals at intersections, insufficient training, racing, lack of traffic lights, non-use of helmets, non-standard roads, excessive speed, animals, and unlicensed driving.

Present Situation: The same problems remain, but there is now increasing awareness and concern among the stakeholders. The Hiyari-Hatto method results identified 15 potentially dangerous locations.

Future Expectations: There is a need for training, strong law implementation, elimination of drunk driving, limiting speeds, increasing awareness, vehicle inspection, improving and widening of roads, introduction of better safety guidelines, appropriate budget allocations, helmet and safety belt use, and more rescue volunteers.

Phase 2

The development potential programs for traffic accident prevention among stakeholders were conducted. The content of potential programs for developing traffic accident prevention depend on the study of problems and the assessment of the needs identified in Phase 1, i.e., identification of driving license training, traffic volunteer training for students in four schools, training of both stakeholders and students, distribution of handbooks, holding of meetings, planning, public relations, and discussion.

Phase 3

All stakeholders implemented traffic accident prevention programs in schools and communities located beside highways, such as public relations advertisements at risky locations, local broadcasting, essay competitions to raise awareness of traffic accident prevention, traffic accident prevention competitions among villages, and warning campaigns or advertisements in the risky locations based on the results found by Hiyari-Hatto information gathering method.

Traffic accident prevention scores on knowledge, attitudes, beliefs, intention and practice were higher after implementation; significant changes were observed for both stakeholder and student groups. In addition, intention was significantly correlated to safety behaviors. The numbers of deaths and injuries from traffic accident are now decreasing.

Conclusion: The traffic accident prevention model requires situation analysis, followed by a development potential program, its implementation by stakeholders, and academic support from researchers. All of these steps lead to success for traffic accident prevention behavior, and to decreasing numbers of death and injuries.

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Chulaporn Sota
(Project Leader)

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List of Abbreviations

ADB ····· Asian Development Bank
ASEAN ····· Association of Southeast Asian Nations
COWI ····· Consultancy within Engineering, Environmental Science and Economics
CRY ····· Coalition for Road Safety
EMS ····· Emergency Medical Service
FSC ····· Future Search Conference
GIS ····· Geographic Information System
GNP ····· Gross National Product
GPS ····· Global Positioning System
HSEP ····· Highway Safety Enhancement Project
IATSS ····· International Association of Traffic and Safety Sciences
MARC ····· Mobility, Attitudes, Risk and Behavior (in French)
NHTSA ····· National Highway Traffic Safety Administration
NIMSS ····· National Injury Mortality Surveillance System
PCF ····· Primary Collision Factor
PI&E ····· Public Information and Education
RSA ····· Road Safety Auditing
RTA ····· Road Traffic Accident
RTI ····· Road Traffic Injury
SPSS ····· Statistical Package for the Social Sciences
TPB ····· Theory of Planned Behavior
WHO ····· World Health Organization

CHAPTER 1 INTRODUCTION

1. Introduction

1.1 Background and Significance of the Problem

Road safety is no accident. Over a million people are killed each year on the world's roadways: over 3,000 die each day, and tens of millions more are injured. Road traffic-related crashes impose an enormous public health burden globally. In 2000, road traffic injuries were the ninth leading cause of disability-adjusted life years lost worldwide and are projected to become third by 2020. The World Health Organization (WHO) has taken a bold step forward by addressing road traffic injuries as a preventable global health problem (Peden et al., 2001).

A comparison of traffic accidents among ASEAN countries showed that Malaysia has the highest fatality rate (25.0 per 100,000 population) and Thailand is second (22.9 per 100,000 population). The trend of the number of accident fatalities per 100,000 population and per 10,000 vehicles during 1997-2007 have remained stable up to the present, without any decrease (Atsushi Fukuda, 2006 and Pichai Taneerananon, 2008), although Thai government has issued alerts to alleviate this serious problem.

Traffic accidents are one of the leading causes of death in Thailand. According to an ADB-ASEAN report released in March 2004, the average economic cost of one traffic accident death is about 2.85 million baht. In addition, there is also the inestimable psychological damage (Thai Health Promotion Foundation, 2008), confirming that traffic accidents impact human physically, mentally and socially, including his/her prosperity and quality of life.

The first National Socio-Economic Development Plan of Thailand was established in 1961. This caused Thailand to develop rapidly in all aspects, such as transportation, industry, agriculture, etc. The government, however, had no national accident prevention plan, and as a result the increased development gave rise to more traffic accidents and thus patients. In this sense, it could be said that traffic accidents are a form of a disease caused by the increase in development from 1969 to present. Traffic accidents are a major cause of death and the trend increases rapidly every year. Most deaths occur in youths, with about 20,000 cases per year (Vichit Booryahotara, 1993).

Traffic accidents are a serious problem in every province in Thailand. This leads to public health, economic and social problems. In the years 2003 and 2004, there were 65,932 and 86,528 accidents, respectively, with 46,035 and 80,305 injuries and 11,252 and 13,836 deaths. Traffic accidents have been the third cause of death from 1969 to present and the number increased to 13,996 deaths and 973,104 injuries in 2006 (Ministry of Public Health, Thailand, 2006). The trend of traffic accidents continues to increase rapidly despite the Thai government's efforts to tackle traffic problems.

CHAPTER 1 INTRODUCTION

Accidental deaths are increasing rapidly. Thai deaths, in the year 2000 were 13,194 cases or 21.4 per 100,000. The number of injuries who needed treatment in all government hospitals was 921,352 cases, 90 percent of all injured patients, representing the major cause of death below 50 years old and mostly affecting males. For both injuries and deaths, more than 80 percent were drivers or passengers, and the majority were motorcyclists. The most severe and highest number of causes of death were from head and facial injury (Shamaiporn Santikarn, 2002).

The number of accidents in developing countries is 10-40 times higher than that in developed countries. This is because developed countries have been able to control and prevent increases in the rate of traffic accident deaths. Developing countries, however, do not make sufficient effort to control this problem, resulting in needless premature deaths (Vichit Booryahotara, 1993). Injury surveillance and traffic research have found that accidents are the main cause of death in males, outnumbering female accidental deaths at a ratio of 3.2:1, and among the 15-29 age group, the blue-collar labor group, and among those who exhibit risky behaviors, such as not wearing helmets while riding motorcycles or being drunk while driving (Epidemiology Division, 2000).

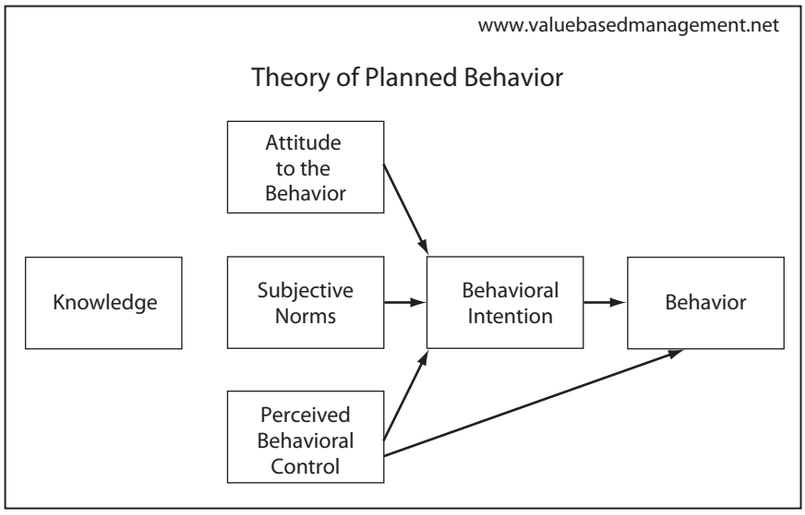
Our research group is concerned about this serious problem, and we would like to study the development potential of traffic accident prevention among stakeholders in communities situated along highways by applying the Future Search Conference and Hiyari-Hatto approaches to strengthen traffic accident control in schools and communities, thereby reducing the rates of traffic accidents, mortality and disability and contributing to better quality of life for people and the and improving society.

Also, our research group applied the theory of planned behavior (Figure 1) to our study and sought to modify behavior for traffic accident prevention, focusing on knowledge, beliefs, attitudes and intentions that might affect traffic accident prevention behaviors.

Future Search Conference as a Vehicle for Educational Change: A shared vision, action and planning process, the conference designs components (past, present, future and planning), successful outcomes, and lessons learned (Bailey, 1992). It raises concerns among people regarding current problems and challenges for development. For detailed information, see Reference Information.

Hiyari-Hatto (Fukuda, Atsushi Fukuda, Tuenjai Fukuda, Makoto Okamura and Atit Tippichai, 2007) is a Japanese verbal expression used immediately after events involving a narrowly averted personal risk. It is used when an individual perceived the risk and responded promptly according to his/her self-consciousness, witnessing the situation and reacting quickly enough to stop it before an accident occurred; what is sometimes referred to as a so-called “potential accident” or “near miss”. Hiyari-Hatto concept is a psychological technique that is widely used in Japan for safety-related issues in hospitals, factories, companies, and recently in the collection of traffic safety data such as the identification of blind spots by researchers in the International Association of Traffic and Safety Sciences (IATSS) in Japan. Hiyari-Hatto is therefore a technique for helping people develop concern for their safety in risky situations and respond by making changes to reduce the risk.

Figure 1 Theory of planned behavior



Source: Theory of Planned Behavior (TPB) of Icek Ajzen (1988, 1991)

1.2 Research Question

How would the development potential for traffic accident prevention of stakeholders in the communities along highways in the northeast of Thailand be possible?

1.3 Research Objectives

1. To assess study needs and to analyze the current state of traffic accident prevention
2. To conduct traffic accident prevention programs for stakeholders in the communities
3. To implement programs engaging stakeholders for traffic accident prevention in the communities

1.4 Limitations

This research study was conducted in only one sub-district of an administrative organization.

1.5 Research Outcomes

1. Understand problems and necessity of assessing traffic accident prevention in the communities
2. Construct a program for traffic accident prevention among stakeholders in the communities along highways
3. Increase skills for traffic accident prevention management among stakeholders
4. Develop school curriculum to include traffic accident prevention issues targeting youth.
5. Sub-district administrative organization to include traffic accident prevention plans in the fiscal year plan.
6. Improve traffic accident prevention behaviors of residents in the communities
7. Reduce mortality and disability rates in the communities

8. Increase economic impact at the household and national levels
9. Increase social impact and quality of life
10. Raise awareness of traffic accident prevention among all stakeholders and residents

1.6 Definition of Terms

Traffic accident prevention is a process for preventing injury and death of those using cars, motorcycles, as well as pedestrians.

Future Search Conference is a planning conference that aims to help large diverse groups discover values, purposes and projects that they hold in common. It enables people to work together toward a desired future.

Hiyari-Hatto, initiated in Japan, is a traffic psychological method to encourage road users to participate and become involved in traffic safety programs by eliciting information through descriptions of potential accident experiences that almost occurred or nearly caused them injury or death, and to use these as a means to investigate road safety.
Stakeholders are members concerned in communities, such as members of sub-district administrative organizations, teachers, EMS staff, health volunteers, health personnel, monks, and students.

CHAPTER 2 LITERATURE REVIEW

2. Literature Review

2.1 Road Traffic Accident Situation in Thailand

Road traffic accidents are growing to become one of the major causes of injuries and deaths in the global population, and constitute a major global health problem. It is estimated that almost 1.2 million people are killed in crashes per year, while the number of injuries is as high as 50 million (WHO, 2004). The majority of deaths are currently among vulnerable road users such as pedestrians, cyclists and motorcyclists. Every day, almost 16,000 people around the world die from all types of injuries, the main cause of death among 1-40 year-olds (WHO, 2001). About 25% of all deaths are due to injuries (Peden et al., 2002), and 90% of global population disability-adjusted life years lost are due to crashes, accounting for over 50% of deaths that occurred among young adults between 5-44 years of age, and standing as the second leading cause of deaths in the 15-29 age group worldwide (WHO, 2002). The majority (about 90%) of injurious accidents occur in low and middle-income countries, while only 10% occur in developed or high-income countries (WHO, 2002). In terms of economic loss, the cost of road crash injuries is estimated about 1% of GNP in low-income countries, about 1.5% in middle-income countries and about 2% of GNP in high-income countries (Jacobs et al, 2000). As this is a global health problem, all global regions should be interested in the issues and take steps to tackle them.

Progress toward solving the road traffic accident problem started after WHO's world health report on road safety was issued over 40 years ago, which induced a major change in perception, understanding and practice of road injury prevention and shifted paradigms among traffic professionals around the world (WHO, 2004). The shift that followed brought about changes as new knowledge and perception in road traffic accident can influence predictability and preventability, in the sense that when professionals look into crashes, they must investigate associated causes of crashes, focusing on individual level, vehicles and environment. These topics require solid data and a scientific approach to the epidemiology of crashes and data of evidence-based support for causal risk analysis. Road traffic safety has been assumed to be the responsibility of all sectors in a society, and road traffic safety is looked on as a social equity issue, which includes human error and vulnerability in social sub-groups of the population. Initially, the transport systems developed in high-income countries or developed countries could be transferred to developing countries. Motorization has increased in all parts of the world, and there is a need to improve the safety of traffic systems as well as a need for quality interventions to reduce the risk of road accidents. Policy makers, decision-makers, safety professionals and practitioners recognize that the traffic accident problem is an urgent issue, and that it is important to integrate strategies, to set the same goals, to look for appropriate environments and to establish social participation in holistic way. These are challenging issues in solving the road traffic accident problem because all of the following need to be developed: increased potentiality and capacity for

policy-making supported by research and quality intervention by the private and public sector; national strategic plans incorporating targets in which data access is allowed: formation of good data support systems for identifying problems and evaluating responses; collaboration on the road traffic accident problem across sectors and stakeholders, including public and private sectors; and accountability, adequate resources and strong political drive.

Death rates from road traffic accidents in the Africa region were the highest in 2002 at 28.3 per 100,000 population, followed by developing countries in the Eastern Mediterranean region at 26.4 per 100,000, and the Southeast Asian region at 18.6 per 100,000. But in Western Pacific region, the rate is as low as 18.5 per 100,000, and in the Americas as low as 16.2 per 100000. Details are shown in Figure 2.

Figure 2 Table of road traffic injury mortality rates (per 100,000 population) WHO regions, 2000

Road traffic injury mortality rates (per 100000 population) in WHO regions, 2002

WHO region	Low-income and middle-income countries	High-income countries
African Region	28.3	—
Region of the Americas	16.2	14.8
South-East Asia Region	18.6	—
European Region	17.4	11.0
Eastern Mediterranean Region	26.4	19.0
Western Pacific Region	18.5	12.0

Source: WHO Global Burden of Disease project, 2002, Version 1 (see Statistical Annex).

In ASEAN countries, the traffic accident situation is the most severe in Malaysia, while Thailand is second, as shown in Figure 3.

Figure 3 Comparison of traffic accidents among ASEAN

Comparison of Traffic Accidents between Among ASEAN

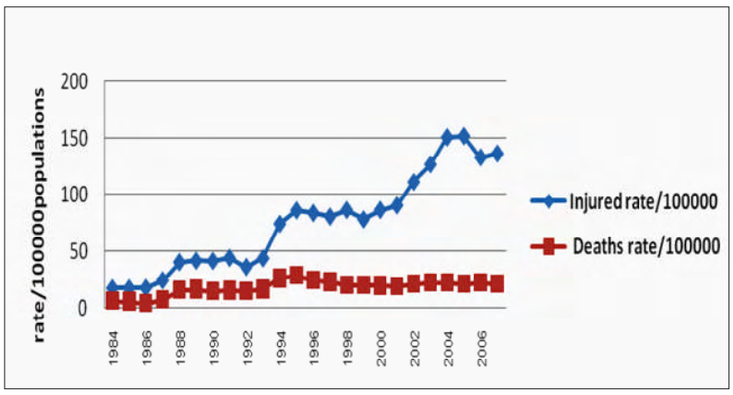
	No. of Death '00,000 people	No. of Death No. of Accident	No. of Death No. of injured
Japan	7.0	0.009	0.008
Cambodia	6.4	0.219	0.130
Indonesia	5.9		0.636
Lao PDR	8.1	0.082	0.060
Malaysia	25.0	0.021	0.119
Myanmar	2.5	0.243	0.123
Philippines	0.9	0.070	0.237
Singapore	5.0	0.033	0.026
Thailand	22.9	0.138	0.178
Vietnam	14.0	0.570	0.555

Atsushi Fukuda,2006

The types of road traffic accidents were mixed in each region. In low-income and middle-income countries, motorization increased rapidly as a result of the proliferation of small and inexpensive motorcycles. The number of motorcycles and motorcyclists are high in these countries, and motorcycles are a major means of transportation (Mohan, 2002). Road design and traffic management in these countries are generally poor and inadequate. In such a mixture of traffic, among vulnerable road users such as older people, children, pedestrians, cyclists and motorcyclists, two-wheeled vehicles are involved in the largest proportion of road traffic collisions. In contrast, in high-income or developed countries, transport technologies are more advanced. Road users increasingly have to share traffic space with four-wheeled vehicles, such as cars, buses and trucks.

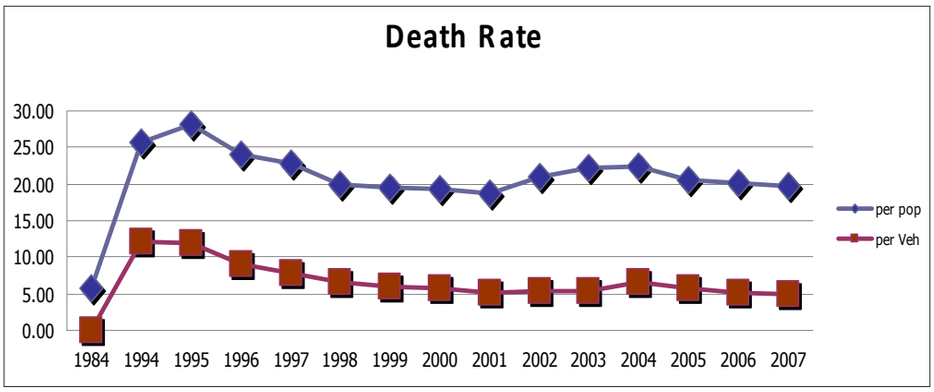
Road traffic accidents are a serious problem in Thailand and worldwide. In Thailand, the number of road traffic accidents increased from 18,344 cases in 1984 to 124,530 cases in 2007. The fatality rate from road traffic accidents increased from 5.71/100,000 in 1984 to 22.27/ 100,000 in 2006, and the injury rate from 17.14/100,000 to 136.3/ 100,000 in 2007. Since 1994 each year, road traffic accident deaths have exceeded 12,000, and injuries have exceeded 43,000. The details are shown in Figures 4 and 5.

Figure 4 Trends of fatality rate and mortality rate from road traffic accidents in Thailand, 1984-2006



Source: Thailand Health profile, 2007

Figure 5 Trends in the number of accident fatalities per 100,000 population and per 10,000 vehicles (1994-2007)



Source: Department of Highways 2007, Ref. Pichai Taneerananon (2008)

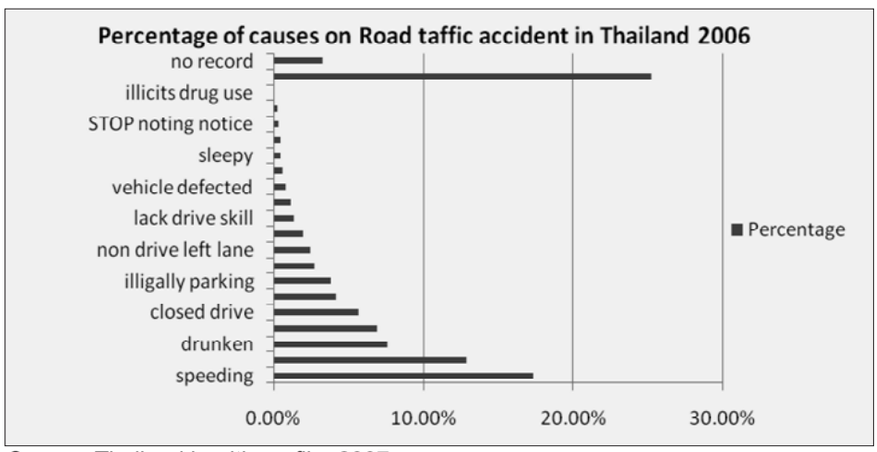
CHAPTER 2 LITERATURE REVIEW

Causes of road traffic accidents were statistically analyzed using cumulative data during 1984-2006 in Thailand. Of 1,755,624 incidents, 1,094,933 involved injury, and 241,077 involved fatalities. The causalities of incidents related to human error is about 69.6%, environmental factors 0.6%, vehicular failure1.2%, other factors 25.3%, and unknown 3.3% (Minister of Public health, Thailand, 2007).

Factor analysis related to road traffic accidents in Thailand from 1984-2006 shows that speeding is the major cause of road traffic accident (about 17.35%), followed by suddenly passing other vehicles (12.94%), drunk driving (7.64%), illegal interference (6.93%), tailgating (5.73%), disregarding traffic lights (4.18%), illegal parking (3.82%), disregarding stop signs (2.73%), non-driving in the left lane (2.45%), driving in the wrong lane (1.99%), insufficient driving skill (1.38%), aggressive driving (1.2%), unknown (25.27%), and others (less than 1%). Details are shown in Figure 6.

Age group analysis of road traffic accident cases during 1996-2006 shows that the15-29 age group is the most heavily involved (38.9-47.9%), followed by the 30-44 years-old group (24.8-29.4%), and the 45 and over group (18.3-27.6%).

Figure 6 Percentage of causes on road traffic accident in Thailand

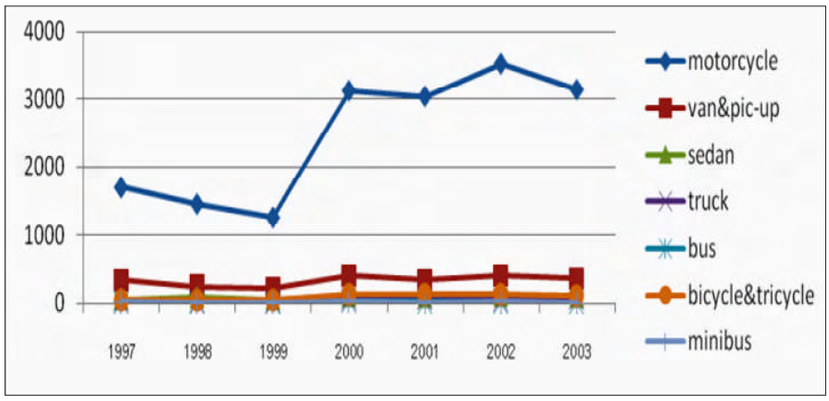


Source: Thailand health profile, 2007

Analysis of road traffic accidents by vehicle type shows that motorcycles have the highest accident rate at about 44% (Minister of Public health, Thailand, 2007), and also that motorcycle accidents accounted for about 76.2% of death and injury accidents in 24 hospitals in the 1997-2003 period (Thanaboriboon, 2006). Vans and pickup trucks are the second highest (about 18%), and other types of vehicles show relatively lower distributions. These all showed increasing trends in the 1997-2007 period. Details are shown in Figure 7.

Traffic accidents remain a serious problem in Thailand both in rural and urban areas. All relevant organizations have to increase the level of concern regarding this problem, plan concrete measures, and make them a fixed agenda in their fiscal year plans for sustainable development.

Figure 7 Trends of RTA cases classified by vehicle type in Thailand, 1997-2003



Source: Thanaboriboon, 2006

2.2 Itui Sub-district Administrative Organization/Schools

2.2.1 General Conditions

(1) Location

The Itui Administrative Organization is located in west of Kalasin province - 18km from Yang Talad district and approximately 32km from Kalasin.

North: adjoin Kun-don Administrative Organization in Hua – mex district, Kalasin

West: adjoin Non-soong Administrative Organization in Yang talad district, Kalasin

East: adjoin Klong Kham Administrative Organization in Yang talad district, Kalasin

South: adjoin Hua nakum Administrative Organization in Yang talad district, Kalasin

(2) Area

Approximately 31 square kilometers

(3) Geography

Plain geographic area

Comprising 12 villages:

Moo.1 Ban Gaa
Moo.2 Ban Gaa
Moo.3 Ban Gaa
Moo.4 Ban Gaa
Moo.5 Ban Don Khee
Moo.6 Ban Don Sawan
Moo.7 Ban Yangkum
Moo.8 Ban Nongwang bor-kaew
Moo.9 Ban Don-lumduan
Moo.10 Ban Nongwang-Tai
Moo.11 Ban Kum Khon Kaen
Moo.12 Ban Yang kum-Nua

Three seasons:
Summer (from March to May)… hot to very hot temperature
Rain (from June to October)… occasionally abundant rain
Winter (from November to February)… dry and cold
Economy: Mostly agricultural workers
Labor: Lack of employment options in the region. A number of adults migrate from their hometown, leaving children and elders at home, and return only during harvest season.

(4) Another District in Itui Administrative Organization

Municipal
General administrative organization

(5) Population

Total …9,208 Men …4,572 Women …4,636
Average density …297.03 people per square kilometer

Moo	Village name	Number of family	Population		Total
			Men	Women	
1	Ban Gaa	212	418	429	847
2	Ban Gaa	170	318	365	683
3	Ban Gaa	198	403	398	810
4	Ban Gaa	305	658	678	1,311
5	Ban Don Khee	235	571	552	1,123
6	Ban Don Sawan	78	211	201	412
7	Ban Yangkum	120	299	292	591
8	Ban Nongwang bor-	258	563	587	1,150
9	kaew	126	284	273	557
10	Ban Don lumduan	162	371	362	733
11	Ban Nongwang-Tai	71	151	140	291
12	Ban Kum Khon Kaen Ban Yang kum-Nua	124	325	359	684
			4,572	**4,636**	**9,208**

Data as of January 31, 2006

2.2.2 Economy

(1) Employment

Primary (rice farmer) ····· 70%
Secondary ····· 10%
1. Cultivate ····· 5%
2. Orchard ····· 1%
3. Breed animal ····· 3%
(Cattle, Swine, Poultry)
4. Merchant ····· 1%
Retail
Labor ····· 5%
Official work ····· 5%
Average income: 20,000 baht/month

(2) Businesses in Itui Administrative Organization

Bank	none
Hotel	none
Large gas station	none
Small gas station	9
Industry	none
Mill	32
Entertainment venue	none

2.2.3 Social

(1) Educational Facilities

Government primary school - 4

1. Ban Nongwang bor-kaew school in moo.10
2. Yangkum wittaya school in moo. 7
3. Ban Gaa wittayakom school in moo. 4
4. Don Khee wittaya school in moo. 5

High school - 3

1. Ban Nongwang bor-kaew school in moo.8
2. Yangkum wittaya school in moo. 7
3. Ban Gaa wittayakom school in moo.4

(2) Institutes and Religious Organizations

Temple/ashram - 11

1. Poh sri ban gaa temple in moo.1
2. Donpuuta (jomthat) ashram in moo.3
3. Banngong temple in moo.3
4. Prachasamukkee temple in moo.4
5. Donkhee-Donsawan temple in moo.5
6. Pohsriyangkum temple in moo.7
7. Thepnimit ashram in moo.7,12
8. Pohsrinongwang temple in moo. 8
9. Donlumduan temple in moo.11
10. Chanarunwararam temple in moo. 10
11. Nongfhang ashram in moo.5,6

Mosque - none

Spirit house - none

Church - none

(3) Public Health

The public health situation is poor.

Government hospital	none
Health center	1 in moo.4 Ban Gaa
Nursing home	none
Drug store	none
Rate of using suitable toilet	100 %

(4) Life and Financial Security

Police station	1
Fire station	none
Civilian protection section	none

2.2.4 Basic Service

(1) Official Office in Itui Administrative Organization Area

Itui Administrative Organization in moo.8

Itui health center in moo.4

(2) Communication

Itui has 2 routes to Yang Talad district.

Asphalt road ⋯ from Itui Administrative Organization to Yang Talad district office (18 kilometers)

Laterite road ⋯ from Itui Administrative Organization to Yang Talad district office by way of

Ban-sa Ban-kokesri Ban-koh (14.5 kilometers), (Poor condition after long use)

2.3 Previous Studies

This section consists of excerpts from the literatures of previous studies on traffic safety issues related to our research.

Lulu Rodriguez (2002)

Few topics in transportation are of greater significance, now and in the future, than making today's roads safe for those who use them. This study aims to assist the formulation of policy by examining the empirical evidence currently available on the ability of several forms of communication efforts and activities to increase knowledge about and affect attitudes and behavior toward highway safety practices. The objective of this effort is to provide a comparative synthesis of what works and what does not in highway safety campaigns across a large number of topical areas that have a mass media component. This was accomplished by conducting an extensive literature review to determine the current state of knowledge concerning what works and what has significant potential for wide use in future highway safety campaigns. An analytic framework for investigating highway safety campaigns was created. The framework includes (1) the types of media components, (2) the types of collaborations, (3) the context in which the campaign is intended to have impact, (4) the structure or procedural steps into which campaigns are organized, (5) the principles for what works in a campaign, and (6) the desired impact of a campaign on its target audience. The report reveals 25 characteristics of successful communication campaigns, strategies that stand a chance of achieving changes in knowledge, attitude, and behavior. The actual impact of mass communication remains unproven because of a perceived lag in the development of adequate evaluation techniques. Education by itself has not generally resulted in significant changes in the behaviors targeted, but education of the public and advocacy groups has often helped enact necessary legislation, transmit knowledge about the provisions and penalties of laws in ways that increase their deterrent effect, and generate public

support for law enforcement programs. Even in such cases, however, when enforcement is inconsistent, public compliance frequently decreases with time. Approaches to traffic safety that emphasize the need for long-term individual- and community-based measures are found to be especially crucial for addressing complex problems like drinking and driving that are determined by a myriad of lifestyle and psychosocial factors.

Jack Stuster (2004)
This report presents the results of a study conducted for the National Highway Traffic Safety Administration (NHTSA) to assess the effects of two programs that were implemented to reduce the incidence of aggressive driving. The programs were conducted by the Marion County Traffic Safety Partnership (a consortium of agencies in the vicinity of Indianapolis, Indiana), and The Tucson, Arizona, Police Department. The programs each received grants of $200,000 from NHTSA to support the special enforcement and public information and education (PI&E) components. Program managers were required, as conditions of the grant, to (1) focus their enforcement efforts on key aggressive driving infractions in carefully-selected zones within their communities; (2) develop and implement PI&E campaigns to publicize the special enforcement efforts; and, (3) provide the data and other information necessary to prepare this evaluation. The programs shared additional features, but program managers were encouraged to consider innovative approaches to both special enforcement and publicity. Samples of vehicle speed, collected unobtrusively in the special enforcement zones, and crash incidence served as the primary measures of program effect. Average speeds slightly in Marion County and at a greater rate in Tucson. The total number of crashes in the Marion County special enforcement zones increased by 32 percent, compared to the same six-month period one year earlier; the number of those crashes with primary collision factors (PCFs) associated with aggressive driving increased by 41 percent. That is, the total number of crashes increased, but the crashes with aggressive driving PCFs increased at a greater rate. The change in proportion of crashes with the target PCFs provides a better measure than crash frequency because it eliminates the effects of changes in traffic volume and other factors that might have contributed to the overall increase in crash incidence. In this regard, the Marion County zones experienced a six percent increase in the proportion of all crashes with aggressive driving PCFs, despite the extensive publicity and special enforcement efforts. The number of crashes in Tucson's special enforcement zones increased by ten percent, but the number of crashes with aggressive driving PCFs increased by less than one percent. More important, the proportion of all crashes with target PCFs decreased by eight percent. That is, crash incidence increased overall in Tucson's zones, but the proportion of those crashes with aggressive driving PCFs declined. Study results suggest that limited resources might be better spent on officer labor than on publicity, and that focusing enforcement responsibility on a small team assigned full-time to the special enforcement patrols might be more effective than sharing the responsibility among a large number of officers as occasional overtime duty.

Tuenjai Fukuda, Chamroon Tangpaisalkit, Tetsuhiro Ishizaka, Tusanee Sinlapabutra, Atsushi Fukuda (2005) Empirical study on identifying potential black spots through public participation approach: a case study of Bangkok.

Road traffic accidents are the tragic artificial disease which more than thousands of people

injured and dead each year. The Thai government has alert and implemented 5-E strategy to tackle the problems. However, owing to the inaccurate road accident statistics and the inefficient data collection method on causation and collision particularly, on potential and existing black spots, these are major obstacles to improve road safety. This paper investigates the possibility to introduce Hiyari-Hatto method to identify and collect data on existing and potential black spot locations. 200 local peoples who live in Soi Chokchai 4 and Soi Ladprao 39 communities in Bangkok were participated in the interview survey. The findings indicated Hiyari-Hatto method is a significant alternative method for public participatory enhancement to develop black spot database nationwide.

This study confirms the adoption of Hiyari-Hatto concept with the use of cognitive map together with public participation approach is a significant alternative to identify the potential black spot locations. This is applicable to use as a fundamental step to develop the system to gather the information nationwide. These methods can contribute significantly to the policy implication in finding effective measures to prevent the traffic accidents prior to its occurrence which can save human lives and economy in long run.

Due to time limitation, this study could not perform the results on the Website. Therefore, the next step of the study will be demonstrating the results in a manner of tabular and graphical presentations on the Website so that this will allow public and transport research institutes as well as other concerned agencies to view the results anytime. Note that the development of mapping system on potential and existing black spot locations using GIS application will be taken into account and will be uploading on the website as well. Therefore, the homepage of “Hiyari-Hatto” or potential accident or potential black spot needs to be developed for the next step of the study.

Tuenjai Fukuda, Atsushi Fukuda, Makoto Okamura, Atit Tippichai
Application of Hiyari-Hatto concept to Thai communities for public participatory enhancement on hazardous spot identification: a case study of Udon Thani city.

This paper presents an application of Japanese Hiyari-Hatto approach aiming to identify the potential road traffic accident locations in Thailand where traffic accident is a serious epidemic issue. The Hiyari-Hatto approach was first introduced to Thailand in 2005 by IATSS scholars and was applied to Udon Thani City in Northeastern Thailand as a pilot case. The study team organized three series workshops for data collection processes. The Government officers were first target to disseminate the concept and methodology of Hiyari-Hatto approach. Secondly, community leaders were gathered to make understanding of the Hiyari-Hatto map creation process. Thirdly, the workshop was organized in the community hall to scope down the area of potential traffic accidents within the community boundary and vicinity areas. Finally, the Hiyari-Hatto map which shows locations of traffic accident risk within community was developed. The developed Hiyari-Hatto maps were posted at the public areas such as community hall, police station and schools to raise local community awareness utilizing GIS application for hazardous spots management. In addition, the differences of Hiyari-Hatto and existing traffic accident locations are also discussed.

Atsushi Fukuda, Tuenjai Fukuda, Makoto Okamura, Atit Tippichai Introduction of the Hiyari-Hatto concept : a complement to hazardous spot identification.

This paper introduces a principal of Hiyari-Hatto approach, invented by IATSS scholars, Japan aiming to explore an alternative method for road traffic accident and potential road traffic accident locations data collection through road users' perception and experiences towards the risk of traffic accident occurrence at roadway locations and its traffic condition on road network. There are two types of hazardous road locations: a black spot (i.e., actual spots with high traffic accident rates) and a potential accident location (i.e., none or with low traffic accident rates). The black spots can be determined by collecting traffic accident data directly from its occurred spots or from police and hospital records and could be improved if their traffic accident rates are higher than an acceptable level. Such approach is known well as a post-accident prevention, while the Hiyari-Hatto concept is an aggressive approach to seek for the potential accident locations which could be caused traffic accidents to potentially happen. This paper clarifies the Hiyari-Hatto concept towards the identification of existing traffic accident and potential traffic accident locations. The application of Hiyari-Hatto concept to developing countries where traffic accident is a critical problem such as Thailand is also addressed in comparison with Japan. The study can be concluded that the Hiyari-Hatto approach can be a complement to hazardous road locations identification. This approach can fulfill needs of road safety issues.

The paper draws a conclusion as follow: This paper introduces the Hiyari-Hatto method as an alternative to road traffic accident data collection. Hiyari-Hatto method has been widely used in the whole nation of Japan for raising traffic safety awareness and for collecting road traffic accident data in the communities. Hiyari-Hatto method had been adopted in Thailand just recently and may only be known in some certain areas like Udonthani and Khon Kaen Cities.

Chulaporn Sota chusot, Rujira Duandsong, Pornthip Kumpor, Amornrat Pookarbkaow, Pongsak Pookarbkaow (2006) study The Potential Development of Self Reliance and Social network Constructional Community beside Highway for traffic Accident Prevention.

This research is participatory research conducted to study (1) Traffic accident prevention guideline, (2) Potential development of sub-district administration organization (3) Implementation for Traffic accident prevention. Participants were 64 sub-district administrations organization members and head of villages and health volunteers at Hua na kum sub-district administration organization, yangtalad district, Kalasin province, Northeast of Thailand. Data were collected using questionnaire for quantitative data, and guideline questionnaire for qualitative data, using AIEC technique for situation study and planning including implementation. Data were analyzed by SPSS program for quantitative data, and content analysis for qualitative data.

The results showed that at first sub-district administration organization had no traffic accident prevention programs or no networking. After implementation, there were various activities for traffic accident prevention at sub-district administration organization, such as local broad casting, handbook distribution, respect of traffic rules, helmet use campaign,

limiting speed, no drunk driving. The Important activities among network were meeting, discussion, working together, increasing sense of belonging and responsibility. Knowledge, intention and practice for traffic accident prevention became high level.

Luchemos Por La Vida, and Maria Cristina Isoba (2007) study why traffic as a system is an important conceptual contribution to road safety teaching.

Everybody who goes out on the street, regardless of their destination, shares the common activity of being moving from one place to another. Each one depends on others to fulfill his or her goal. Individual conduct conditions and influences other people, and vice versa. Each road user is responsible for a part of traffic.

Despite the fact that the safety of this system also depends on other elements that are part of it: clear and effective rules; adequate maintenance of the road and good signs; and on the vehicles that run within it, it is people, road users (pedestrians and drivers) who, at each moment and each place, finally give shape to and define traffic characteristics with their behavior.

The purpose of this paper is to introduce a new contents in the subject of road safety education in schools: to develop a systematic concept of traffic, as explicit, basic and introductory contents, and as the main subject around which different approaches to teachings on safety and road safety will revolve, in order for these educational processes to be successful and result in safe and responsible attitudes and behaviors on the part of students, in their behavior on the road and the role they play in the creation of a healthier social and living environment.

Kim Pagna, Matthew Ericson and Seang Monith (2007) Road traffic accidents and Cambodian university students: a case study in Phnom Penh municipality.

In early 2006, the Coalition for Road Safety (CRY) undertook a survey of five hundred Phnom Penh university students to ascertain their road safety attitudes and behaviour. At the time the survey was planned, it was recognised that more than ninety per cent of road traffic injuries (RTIs) were caused by human factors, particularly excessive speed, drink driving and not obeying traffic rules, with people aged between 15 and 24 being overly represented in RTI data. The survey of Phnom Penh university students was essentially undertaken because of the students' over-representation in RTI data. This survey was the first research to be conducted on the topic of road safety amongst Cambodia's students.

The terms of reference included generating recommendations and strategies on how to effectively reduce road accidents amongst the students. This paper reports the survey results and concludes with how these results were used to inform road safety policies. The results of this survey have found their way into practice by a variety of stakeholders' strategies and programs which have been informed by the survey results. While the results confirmed some perceptions and challenged others, they have been most useful in informing project planning amongst stakeholders.

Mariela Hernndez-Snchez, Francisco Valds-Lazo, and Ren Garcia Roche, MSc (Cuba, 2004-2006) Preparation of specialists from different community sectors related to road traffic injuries prevention.

Road traffic injuries constitute a worldwide health problem because they are an important cause of mortality, morbidity, sequels, human suffering, years of potential life lost and economic costs. In Cuba, road traffic injuries comprise the fifth cause of general mortality and the first of mortality from 1 to 34 years of age. It is precisely the need to increase the preparation of specialists from different community sectors and disciplines that pave the way to this work, because their appropriate preparation is an important support to increase the knowledge in other people for preventing injuries. The intervention study was carried out with 155 specialists from different community sectors and disciplines (health, education, jurists, mass organizations, traffic police and others), through 6 regional courses for the different provinces in the country. The knowledge that the participants had on road traffic injuries and the activities they had prepared to prevent them in the communities were measured with an initial questionnaire designed to this purpose. After that, a training plan was imparted and at the end, knowledge was measured again to observe its variation. The indicators were percentages, average and standard deviation. The participants referred that for road traffic injuries prevention they carried out bigger number of educational activities during meetings with the community, followed by patient's consultations and home visits. At the beginning, 76.1% of the participants considered themselves ready to prevent road traffic injuries (78.6% among medical doctors, 83.7% among nurses and 58.6% among other professions).

Huang Bin Huang Meilian and He Yong (2007) study introduction of highway safety enhancement project in plain areas in China.

Analysis of crash data indicates that high speed, village activities, heavy traffic and mixed traffic are major reasons for road crashes on highways in plain areas in China. Most hazardous places are at-grade intersections and through-village segments, concluding from statistics of crash data. HSEP in plain areas specifically focuses on these two types of hazards with engineering measures. Engineering measures in at-grade intersections include guarantee of right of road, speed management, visibility improvement and channelization; engineering measures in through-village segments include sign guidance, speed management and division facilities. Evaluation of demonstration projects is also putting forward.

Jesper Mertner, Section (2007) Road safety auditing also on existing roads - an efficient tool for preventing accidents?

Every avoided accident killed or injured person counts in the effort to increase road safety. Many accidents happen at locations spread across the road network and it may therefore be difficult to identify particular dangerous location through traditional black spot analyses. Road safety auditing (RSA) has proven itself as an effective tool to prevent road accidents on new and reconstructed roads. The paper presents how road safety auditing/assessment of existing roads is also an important and cost-effective approach to improve road safety. This is suggested as an additional "stage 6" to the normal 5 stages in the road safety audit-

ing system. A registration tool for such "stage 6 audits" developed by COWI for a pocket PC (PDA), where the GPS technology is combined with digital maps, is presented as well. The paper briefly presents the background for introducing RSA, the different phases of design where RSA may be used and in particular how RSA may be used on existing roads in a new "stage 6". Typical examples are presented showing the type of problems and improvements typically suggested by a road safety auditor. The paper also provides examples of expected impacts of road safety auditing. Finally, suggestions on how RSA in general can be used under different circumstances to improve road safety are provided.

Kasem Choocharukul, Wisanu Subsompon, and Wit Ratanachot (2007) Evaluating rural road safety conditions using road safety index: an application for rural roads in Thailand.

Traffic accidents, especially those in rural areas, have been undeniably one of the critical issues in Thailand. Evaluation of road safety level should rely on a systematic approach so that project ranking and budgeting can be properly executed with valid supporting information. This paper focuses mainly on engineering components of rural road safety, with the key objective to demonstrate the development of the road safety index, a quantitative index representing the level of road safety on rural roads in Thailand. The developed index considers various roadway elements, for example, roadway geometry, traffic signs, road furniture, and pavement condition. These highway engineering components are under direct jurisdiction of the highway infrastructure development cluster of the Ministry of Transport. The road safety index will be of usefulness not only for identifying high-risk roads but also for selecting appropriate road safety improvement programs. The present paper also details the application of the developed index through a case study of applying the road safety index to rural roads in Thailand, which are maintained by the Department of Rural Roads, Ministry of Transport. In addition, the integration of the road safety index into a larger framework, the rural road safety management system, are described.

Salim Mahmud Chowdhury, Aminur Rahman, Saidur Rahman Mashreky and AKM Fazlur Rahman (2007) Involvement and impact of road traffic injuries among productive age groups (18-59 years) in Bangladesh: issue for priority setting.

Introduction: Road traffic injuries are deadly, taking lives of over 1.18 million men, women and children around the world every year. In the developing countries of South-East Asian region road traffic injuries generally affects males in the productive age ranges from 15-44 years. Road traffic injuries affect individuals, families, communities and nations as a whole. Impact of road traffic injuries among productive age groups in Bangladesh is enormous. However, despite the extend of road traffic injuries, road safety has been neglected relative to other health concern.

Objectives: To estimate the magnitude and impact of road traffic accidents in Bangladesh among productive age groups over 18 years of age.

Methodology: A population-based household survey was conducted between January and December 2003 in Bangladesh. Multistage Cluster Sampling was used to choose a nation-

ally representative sample of 171,366 households of the country comprising of a total surveyed 421,629 population of 18-59 years. Data collected from the households on death or morbidity in the year preceding the survey. Then the causes of deaths and morbidities were determined using verbal autopsy and verbal diagnosis forms respectively.

Results: Road traffic injury was the leading cause of injury mortality as well as morbidity. It comprises 37.6% and 24.6% of total injury mortality and morbidity respectively. Most of the victim was the main income earner (57%) of the family and 15% family undergone major economic problem permanently due to injury.

Conclusion: The result of the study could be use for priority setting and developing appropriate prevention strategies.

Hawabibi Laher, Lu-Anne Swart, Mohamed Seedat and Safy Mendes Novelo The identification of "At-Risk" groups for transport relates fatalities across four South African cities.

South Africa's road traffic death rate of 11.7 per 100,000 per 100 million kilometers travelled is the fifth highest in the world. The paper accordingly attempted to identify 'at-risk' groups for transport related fatalities (2001-2004) across four South African cities, namely Johannesburg, Cape Town, Durban and Pretoria, cities where the National Injury Mortality Surveillance System (NIMSS) has full coverage. Using NIMSS data these at risk groups were analyzed for sex, race, age, elevated blood alcohol levels, day of the week and time of day. Age standardised rates were also calculated for traffic-fatalities across the cities. Consistent with studies conducted elsewhere (Harruf, Averry and Alter-Pandy, 1998) our results indicated that pedestrians were the group most 'at-risk' (45.94%), followed by unspecified, drivers, passengers, motorcyclists/bicyclists and train commuters. In most instances fatalities peaked over weekends across all road user types. Males particularly Black African males were at greater risk than females. With the exception of motorcyclists where 20-29 year olds were at the greatest risk, the 30-39 age group was most at risk across all road user types. Elevated blood alcohol levels were also noted for males between the ages of 30-39 across all road user types. Our results concur with international traffic fatality trends in that they point to the particular vulnerability of pedestrians and indicate the need for integrated road safety programming. Safety measures need to give particular consideration to the traffic fatality-alcohol abuse nexus.

Only 46.4% passed the initial test (52.8% among medical doctors, 40.5% among nurses and 34.4% among other professions). After the training plan, the amount of people who passed the final test increased to 94.8%. The training plan was profitable because the knowledge on road traffic injuries prevention in specialists from different community sectors and disciplines was highly and rapidly increased, in order to spread the acquired knowledge in their action areas.

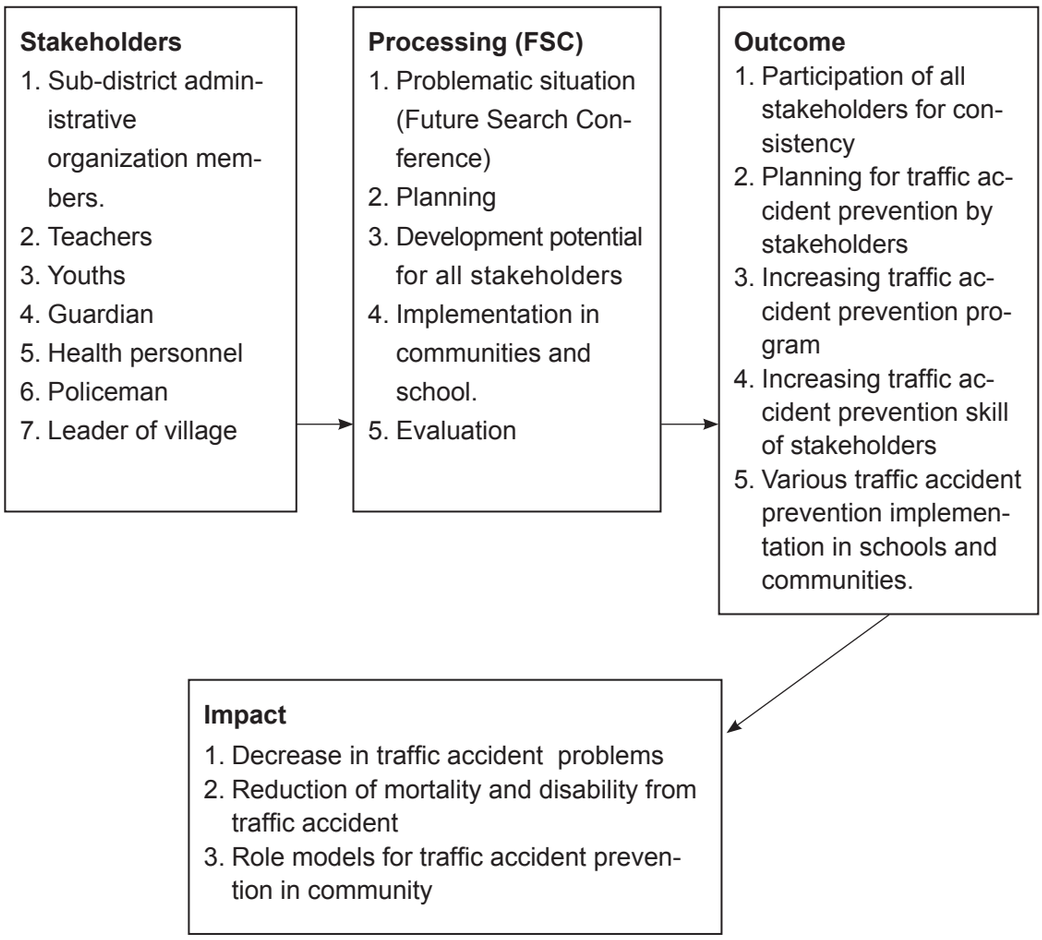
Esther Malini (2007) Pedestrian safety requires planning priority.
Pedestrians are the largest category of road users in urban areas, especially in developing countries. Currently, their involvement in road traffic crashes is high. While pedestrian safety is a complex subject with no easy solution, the broad approach to a safe situation would

be to avoid conflict between pedestrians and vehicles on the road. Facilities meant for pedestrian movement should be planned to achieve the above objective within reasonable cost but without unacceptable inconvenience to all the parties concerned. Pedestrian safety is no accident: it can only materialize when traffic planning is conditioned by suitable priority accorded to the specific needs of the pedestrian.

Ccile Coquelet, Pierre-Alain Hoyau, and Sylvain Lassarre (2007) Mobility, attitudes, risk and behavior of young drivers.

In order to understand better young drivers' mobility, attitudes, risk and behavior, a multi-aims panel sample, called MARC (Mobility, Attitudes, Risk and Behavior, Comportement in French) has been performed in 2003. For this purpose, a questionnaire has been built to combine 3 road risk approaches: sociological, psychological and economical. Collected data analysis in 3 waves of survey, with an interval of one year and with 3,051 young drivers for the first wave, 2,085 for the second and 1,212 for the last wave, will enable the study of behavior and road risk evolutions, according to the driving training channels and the driving license duration.

2.4 Conceptual Framework



CHAPTER 3 METHODOLOGY

3. Methodology

3.1 Research Design

This research was designed as participatory action research, and the researchers used complex methodology for both quantitative and qualitative study. The research was separated into three phases: phase 1, situation analysis; phase 2, development potential of stakeholders for traffic accident prevention; and phase 3, implementation and evaluation.

3.2 Phase 1: Situation Analysis and Assessment of Needs for Traffic Accident Prevention among Stakeholders through the Use of Future Search Conference Exercises

In this phase, the researchers studied situational factors involved in traffic accident prevention, targeting both stakeholders and primary school students in the communities.

3.2.1 Study Design

The study in this phase was based on a descriptive study design. The study in this phase made use of both quantitative (questionnaire) and qualitative (Future Search Conference and Hiyari-Hatto) methods.

(1) Quantitative Study

Population

The study population consisted of heads of the villages, sub-district administrative organization members, teachers, health personnel and health volunteers, and primary school students.

Setting Study Area

Study in Itui sub-district, Yang Talad district, Kalasin province.
(For detailed data of the area, see Section 2.2.)

Sample and Sampling Size Calculation

The study samples consisted of 50 stakeholders from community and roughly 250 primary school students.

Instruments:

The variables of this study were collected by structured questionnaires matching the aims of the study, which were obtained through a review of the literature. The questionnaires consist of 5 sections: personal data, traffic accident prevention knowledge, beliefs, attitudes toward traffic accident prevention, intention for practice of traffic accident prevention and practice of traffic accident prevention.

Kalasin province

Standardization of questionnaires:

Content validity was checked by 3 traffic safety experts, after which the researchers improved the questionnaires in accordance with their suggestions and recommendations.

Data collection:

(a) Coordination with the head of the sub-district administrative organization, chief of rural police station, teachers, heads of villages, monks, chief of health station, followed by actual interviews and collection of qualitative data.

(b) Data was collected by the researcher team, initially explaining the study purposes and research procedures, and then receiving questions from the participants.

(c) The researcher team established a closer relationship with participants by introducing themselves, and explaining the study content as follows:

To protect the human rights of an individual participant, each participant was asked for consent for participation. All participants received an explanation from the researchers of the purposes of the study, benefits and risks, and future implications of the research, that the time required for completing the questionnaire would be about 30 minutes, that the information would be kept confidential and anonymous, and that they had the right to withdraw from the study at any time.

After participants agreed to participate in this study, the research team asked the participants to sign an agreement form, and then the researchers conducted face-to-face interviews following the structured questionnaire.

(d) After the interview, the researchers checked whether all items in the questionnaire were answered. If there were any unanswered items, the participants were asked complete the items.

(e) All questionnaires were collected and the responses were compiled by the researchers for data analysis.

Quantitative Data

The data was entered into a computer database by double data entry procedure using STATA. The data was analyzed in the following order: descriptive statistics for percentage, standard deviation, arithmetical mean, and significance of differences by paired t-test.

(2) Tools for Qualitative Methods

*In-depth interviews about traffic accident situation were conducted with the target samples: head of sub-district administrative organization, head of health station, police chief, and teachers.

*Future Search Conference

*Hiyari-Hatto

*The research team used observational methods for assessing general contexts in the community

Data Analysis

Qualitative data from target groups collected were used for content analysis.

3.2.2 Stakeholders

The stakeholders in the target area who cooperated in the identification of causality fro traffic accident prevention were health care workers in the community health center, teachers at 4 primary schools, policemen, and sub-district administrative organization officials.

3.3 Phase 2: The Development Potential among Stakeholders Conducted for Traffic Accident Prevention

The development potential program for raising traffic accident prevention program relied on problem study and assessment of needs in phase 1.

Implementation depended on problems solving through the finding of vision or action plan obtained from Future Search Conference (FSC) involving all stakeholders.

– Planning – Hiyari-Hatto – Media conduct
– Training – Discussion – Public relations
– Participatory approach (activities for traffic accident prevention)
– Coordination (inviting experts to give lectures, and practice of traffic accident prevention measures emphasizing human factors, i.e., drivers and passengers of cars and motorcycles, and pedestrians)

After stakeholders attended the programs for development potential (Future Search Conference and Hiyari-Hatto programs for traffic accident prevention), they must implement traffic accident prevention measures in their communities to address the local context and problems.

3.4 Phase 3: Implementation by All Stakeholders

All stakeholders implement traffic accident prevention in communities along highways both in schools and in the community at large, especially through school curricula and fiscal year planning by the sub-district administrative organization, as follows:

1. Driver's License training
2. Traffic accident prevention training
3. Public relation campaign
4. Traffic accident prevention through distributions of handbooks
5. Traffic volunteer training for students in 4 schools
6. Essay competition for traffic accident prevention
7. Campaigns during important festivals - New Year and Songkran
8. Warning campaigns in risky areas as determined in Hiyari-Hatto exercises
9. Village competition for traffic accident prevention

CHAPTER 4 RESULTS

4. Results

The results of this study were based on the responses of 50 stakeholders and 237 students. The results will be presented as follows:

(1) General Characteristics of Stakeholders
- Demographic Characteristics
- Knowledge, Beliefs, Attitudes, Intentions and Practice of Traffic Accident Prevention

(2) General Characteristics of Students
- Demographic characteristics
- Knowledge, Beliefs, Attitudes, Intentions and Practice of Traffic Accident Prevention

(3) Results from Hiyari-Hatto activities

(4) Results from Future Search Conference

4.1 General Characteristics of Stakeholders

4.1.1 Demographic Characteristics of Stakeholders

The total sample consisted of 50 stakeholders. Most of them are age groups of 41-45 (28%) and 46-50 (28%) male. The major occupations were government employee (52%) and agriculture (36%). Major non-employment designations (74%) included members of district Administrative Organization, deputy-heads of villages, and health volunteers. The majority had monthly income of more than 20,000 baht (70%), and were married (88%), In terms of educational level, bachelor degree holders (34%) and high school graduates (28%) constitute the largest segments. Details are shown in Table 1.

Table 1 Socio-demographic characteristics of stakeholders

Socio-demographic characteristics	No (n = 50)	Percentage
1. Age (years old)		
26 – 30	1	2.00
31 – 35	2	4.00
36 – 40	4	8.00
41 – 45	14	28.00
46 – 50	14	28.00
51 – 55	10	20.00
56 – 60	5	10.00
2. Gender		
Male	40	80.00
Female	10	20.00

3. Occupation		
Government employee	26	52.00
Commerce	1	2.00
Employee	1	2.00
Agriculture	18	36.00
Others	4	8.00
4. Position		
Head of sub-district administrative organization and head of sub-district	2	4.00
Head of village	5	10.00
Health personnel	1	2.00
Policeman	5	10.00
Other: members of district administrative organization, deputy head of villages, health volunteer, EMS staff, accident prevention in communities	37	74.00
5. Income per month		
Less than 3,000 baht	2	4.00
3,001 – 5,000 baht	6	12.00
5,001 – 7,000 baht	5	10.00
15,001 – 20,000 baht	2	4.00
More than 20,000 baht	35	70.00
6. Marital status		
Single	2	4.00
Married	44	88.00
Divorced	1	2.00
Widowed	2	4.00
7. Education		
Able to read	2	4.00
Primary school	9	18.00
Secondary school	5	10.00
High school	14	28.00
Diploma	3	6.00
Bachelor's degree	17	34.00

4.1.2 Knowledge, Beliefs, Attitudes, Intentions and Practice of Traffic Accident Prevention of Stakeholders

(1) Knowledge of Traffic Accident Prevention, Pre- and Post-test

The level and comparison of knowledge of traffic accident prevention before and after testing was analyzed.

The level of knowledge in traffic accident prevention was categorized as low, middle or high. The results showed that among the participants, 46% demonstrated a high level of traffic accident prevention knowledge, 36% showed middle level, and 18% showed a low level of knowledge prior to implementation. After implementation, it was found that all participants

(100%) had increased to a high level of traffic accident prevention knowledge (Table 2).

Table 2 Level of knowledge about traffic accident prevention before and after implementation

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	23	46.00	50	100.00
Middle	18	36.00	0	0
Low	9	18.00	0	0
$\overline{X}$ ± SD	18.98 ± 4.02		24.38 ± 0.81	
Total	50	100	50	100

Total score: 25, High: More than 19, Middle: 16-19, Low: Less than 16

A paired t-test was applied to compare mean scores of traffic accident prevention knowledge before and after implementation. The results revealed statistically significant differences (p<0.001).

Table 3 Comparison of traffic accident prevention knowledge scores of stakeholders before and after implementation

Knowledge on traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	18.98	0.81	5.40	9.41	<0.001	4.25 to 6.55
Post-test	24.38	4.02				

(2) The Level and Comparison of Belief in the Value of Traffic Accident Prevention, Pre- and Post-test

The level of belief in the value of traffic accident prevention was categorized as low, middle and high. The results showed that among participants, 30% demonstrated a high level of traffic accident prevention belief, 46% a middle level, and 24% a low level prior to implementation. Following implementation, it was found that most of the participants (96.36%) had increased to a high level of belief in the value of traffic accident prevention (Table 4).

Table 4 Level of belief regarding traffic accident prevention before and after implementation

Level	Pre-test		Post- test	
	Number	Percentage	Number	Percentage
High	15	30.00	49	98.00
Middle	23	46.00	1	2.00
Low	12	24.00	0	0
$\overline{X}$ ± SD	28.84 ± 3.36		35.00 ± 1.44	
Total	50	100	50	100

Total score: 36, High: More than 30, Middle: 27-30, Low: Less than 27

A paired t-test was applied to compare mean scores of traffic accident prevention belief before and after implementation. The results revealed statistically significant differences (p<0.001).

Table 5 Comparison of traffic accident prevention belief scores of stakeholders before and after implementation

Beliefs on traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	28.84	3.36	6.16	12.40	<0.001	5.16 to 7.16
Post-test	35.00	1.44				

(3) Attitudes toward Traffic Accident Prevention, Pre- and Post-test

Attitudes toward traffic accident prevention before and after implementation were compared and analyzed.

The attitude level toward traffic accident prevention was categorized as low, middle or high. The results showed that 20% of participants showed a high level of traffic accident prevention attitude, 66% a middle level, and 14% a low level prior to implementation. After implementation, it was found that all participants (100%) had increased to a high level of attitude toward traffic accident prevention (Table 6).

Table 6 Level of attitudes toward traffic accident prevention before and after implementation

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	10	20.00	50	100.00
Middle	33	66.00	0	0
Low	7	14.00	0	0
$\overline{X}$ ± SD	31.16 ± 3.03		38.20 ± 1.13	
Total	50	100	50	100

Total score: 39, High: More than 32, Middle: 29-32, Low: Less than 29

A paired t-test was applied to compare mean scores of attitudes toward traffic accident prevention before and after implementation. The results revealed statistically significant differences (p<0.001).

Table 7 Comparison of traffic accident prevention attitude scores of stakeholders before and after implementation

Attitude toward traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	31.16	3.03	7.12	15.74	<0.001	6.21 to 8.03
Post-test	38.28	1.13				

(4) Intentions to Practice Traffic Accident Prevention, Pre- and Post-test

Intentions to practice traffic accident prevention were analyzed and compared before and after implementation.

Levels of intention to practice traffic accident prevention were categorized as low, middle and high. The results showed that 28% of participants showed a high level of intention, and 72% a middle level prior to implementation. After implementation it was found that all the participants (100%) increased to the high level of intention (Table 8).

Table 8 Level of intention to traffic accident prevention before and after implementation

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	14	28.00	50	100.00
Middle	36	72.00	0	0
Low	0	0	0	0
$\overline{X}$ ± SD	32.14 ± 1.55		38.44 ± 0.79	
Total	50	100	50	100

Total score: 39, High: More than 32, Middle: 29-32, Low: Less than 29

A paired t-test was applied to compare mean scores of intentions to practice traffic accident prevention before and after implementation. The results revealed statistically significant differences (p<0.001).

Table 9 Comparison of intention to practice traffic accident prevention before and after implementation

Intention to practice traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	32.14	1.55	6.30	25.76	<0.001	5.81 to 6.79
Post-test	38.44	0.79				

(5) Practice of Traffic Accident Prevention between Pre- and Post-test

Practice of traffic accident prevention was analyzed and compared before and after implementation.

The level of practice of traffic accident prevention was categorized as low, middle and high. The results showed that 32% of participants showed a high level of traffic accident prevention practice, 52% a middle level, and 16% a low level prior to implementation. After implementation it was found that the most of the participants (90%) had increased to a high level and the remaining 10% showed a middle level (Table10).

Table 10 Level of practice of traffic accident prevention before and after implementation

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	16	32.00	45	90.00
Middle	26	52.00	5	10.00
Low	8	16	0	0
$\overline{X}$ ± SD	29.32 ± 2.44		34.10 ± 1.96	
Total	50	100	50	100

Total score: 36, High: More than 30, Middle: 27-30, Low: Less than 27

A paired t-test was applied to compare mean scores of practice of traffic accident prevention before and after implementation. The results revealed statistically significant differences (p<0.001).

Table 11 Comparison of practice of traffic accident prevention before and after implementation

Practice on traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	29.32	2.44	4.78	11.73	<0.001	3.96 to 5.60
Post-test	34.10	1.96				

4.2 General Characteristics of Students

4.2.1 Demographic Characteristics of Students

Of the 247 student participants, the largest groups were 12 year olds (25.91%), and 9th graders (25.91%), and there was a slight majority of males (51.42%).

Table 12 Demographic characteristics of students

Characteristic	Number (n=247)	Percentage
1. Age		
10 years	7	2.83
11 Years	27	10.93
12 Years	64	25.91
13 Years	43	17.41
14 Years	50	20.24
15 Years	9	3.64
16 Years	47	19.03
2. Education		
Grade 3	7	2.83
Grade 4	27	10.93
Grade 5	50	20.24
Grade 6	43	17.41
Grade 7	9	3.64
Grade 8	47	19.03
Grade 9	64	25.91

3. Gender		
Male	127	51.42
Female	120	48.58

4.2.2 Knowledge, Beliefs, Attitudes, Intentions and Practice of Traffic Accident Prevention of Students

(1) Knowledge of Traffic Accident Prevention, Pre- and Post-test

Knowledge of traffic accident prevention was analyzed and compared before and after implementation.

The level of knowledge about traffic accident prevention was categorized as low, middle or high. The results showed that 58.30% of participants showed a high level of traffic accident prevention knowledge, 26.32% a middle level, and 15.38% a low level prior to implementation. After implementation it was found that all participants (100%) had increased to a high level of traffic accident prevention knowledge (Table 13).

Table 13 Level of student knowledge about accident prevention before and after implementation

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	144	58.30	247	100.00
Middle	65	26.32	0	0
Low	38	15.38	0	0
$\overline{X}$ ± SD	19.10 ± 3.80		24.63 ± 0.71	
Total	247	100	247	100

Total score: 25, High: More than 19, Middle: 16-19, Low: Less than 16

A paired t-test was applied to compare mean scores of knowledge about traffic accident prevention before and after implementation. The results revealed statistically significant differences (p<0.001).

Table 14 Comparison of student knowledge about accident prevention before and after implementation

Knowledge on traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	19.10	3.80	5.53	22.93	<0.001	5.05 to 6.00
Post-test	24.63	0.71				

(2) Belief in the Value of Traffic Accident Prevention between Pre- and Post-test

Belief of the value of traffic accident prevention was analyzed and compared before and after implementation.

The level of belief in the value of traffic accident prevention was categorized as low, middle

or high. The results showed that 30% of participants showed a high level of belief, 46% a middle level, and 24% a low level prior to implementation. After implementation it was found that the most of the participants (96.36%) had increased to a high level of belief in the value of traffic accident prevention (Table 1).

Table 15 Level of belief of traffic accident prevention before and after implementation

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	142	30.00	238	96.36
Middle	80	46.00	8	3.24
Low	25	24.00	1	0.40
$\overline{X}$ ± SD	30.60 ± 3.06		33.77 ± 1.73	
Total	247	100	247	100

Total score: 36, High: More than 30, Middle: 27-30, Low: Less than 27

A paired t-test was applied to compare mean scores of belief in the value of traffic accident prevention before and after implementation. The results revealed statistically significant differences (p<0.001).

Table 16 Comparison of traffic accident prevention belief score of student before and after implementation

Belief on traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	30.60	3.06	3.16	14.78	<0.001	5.16 to 7.16
Post- test	33.77	1.73				

(3) Attitudes toward Traffic Accident Prevention, Pre- and Post-test

Attitudes toward traffic accident prevention were analyzed and compared before and after implementation.

Attitudes toward traffic accident prevention were categorized as low, middle or high. The results showed that 65.99% of participants showed a highly positive attitude toward traffic accident prevention attitude, 29.15% a middle level, and 14.86% a low level prior to implementation. After implementation, it was found that the most of the participants (95.55%) had increased to a highly positive attitude toward traffic accident prevention (Table 17).

Table 17 Levels of student attitudes toward traffic accident prevention before and after implementation

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	163	65.99	236	95.55
Middle	72	29.15	7	2.83
Low	12	4.86	4	1.62
$\overline{X}$ ± SD	33.13 ± 2.64		36.80 ± 2.28	
Total	247	100	247	100

Total score: 39, High: More than 32, Middle: 29-32, Low: Less than 29

A paired t-test was applied to compare mean scores of attitudes toward traffic accident prevention before and after implementation. The results revealed statistically significant differences (p<0.001).

Table 18 Comparison of traffic accident prevention attitude score of students before and after implementation

Attitude toward traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	33.13	2.64	3.67	17.96	<0.001	3.27 to 4.07
Post- test	36.80	2.28				

(4) Intentions to Practice Traffic Accident Prevention, Pre- and Post-test

Intentions to practice traffic accident prevention was analyzed and compared before and after implementation.

Levels of intention to practice traffic accident prevention were categorized as low, middle or high. The results showed that 78.54% of participants showed a high level of intention to practice traffic accident prevention, 13.77% a middle level, and 7.69% a low level prior to implementation. After implementation it was found that most of the participants (87.45%) had increased to a high level, and 12.15% to a middle level of intention (Table 19).

Table 19 Level of intention to practice traffic accident prevention before and after implementation

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	194	78.54	216	87.45
Middle	34	13.77	30	12.15
Low	19	7.69	1	0.40
$\overline{X}$ ± SD	23.68 ± 2.41		25.09 ± 1.99	
Total	247	100	247	100

Total score: 27, High: More than 22, Middle: 20 - 22, Low: Less than 20

A paired t-test was applied to compare mean scores of intention to practice traffic accident prevention before and after implementation. The results revealed statistically significant differences (p<0.001).

Table 20 Comparison of student intentions to practice traffic accident prevention before and after implementation

Intentions to traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	23.68	2.41	1.41	7.09	<0.001	1.02 to 1.81
Post-test	25.09	1.99				

(5) Practice of Traffic Accident Prevention between Pre- and Post-test

Practice of traffic accident prevention was analyzed and compared before and after implementation.

Levels of practice of traffic accident prevention were categorized as low, middle or high. The results showed that 32% of participants showed a high level of practice of traffic accident prevention, 52% a middle level, and 16% a low level prior to implementation. After implementation, it was found that most of the participants (90%) increased to a high level and the remaining 10% to a middle level of traffic accident prevention practice (Table 21).

Table 21 Levels of practice of traffic accident prevention before and after implementation

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	163	65.99	88	35.63
Middle	56	22.67	140	56.68
Low	28	11.34	19	7.69
$\overline{X}$ ± SD	18.12 ± 3.11		22.09 ± 1.91	
Total	247	100	247	100

Total score: 27, High: More than 22, Middle: 20 - 22, Low: Less than 20

A paired t-test was applied to compare mean scores of practice of traffic accident prevention before and after implementation. The results revealed statistically significant differences (p<0.001).

Table 22 Comparison of practice of traffic accident prevention by students before and after implementation

Practice on traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	18.12	3.11	3.97	16.82	<0.001	3.50 to 4.43
Post-test	22.08	3.11				

(6) Correlation

1) Student Group

Analysis of correlations among the student group by Pearson Product Moment Correlation Coefficient found that there was no significant correlation between knowledge, belief, attitude or practice (p=0.2110, 0.3056, 0.7642), but that there was significant correlation between intention and practice (p=0.0049), as shown in Table 23.

Table 23 Correlations between knowledge, belief, attitude, intention and practice in the student group

Behaviors	Correlation Coefficient (r)	*p*-value
Knowledge and Practice	–0.0799	0.2110
Belief and Practice	0.0655	0.3056
Attitude and Practice	–0.0192	0.7642
Intention and Practice	0.1784	0.0049

Since the result showed that intention and practice was significantly correlated, we next looked for possible correlations between knowledge, belief and attitude and intention. We found that knowledge had no correlation with intention (p=0.9135), but attitude and belief were significantly correlated with intention (p<0.001), as shown in Table 24.

Table 24 Correlations between knowledge, belief, attitude, and intention in the student group

Variable	Correlation Coefficient (r)	*p*-value
Knowledge and intention	−0.0069	0.9135
Belief and intention	0.3636	<0.001
Attitude and intention	0.4779	<0.001

2) Community Group

Analysis of correlation by Pearson Product Moment Correlation Coefficient in the stakeholder group found no significant correlation between knowledge, belief, attitude, intention and practice (p=0.9361, 0.8037, 0.2589, 0.0662) as shown in Table 25.

Table 25 Correlation between knowledge, belief, attitude, intention and practice in stakeholders or community group

Variables	Correlation Coefficient (r)	*p*-value
Knowledge and Practice	−0.0116	0.9361
Belief and Practice	−0.0361	0.8037
Attitude and Practice	0.1627	0.2589
Intention and Practice	0.2619	0.0662

4.3 Results from Hiyari-Hatto Activities

Hiyari-Hatto activities in the communities revealed that there were 15 critical spots in the area, and message signs were placed at these spots, as shown in Table 26.

Table 26 Critical spots (15 locations) from Hiyari-Hatto

Critical Spot	Message / Signs
1. Sharp curve :Nong Kae	City Area, Reduce Speed
2. Highway no.2110	Careful, Frequent Accidents
3. Sharp curve: Nong - No	City Area, Reduce Speed
4. Pai-Dum Crossroad	Careful, Frequent Accidents
5. Yang-Kum Crossroad	City Area, Reduce Speed
6. Don-khee, Don-Sawan temple edge Crossroad	City Area, Reduce Speed
7. Don-Lumduan Crossroad (near Nongwang Temple)	City Area, Reduce Speed
8. Don-Lumduan Crossroad (mid pavilion)	Careful, Frequent Accidents

9. Junction between moo.1 and moo.3	City Area, Reduce Speed
10. Nongwang Tai Crossroad moo.10 (near school)	City Area, Reduce Speed
11. In front of Ban-Gae School	City Area, Reduce Speed
12. In front of Sub-district administrative organization	City Area, Reduce Speed
13. Prapa Crossroad moo.2	City Area, Reduce Speed
14. Hor-Praputh Crossroad moo.8	City Area, Reduce Speed
15. Highway no. 2110	Careful, Grade Separation

4.4 Results from Future Search Conference

The results of Future Search Conference were divided into 3 groups; namely, factors in traffic accidents over the past 5 years and in traffic accidents at present, and future expectations for traffic accident prevention.

(1) Factors in traffic accidents over the past 5 years

High frequencies of traffic accidents were reported between motorcycles and cars; cars with animals; cars with farm vehicle; accidents at curves in the road; drunk driving; driving while sleepy; lack of helmet use; driving at high speed within the community; racing between cars or motorcycles by young drivers; lack of traffic lights or signs; narrow and uneven roads; cars without signal lights; lack of street lights; many kinds of animals on the road (cow, chicken, duck) as well as farm vehicles and sugar cane trucks; lack of knowledge of traffic rules among people; lack of parental instruction of traffic rules to children; and lack of public relation advertisements.

(2) Factors in traffic accidents at present

Conditions at present include animals on the road causing accidents, drunk driving, driving at high speed in the community, unlicensed driving, racing between car drivers and motorcyclists, lack of helmet use, lack of traffic signs, lack of street lights, curved road, sugar cane trucks on roads, poor road condition, lack of knowledge of traffic rules among people, lack of public relation advertisements, but also include policemen teaching traffic rules in the community, and increasing concern about traffic safety issues within many organizations.

(3) Future expectations for traffic accident prevention

Expectations for the future include traffic lights & signs; traffic lights on the intersections; street lights; improved roads; expanded lanes for animal and pedestrian use; extended roads for pathways; u-turn lanes; improved driving etiquette; driving at responsible speeds; no driving while under the influence of alcohol (“If you drink, don’t drive. If you drive, don’t drink.”); vigorous implementation of traffic laws; car inspections; prohibiting children from driving on roads; setting road safety guidelines in the community by stakeholders; more volunteerism among stakeholders; increased governmental budgetary support; setting limitation of driving speeds; setting of checkpoints (alcohol, vehicle, license); increased concern for traffic safety among policemen; training on traffic rules in the community; traffic accident prevention education in schools a nd communities; increasing knowledge for traffic accident prevention in multiple groups, including parents; policeman education of people in the com-

munity; motorbike training for students; raising motivation on the use of helmets and safety belts; leadership for traffic accident prevention; encouraging communities to engage in traffic accident prevention; traffic accident prevention campaigns; setting guidelines for traffic accident prevention; driving license training; handbook distribution; and participation of all stakeholders in community activities.

4.5 Accident Statistics in Jurisdiction of Non-Soong Police Station, Non-Soong Sub-district, and Yangtalad District, Kalasin, Thailand

After implementation, the statistics of traffic accidents show decreases in the numbers of fatalities and injuries. In the year 2005 in Itui sub-district, there were 2 deaths and 3 injuries, and in the year 2006 there were still 4 deaths and 2 injuries. In the year 2007-2008, however, there is was only 1 injury and no deaths, and in addition, there were no accidents during the New Year and Songkran festival periods as showed in Table 27.

Table 27 Accident statistics in Non-Soong, Itui Sub-district, Kalasin Province

2005			**2006**		
14 accidents			**9 accidents**		
Hua-nakun sub district 11 times	Death 3 people	Injured 5 people	**Hua-nakun sub district** 5 times	Death 3 people	Injured 1 person
Itui sub district 3 times	Death 2 people	Injured 3 people	**Itui sub district** 4 times	Death 4 people	Injured 2 people
Non-Soong sub district No accidents	Death None	Injured None	**Non-Soong sub district** No accidents	Death None	Injured None
No accidents in New Year period			No accidents in New Year period		
Accident occurred in Songkran period			Accident occurred in Songkran period		

2007			**2008 - until now**		
9 accidents			**5 accidents**		
Hua-nakun sub district 5 times	Death 5 people	Injured 10 people	**Hua-nakun sub district** 4 times	Death 3 people	Injured 2 people
Itui sub district 1 time	Death None	Injured 1 person	**Itui sub district** 1 time	Death None	Injured 1 person
Non-Soong sub district 3 times	Death 1 person	Injured 5 people	**Non-Soong sub district** None	Death None	Injured None
No accidents in New Year period			No accidents in New Year period		
No accidents in Songkran period			No accidents in Songkran period		

4.6 Competition among Villages for Traffic Accident Prevention

A competition was arranged among all villages in the Itui sub-district based on 1) no deadly accident cases, 2) no traffic accidents, 3) set-up of committees for traffic accident in the community, 4) traffic accident prevention activities in the community, and 5) traffic accident prevention PR via local broadcasting and distribution of a handbook.

4.7 Essay Competition on Traffic Accident Prevention

Students in 4 schools of Itui sub-district administration participated in various activities, including training as traffic accident prevention volunteers, and distribution of traffic safety handbooks. They gained knowledge and experience of traffic safety and accident prevention. An essay competition on the theme of traffic accident prevention was subsequently held among the students to increase leadership and to raise awareness of traffic accidents and safety. Forty-eight students from 4 schools participated in the competition. It served as a positive reinforcement for all of the students, who were given awards (from the 1st prize to participation award) from the chairperson of ATRANS.

CHAPTER 5 CONCLUSION AND RECOMMENDATIONS

5. Conclusion and Recommendations

The aim of this participatory action research was to study the development potential for traffic accident prevention among stakeholders in communities beside highways in the northeast of Thailand. This study was conducted in the Itui sub-district administrative organization, Yangtalad district, Kalasin province, Thailand. There were 2 sample groups: one group of 50 stakeholders from communities, such as heads of villages, health personnel, policemen, members of district administrative organizations, deputy heads of villages, health volunteers, monks, EMS staff working on accident prevention in communities and a second group of 247 students from 4 schools, namely, Donkeevithaya, Yangkumvithayaschoo, Bankaevothaya and Nongwangbokaew schools.

In this research, Future Search Conference and Hiyari-Hatto approaches were used in the analysis of factors in traffic accidents in the communities, which involved planning and implementing various activities together, such as public relation campaigns, advertisements through local radio broadcasting, driver's license training, distribution of traffic accident prevention handbooks , holding of an essay competition among students, and a competition on traffic accident prevention among participating villages. All of these activities focused first on "participation," and then "evaluation" of both qualitative and quantitative data. Quantitative data were analyzed using STATA program, and qualitative data using content analysis.

5.1 Conclusion

5.1.1 Stakeholders

The total sample consisted of 50 stakeholders. Most of them are age groups of 41-45 (28%) and 46-50 (28%) male. The major occupations were government employee (52%) and agriculture (36%). Major non-employment designations (74%) included members of district Administrative Organization, deputy-heads of villages, and health volunteers. The majority had monthly income of more than 20,000 baht (70%), and were married (88%), In terms of educational level, bachelor degree holders (34%) and high school graduates (28%) constitute the largest segments.

Following implementation, the mean scores of knowledge, beliefs, attitudes, intentions and practice of traffic accident prevention among stakeholders increased significantly ($p< 0.001$).

5.1.2 Students

Of the 247 student participants, the largest groups were 12 year olds (25.91%), and 9th graders (25.91%), and there was a slight majority of males (51.42%).

Following implementation, the mean scores of knowledge, belief, attitude, intention and practice of traffic accident prevention among students increased significantly ($p < 0.001$).

5.1.3 Future Search Conference

The results of Future Search Conference were divided into 3 groups; namely, factors in traffic accidents over the past 5 years and in traffic accidents at present, and future expectations for traffic accident prevention.

(1) Factors in traffic accidents over the past 5 years

High frequencies of traffic accidents were reported between motorcycles and cars; cars with animals; cars with farm vehicle; accidents at curves in the road; drunk driving; driving while sleepy; lack of helmet use; driving at high speed within the community; racing between cars or motorcycles by young drivers; lack of traffic lights or signs; narrow and uneven roads; cars without signal lights; lack of street lights; many kinds of animals on the road (cow, chicken, duck) as well as farm vehicles and sugar cane trucks; lack of knowledge of traffic rules among people; lack of parental instruction of traffic rules to children; and lack of public relation advertisements.

(2) Factors in traffic accidents at present

Conditions at present include animals on the road causing accidents, drunk driving, driving at high speed in the community, unlicensed driving, racing between car drivers and motorcyclists, lack of helmet use, lack of traffic signs, lack of street lights, curved road, sugar cane trucks on roads, poor road condition, lack of knowledge of traffic rules among people, lack of public relation advertisements, but also include policemen teaching traffic rules in the community, and increasing concern about traffic safety issues within many organizations.

(3) Future expectations for traffic accident prevention

Expectations for the future include traffic lights & signs; traffic lights on the intersections; street lights; improved roads; expanded lanes for animal and pedestrian use; extended roads for pathways; u-turn lanes; improved driving etiquette; driving at responsible speeds; no driving while under the influence of alcohol ("If you drink, don't drive. If you drive, don't drink."); vigorous implementation of traffic laws; car inspections; prohibiting children from driving on roads; setting road safety guidelines in the community by stakeholders; more volunteerism among stakeholders; increased governmental budgetary support; setting limitation of driving speeds; setting of checkpoints (alcohol, vehicle, license); increased concern for traffic safety among policemen; training on traffic rules in the community; traffic accident prevention education in schools and communities; increasing knowledge for traffic accident prevention in multiple groups, including parents; policeman education of people in the community; motorbike training for students; raising motivation on the use of helmets and safety belts; leadership for traffic accident prevention; encouraging communities to engage in traffic accident prevention; traffic accident prevention campaigns; setting guidelines for traffic accident prevention; driving license training; handbook distribution; and participation of all stakeholders in community activities.

5.1.4 Hiyari-Hatto

The results of the Hiyari-Hatto exercise showed the same results from analyses of car, mo-

torcycle and pedestrian experiences. 15 risky spots were identified in the communities. This exercises prompted stakeholders to develop increased concern about traffic accidents, and to conduct public relation advertisements for traffic accident prevention in the communities.

5.1.5 Competition among Villages for Traffic Accident Prevention

A competition was arranged among all villages in the Itui sub-district based on 1) no deadly accident cases, 2) no traffic accidents, 3) set-up of committees for traffic accident in the community, 4) traffic accident prevention activities in the community, and 5) traffic accident prevention PR via local broadcasting and distribution of a handbook.

5.1.6 Essay Competition on Traffic Accident Prevention

Students in 4 schools of Itui sub-district administration participated in various activities, including training as traffic accident prevention volunteers, and distribution of traffic safety handbooks. They gained knowledge and experience of traffic safety and accident prevention. An essay competition on the theme of traffic accident prevention was subsequently held among the students to increase leadership and to raise awareness of traffic accidents and safety. Forty-eight students from 4 schools participated in the competition. It served as a positive reinforcement for all of the students, who were given awards (from the 1st prize to participation award) from the chairperson of ATRANS.

5.1.7 Conclusion

This study was a participatory action research to enable situational analysis, to enhance development potential of stakeholders for traffic accident prevention, and to implement traffic accident prevention programs in communities and schools in the Itui sub-district administrative organization, Yangtalad District, Kalasin Province, Thailand.

Paired t-tests were applied to compare statistical significance of differences in mean scores of traffic accident prevention knowledge, beliefs, attitudes, intentions and practice before and after implementation. The results revealed statistically significant differences (p<0.001) in both the stakeholders and students groups. When evaluating possible correlations, it was found that in the student group, knowledge had no significant correlation with any other item, but belief and attitude were significantly correlated to intention, and intention was directly correlated to practice. In the stakeholder and community group, there was no significant correlation among variables.

A Future Search Conference was used for situational analysis of the past, present and the future for traffic accident prevention, and the Hiyari-Hatto approach was used to identify risky points in the community in terms of car, motorcycle and pedestrian traffic accidents. The results revealed 15 risky spots in the communities, which prompted the conduct of awareness campaigns in these areas. In addition, a traffic safety activity competition among villages and an essay competition among students on the theme of traffic accident prevention were held.

This study suggests that behavioral intervention using a participatory approach that incorporates Future Search Conference and Hiyari-Hatto exercises is effective in to increasing

awareness and concern for traffic accident prevention.

5.2 Discussion

5.2.1 Stakeholders

After implementation, the mean scores of knowledge, belief, attitude, intention and practice of traffic accident prevention of stakeholders increased significantly ($p < 0.001$). This is attributable to the many activities focused on traffic accident prevention, such as training, meeting, discussion, license training and campaign about traffic accident prevention, which allow stakeholders to gain knowledge, develop positive attitudes, beliefs, and intentions and practice traffic safety. It is therefore necessary for all stakeholders to receive information and education, and to facilitate communication through participation together. The use of the Hiyari-Hatto and Future Search Conference approaches helped to make them aware of their problems, their needs, and how to meet their requirements.

5.2.2 Students

After implementation, the mean scores of knowledge, belief, attitude, intention and practice of traffic accident prevention of students were increased significantly ($p<0.001$). Correlation analysis showed that among students intention correlated with practice, while attitude and belief correlated with intention. This indicates that behavior modification for traffic accident prevention must work to improve attitudes and beliefs, and most importantly, intentions.

Many activities geared to traffic accident prevention, such as training, meeting, discussion, essay competition, volunteer training for road safety made students gain knowledge, attitude, belief and intention, leading to increased practice of safety behaviors. This is consistent with the normative theory that attitude and belief have effects on intention, and that intention is correlated with practice.

5.2.3 Future Search Conference

The results of Future Search Conference were divided into 3 groups; namely, factors in traffic accidents over the past 5 years and in traffic accidents at present, and future expectations for traffic accident prevention.

Future Search Conference allows people to express their ideas and experiences, including future expectations. The participating stakeholders are required to share and exchange ideas with one another, which leads to planning and implementation for traffic accident prevention programs involving human factors, environment, and regulations within their community.

5.2.4 Hiyari-Hatto

The results of the Hiyari-Hatto exercise were similar for car, motorcycle and pedestrian analysis. For each group, 15 risky spots were identified in the communities. This led stakeholders to develop increased awareness of and concern for traffic accidents, and to conduct public relations advertising for traffic accident prevention in the communities.

Hiyari-Hatto allows people to identify risky areas in their communities, and makes them

concerned about risk. They have to solve their problems in ways appropriate to their local potential and situation. The sub-district administrative organization as made plans and budgets available for the next year in order to continue sustainable development, and ultimately to improve the quality of life of people in the community.

5.2.5 Competition among Villages for Traffic Accident Prevention

A competition was arranged among all villages in the Itui sub-district based on 1) no deadly accident cases, 2) no traffic accidents, 3) set-up of committees for traffic accident in the community, 4) traffic accident prevention activities in the community, and 5) traffic accident prevention PR via local broadcasting and distribution of a handbook.

This competition prompted people to attempt to improve the traffic safety situation in their villages, and receiving awards in particular made them take pride in their community.

5.2.6 Essay Competition on Traffic Accident Prevention

Students in 4 schools of Itui sub-district administration participated in various activities, including training as traffic accident prevention volunteers, and distribution of traffic safety handbooks. They gained knowledge and experience of traffic safety and accident prevention. An essay competition on the theme of traffic accident prevention was subsequently held among the students to increase leadership and to raise awareness of traffic accidents and safety. Forty-eight students from 4 schools participated in the competition. It served as a positive reinforcement for all of the students, who were given awards (from the 1st prize to participation award) from the chairperson of ATRANS.

This competition prompted students to increase their concern about their behavior (knowledge, attitudes, beliefs, intentions and practice) in regard to traffic accident prevention, and moreover further reinforced positive behavior relating to road safety.

5.3 Recommendations

5.3.1 Recommendations for Application

(1) Traffic accident prevention should be publicized to other communities.
(2) The Hiyari-Hatto approach should be applied to identify risky spots and evaluate the physical environment in communities.
(3) Future Search Conference is needed to make people aware of traffic accident problems within their community and to make them think about traffic accident prevention issues in the past, present, and future.
(4) The important changes to achieve are increases in positive intentions, attitudes and beliefs about traffic accident prevention.
(5) Participation by all stakeholders makes traffic accident prevention development sustainable.

5.3.2 Recommendations for Further Research

(1) Studies should be conducted with full stakeholder participation at district, provincial and national levels.

(2) Continuous study in the same area is needed to assess and achieve sustainability.
(3) Resource allocation to both upper and lower tiers in communities enables mutual participation.
(4) Future Search Conference and Hiyari-Hatto should be applied together for other targets in traffic accident prevention.
(5) Social norm theory should be applied in other traffic accident prevention programs.

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APPENDIX

APPENDIX A: (1) STUDENTS (ENGLISH)

The Development Potential for Traffic Accident Prevention of Stakeholders in Communities beside Highways in the Northeast of Thailand

Part 1

For Student Personal Data

Instructions: Please fill in the blank and check (/) in the appropriate box.

---

1. School .....

2. Gender ☐ Male ☐ Female

3. Education

☐ Grade.3 ☐ Grade.4
☐ Grade.5 ☐ Grade.6
☐ Grade.7 ☐ Grade.8
☐ Grade.9

4. Age

☐ Below 10 years old
☐ 10 – 15 years old
☐ 16 – 20 years old

Part 2

Accident Prevention Knowledge

Instruction: Please choose the best answer to each question.

1. What type of car is most risky for accident?
   a. No rear window nor turn signal
   b. No cushion
   c. No noisy exhaust
   d. No airbag

2. Which road conditions create poor visibility?
   a. Rough road
   b. Sharp curve
   c. Traffic jam
   d. Light reflected from asphalt

3. What is proper when driving in smoky conditions?
   a. Speeding
   b. Stop car until the fire is extinguished
   c. Call the police
   d. Turn on lights or warning sign

4. How can we decrease severe motorcycle accidents?
   a. Drive a good car
   b. Use brakes well
   c. Wear helmet
   d. Drive on good roads

5. Why should you not take amphetamines when driving?
   a. May fall asleep
   b. May become moody
   c. May feel depressed
   d. May become energetic

6. Which of the following is good passenger behavior?
   a. Get on or get off only after a bus has completely stopped
   b. Stand stably on the stair when riding
   c. Putting the head out of the vehicle window to get fresh air
   d. Riding quietly on the roof of the bus

APPENDIX A: (1) STUDENTS (ENGLISH)

7. Which of the following is a good practice when crossing the street in an urban area?
   a. Crossing road by stepping out from in front of or behind the car
   b. Crossing road under overpass
   c. Crossing road on pedestrian's crossing
   d. Crossing road anywhere

8. Which type of the car we should not use in the day time?
   a. With poor quality tyre and cracked rear window
   b. With broken brake
   c. Without head light
   d. Without brake light

9. Which age group most frequently encounters traffic accidents?
   a. Children
   b. Teenagers
   c. Adults
   d. Seniors

10. Why should we wear helmet when riding motorbike?
    a. To prevent accidents
    b. To prevent sun and heat
    c. To prevent wind and insects going into the eyes
    d. To prevent damage to the brain in case accidents happen

11. What is curb color that for parking zones?
    a. White – red
    b. White – yellow
    c. White – black
    d. All of the above

12. Which color stands for temporary parking road section?
    a. White – red
    b. White – yellow
    c. White – black
    d. All of the above

13. Which color stands for No parking road section?
    a. White – red
    b. White – yellow
    c. White – black
    d. All of the above

14. Which is safe driving behavior?
    a. Healthy, good driving, consideration for others, respect for the rules
    b. Have a driver's license, reach the destination on time
    c. Continue driving even when feeling exhausted or sleepy
    d. Respecting the rule when meeting the police

15. Which is the mark on the road for "no passing"?
    a. Yellow dashed line
    b. White dashed line
    c. Thick yellow line
    d. Thick white line

16. For traffic safety, which shirt color is most appropriate at night?
    a. Black
    b. Purple
    c. Grey
    d. White

17. Which of the following is the victim of a traffic accident?
    a. Injury
    b. Family
    c. Community and nation
    d. Are all right (All are correct?)

18. What should we do when driving in the rain?
    a. Turn down lights
    b. Turn on headlights
    c. Turn on the left turn signal at all times
    d. Turn on the right turn signal at all times

19. What should we do before driving on highway?
    a. Be an adult
    b. Be used to driving and have a driver's license
    c. Have a driver's license and able to drive a car
    d. Be able to drive with one hand

20. What is a characteristic of motorbike for safety?
    a. Noisy exhaust
    b. Remove rear-view mirror
    c. Remove turn signal
    d. Low horsepower

21. Which type of organ-damage is the leading cause of death?
    a. Brain / skull
    b. Leg
    c. Arm
    d. Back

APPENDIX A: (1) STUDENTS (ENGLISH)

22. Which of the following situations are splints used for?
    a. Bleeding
    b. Broken limbs
    c. Bleeding head
    d. Abrasions

23. How should we move the patient with a damaged spine?
    a. Carry and transfer to the hospital immediately
    b. Lay down on the cot or hard wood sheet only
    c. Help the patient to sit up and walk
    d. Immediately go to the hospital and do not think about how to move the patient

24. What is likely to be a cause of paralysis?
    a. Bleeding head
    b. Broken spine
    c. Broken leg
    d. Facial injury

25. What is the telephone number for transferring a patient to the hospital?
    a. 191
    b. 1559
    c. 1669
    d. 1569

Part 3

Attitude toward Traffic Accident Prevention

Instruction: Please indicate to which extent you agree with the following statement by putting a / in the appropriate box.

Attitude	Agree	Unsure	Disagree
1. Being drunk makes people more careful when driving, so it is not dangerous			
2. Regular vehicle inspections help decrease accidents			
3. Turning traffic lights on all the time decreases accidents			
4. Respecting and following traffic rules decreases traffic accidents			
5. It is dangerous to drive closely to another car or pull out suddenly in front of another car			
6. Young people like to remove car mirrors, but this has no effect on traffic accidents			
7. Using a helmet or not will not make any difference in terms of rate of injury			
8. Motorcycle racing on the highway is normal for the young			
9. When driving on the familiar road, it is not necessary to drive slowly			
10. We should use signal and horn when passing a car			
11. For traffic accident prevention all stakeholder should work together: SDAO, teacher, health personnel, head of village, etc.			
12. Traffic accidents are an urgent issue.			
13. It's the duty of all people in a community to solve problems together			

Part 4

Belief for Traffic Accident Prevention

Instruction: Please indicate to which extent you agree with the following statement by putting a / in the appropriate box.

Belief	Agree	Unsure	Disagree
1. Drunk driving increases the risk of accident			
2. Helmet use is not useful			
3. Safety belts prevent severe traffic accidents			
4. A driver's license is not necessary while driving			
5. Accident is related with bad luck			
6. Accidents are preventable			
7. Not drinking and driving can prevent accidents			
8. Driving at high speed increases risk of accidents			
9. Traffic accidents can be prevented by avoiding driving			
10. If you feel sleepy or exhausted, you should avoid driving			
11. Driving during heavy rain may increase the risk of accident			
12. Helmet use is necessary only when driving long distances			

Part 5

Intention to Work for Accident Prevention

Instruction: Please indicate to which extent the following statement applies to yourself by putting a / in the appropriate box.

Intention	Yes	Unsure	No
1. Intend to motivate neighborhood to traffic accident prevention			
2. Intend to join traffic accident prevention activities			
3. Intend to use helmet whenever riding motorcycle			
4. Intend to use safety belt whenever traveling by car			
5. Intend to follow regulations for traffic accident prevention in the community and school			
6. Intend to be a role model for traffic accident prevention			
7. Intend to conduct campaign for traffic accident prevention			
8. Intend to plan for traffic accident prevention in sub-district administrative organization			
9. Intend not to drive with high speed			

Part 6

Behavior for Accident Prevention

Instruction: Please indicate to which extent the following statement applies to yourself by putting a / in the appropriate box.

Behavior	Always	Sometimes	Never
1. Uses helmet when riding motorcycle			
2. Stimulates neighborhoods for traffic accident prevention			
3. Follows regulations for traffic accident prevention in the community			
4. Always checks car before driving			
5. Conducts campaign for traffic accident prevention			
6. Cooperates with police for traffic accident prevention in the community			
7. Cooperates with health personnel for traffic accident alleviation in the community			
8. Drives with high speed			
9. Acts as a student traffic safety volunteer			

Qualitative Questionnaire

Part 1 Personal Data

Name ..... Last name .....
Age ..... Grade .....
School .....

Part 2 Personal Accident Prevention

1. Does your school offer accident prevention training?

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2. Does your school have teaching materials about how to prevent accidents?

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3. Does the community promote accident prevention?

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4. Does the school have staff responsible for accident prevention procedures?

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5. Does the school cooperate with the health center, police station and sub-district administrative organization about accident prevention?

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6. How often do you follow traffic laws, and how?

.....
.....
.....

7. Have you participated in accident prevention program?

.....
.....
.....

APPENDIX A: (1) STUDENTS (ENGLISH)

Part 3 Road accident prevention

1. How are road conditions near your school? And how much risk of accidents?

.....

.....

.....

2. Does the school deal with rough roads in the vicinity? How?

.....

.....

.....

Part 4 Vehicle accident prevention

1. How is your car's condition?

.....

.....

.....

2. How do you check the car before use?

.....

.....

.....

3. In what condition are motorcycle's parts?

.....

.....

.....

4. How is your driving?

.....

.....

.....

5. How does the school deal with speed limits?

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.....

APPENDIX A: (1) STUDENTS (ENGLISH)

Part 5 Environment accident prevention

1. What environments in school that might contribute to accidents?

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2. How does the school maintain environmental standard regarding causes of accidents?

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3. Does the school have warning, prohibition and public relation signs about traffic issues?

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.....

.....

Development Potential for Traffic Accident Prevention of Stakeholders in Communities beside Highways in the Northeast of Thailand (Post-test)

Part 1

For Stakeholder Personal Data

Instructions: Please fill in the blank and check (/) in the appropriate box.

---

1. Age .....

2. Gender ☐ Male ☐ Female

3. Occupation
   - ☐ Government officer
   - ☐ Employee
   - ☐ Merchant
   - ☐ Private employee
   - ☐ Others .....

Part 2

Accident Prevention Knowledge

Instruction: Please choose the best answer to each question.

1. What type of car is most risky for accident?
   a. No rear window nor turn signal
   b. No cushion
   c. No noisy exhaust
   d. No airbag

2. Which road conditions create poor visibility?
   a. Rough road
   b. Sharp curve
   c. Traffic jam
   d. Light reflected from asphalt

3. What is proper when driving in smoky conditions?
   a. Speeding
   b. Stop car until the fire is extinguished
   c. Call the police
   d. Turn on lights or warning sign

4. How can we decrease severe motorcycle accidents?
   a. Drive a good car
   b. Use brakes well
   c. Wear helmet
   d. Drive on good roads

5. Why should you not take amphetamines when driving?
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   c. May feel depressed
   d. May become energetic

6. Which of the following is good passenger behavior?
   a. Get on or get off only after a bus has completely stopped
   b. Stand stably on the stair when riding
   c. Putting the head out of the vehicle window to get fresh air
   d. Riding quietly on the roof of the bus

APPENDIX A: (2) STAKEHOLDERS (ENGLISH)

7. Which of the following is a good practice when crossing the street in an urban area?
   a. Crossing road by stepping out from in front of or behind the car
   b. Crossing road under overpass
   c. Crossing road on pedestrian's crossing
   d. Crossing road anywhere

8. Which type of the car we should not use in the day time?
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    c. To prevent wind and insects going into the eyes
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11. What is curb color that for parking zones?
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12. Which color stands for temporary parking road section?
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    d. All of the above

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    a. White – red
    b. White – yellow
    c. White – black
    d. All of the above

APPENDIX A: (2) STAKEHOLDERS (ENGLISH)

14. Which is safe driving behavior?
    a. Healthy, good driving, consideration for others, respect for the rules
    b. Have a driver's license, reach the destination on time
    c. Continue driving even when feeling exhausted or sleepy
    d. Respecting the rule when meeting the police

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    d. Are all right (All are correct?)

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    d. Turn on the right turn signal at all times

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    a. Be an adult
    b. Be used to driving and have a driver's license
    c. Have a driver's license and able to drive a car
    d. Be able to drive with one hand

20. What is a characteristic of motorbike for safety?
    a. Noisy exhaust
    b. Remove rear-view mirror
    c. Remove turn signal
    d. Low horsepower

APPENDIX A: (2) STAKEHOLDERS (ENGLISH)

21. Which type of organ-damage is the leading cause of death?
    a. Brain / skull
    b. Leg
    c. Arm
    d. Back

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    a. Bleeding
    b. Broken limbs
    c. Bleeding head
    d. Abrasions

23. How should we move the patient with a damaged spine?
    a. Carry and transfer to the hospital immediately
    b. Lay down on the cot or hard wood sheet only
    c. Help the patient to sit up and walk
    d. Immediately go to the hospital and do not think about how to move the patient

24. What is likely to be a cause of paralysis?
    a. Bleeding head
    b. Broken spine
    c. Broken leg
    d. Facial injury

25. What is the telephone number for transferring a patient to the hospital?
    a. 191
    b. 1559
    c. 1669
    d. 1569

Part 3

Attitude toward Traffic Accident Prevention

Instruction: Please indicate to which extent you agree with the following statement by putting a / in the appropriate box.

Attitude	Agree	Unsure	Disagree
1. Being drunk makes people more careful when driving, so it is not dangerous			
2. Regular vehicle inspections help decrease accidents			
3. Turning traffic lights on all the time decreases accidents			
4. Respecting and following traffic rules decreases traffic accidents			
5. It is dangerous to drive closely to another car or pull out suddenly in front of another car			
6. Young people like to remove car mirrors, but this has no effect on traffic accidents			
7. Using a helmet or not will not make any difference in terms of rate of injury			
8. Motorcycle racing on the highway is normal for the young			
9. When driving on the familiar road, it is not necessary to drive slowly			
10. We should use signal and horn when passing a car			
11. For traffic accident prevention all stakeholder should work together : SDAO, teacher, health personnel, head of village, etc.			
12. Traffic accidents are an urgent issue.			
13. It's the duty of all people in a community to solve problems together			

Part 4

Belief for Traffic Accident Prevention

Instruction: Please indicate to which extent you agree with the following statement by putting a / in the appropriate box.

Belief	Agree	Unsure	Disagree
1. Drunk driving increases the risk of accident			
2. Helmet use is not useful			
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4. A driver's license is not necessary while driving			
5. Accident is related with bad luck			
6. Accidents are preventable			
7. Not drinking and driving can prevent accidents			
8. Driving at high speed increases risk of accidents			
9. Traffic accidents can be prevented by avoiding driving			
10. If you feel sleepy or exhausted, you should avoid driving			
11. Driving during heavy rain may increase the risk of accident			
12. Helmet use is necessary only when driving long distances			

Part 5

Intention to Work for Accident Prevention

Instruction: Please indicate to which extent the following statement applies to yourself by putting a / in the appropriate box.

Intention	Yes	Unsure	No
1. Intend to motivate neighborhood to traffic accident prevention			
2. Intend to join traffic accident prevention activities			
3. Intend to use helmet whenever riding motorcycle			
4. Intend to use safety belt whenever traveling by car			
5. Intend to follow regulations for traffic accident prevention in the community and school			
6. Intend to be a role model for traffic accident prevention			
7. Intend to conduct campaign for traffic accident prevention			
8. Intend to plan for traffic accident prevention in sub-district administrative organization			
9. Intend to work with policemen and health personnel for traffic accident prevention			
10. Intend not to drive drunk			
11. Intend to cooperate with health personnel when finding a victim in traffic accident situation.			
12. Intend to move victims of traffic accidents following an appropriate procedures			
13. Intend to help the health station assist victims of traffic accident safely			

Part 6

Behavior for Accident Prevention

Instruction: Please indicate to which extent the following statement applies to yourself by putting a / in the appropriate box.

Behavior	Always	Sometimes	Never
1. Uses helmet when riding motorcycle			
2. Stimulates neighborhoods for traffic accident prevention			
3. Follows regulations for traffic accident prevention in the community			
4. Always checks car before driving			
5. Conducts campaign for traffic accident prevention			
6. Cooperates with police for traffic accident prevention in the community			
7. Cooperates with health personnel for traffic accident alleviation in the community			
8. Plans for budgetary support for traffic accident prevention in the community			
9. Conducts good practice for traffic accident prevention in the community			
10. Calls police to request help for traffic accident victims			
11. Calls 1669 to request help for traffic accident victims			
12. Cooperating with health personnel to help traffic accident victims			

Qualitative Questionnaire

Part 1 Personal Data

Name ..... Last name .....
Age ..... Grade .....
School .....

Part 2 Personal Accident Prevention

1. Does your school offer accident prevention training?

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2. Does your school have teaching materials about how to prevent accidents?

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3. Does the community promote accident prevention?

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4. Does the school have staff responsible for accident prevention procedures?

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5. Does the school cooperate with the health center, police station and sub-district administrative organization about accident prevention?

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6. How often do you follow traffic laws, and how?

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.....
.....

7. Have you participated in accident prevention program?

.....
.....
.....

APPENDIX A: (2) STAKEHOLDERS (ENGLISH)

Part 3 Road accident prevention

1. How are road conditions near your school? And how much risk of accidents?

.....

.....

.....

2. Does the school deal with rough roads in the vicinity? How?

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Part 4 Vehicle accident prevention

1. How is your car's condition?

.....

.....

.....

2. How do you check the car before use?

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3. In what condition are motorcycle's parts?

.....

.....

.....

4. How is your driving?

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.....

5. How does the school deal with speed limits?

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Part 5 Environment accident prevention

1. What environments in school that might contribute to accidents?

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2. How does the school maintain environmental standard regarding causes of accidents?

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3. Does the school have warning, prohibition and public relation signs about traffic issues?

การพัฒนาศักยภาพการดำเนินงานป้องกันและแก้ไขปัญหาอุบัติภัยจากการจราจรของชุมชนริมทางหลวง

ตอนที่ 1 สำหรับนักเรียน

แบบสอบถามข้อมูลส่วนบุคคล

คำชี้แจง โปรดใส่เครื่องหมาย / ในช่องที่ตรงกับความจริง หรือเติมข้อความให้สมบูรณ์

1.ปัจจุบันท่านศึกษาอยู่โรงเรียน.....

2.เพศ ☐ ชาย ☐ หญิง

3.ระดับการศึกษา ☐ ป.3 ☐ ป.4 ☐ ป.5 ☐ ป.6 ☐ ม.1 ☐ ม.2 ☐ ม.3

4.อายุ

☐ ต่ำกว่า 10 ปี

☐ 10 - 15 ปี

☐ 16 - 20 ปี

ตอนที่ 2

ความรู้เรื่องการป้องกันอุบัติภัยจากการจราจร

คำชี้แจง โปรดใส่เครื่องหมาย (×) ทับข้อที่ถูกต้องเพียงข้อเดียว

	สำหรับผู้วิจัย
1. สภาพรถในข้อใดที่อาจจะทำให้เกิดอุบัติเหตุได้ ก. ไม่มีกระจกมองหลังและไฟเลี้ยว ข. ไม่มีกันชน ค. ไม่มีเสียงดังจากท่อไอเสีย ง. ไม่มีถุงลม	☐
2. สภาพถนนแบบใดที่ทำให้มองไม่เห็นสภาพการจราจรข้างหน้า ก. ถนนขรุขระ ข. ถนนโค้งหักศอก ค. ถนนที่มีการจราจรแออัด ง. ถนนลาดยางทำให้มีแสงสะท้อน	☐
3. เมื่อทัศนวิสัยไม่ดีเช่นมีควันไฟข้างทางควรปฏิบัติอย่างไร ก. ขับรถด้วยความเร็วมากยิ่งขึ้น ข. จอดรถจนกว่าไฟจะดับ ค. แจ้งตำรวจ ง. เปิดไฟหรือสัญญาณเตือน	☐
4. ผู้ขับขี่รถมอเตอร์ไซค์สามารถลดความรุนแรงจากอุบัติภัยได้อย่างไร ก. ขับรถที่สภาพดี ข. ขับรถต้องใช้เบรกให้คล่อง ค. ขับรถต้องสวมหมวกนิรภัย ง. ขับรถบนถนนที่สภาพดี	☐
5. ทำไมจึงไม่ควรรับประทานยาบ้าเมื่อขับรถ ก. ทำให้เกิดอาการง่วงนอน ข. ทำให้เกิดความหงุดหงิด ค. ทำให้เกิดอารมณ์เศร้าซึม ง. ทำให้จิตใจคึกคะนองขาดความระมัดระวัง	☐

สำหรับผู้วิจัย

6. ผู้โดยสารที่ดีควรปฏิบัติอย่างไร ☐
   - ก. ขึ้นหรือลงรถเมื่อรถจอดสนิทแล้วเท่านั้น
   - ข. เหยียบบันไดให้มั่นคงเมื่อห้อยโหน
   - ค. ยื่นศีรษะออกนอกรถเพื่อรับอากาศเย็นๆ
   - ง. นั่งโดยสารบนหลังคารถอย่างเป็นระเบียบ

7. ข้อใดเป็นข้อควรปฏิบัติเมื่อข้ามถนนในเขตเมือง ☐
   - ก. ข้ามถนนโดยออกจากหน้ารถ หรือหลังรถ
   - ข. ข้ามถนนใต้สะพานลอยให้คล่องแคล่ว
   - ค. ข้ามถนนตรงทางม้าลายเสมอ
   - ง. ข้ามตรงไหนก็ได้

8. สภาพรถแบบใดที่ไม่ควรนำมาขับขี่ในตอนกลางวัน ☐
   - ก. ดอกยางสึกเล็กน้อย กระจกมองหลังร้าว
   - ข. เบรกแตก
   - ค. ไฟหน้าเสีย
   - ง. ไฟเบรกเสีย

9. วัยที่เกิดอุบัติเหตุจากการจราจรได้บ่อยที่สุด ☐
   - ก. วัยเด็ก
   - ข. วัยรุ่น
   - ค. วัยผู้ใหญ่
   - ง. วัยชรา

10. ทำไมต้องสวมหมวกนิรภัยเวลาขับรถจักรยานยนต์ ☐
   - ก. ป้องกันการเกิดอุบัติเหตุ
   - ข. ป้องกันแสงแดดและความร้อน
   - ค. ป้องกันลมและแมลงเข้าตา
   - ง. ป้องกันอันตรายต่อสมอง ถ้าเกิดอุบัติเหตุ

APPENDIX A: (3) STUDENTS (THAI)

สำหรับผู้วิจัย

11. ขอบทางสีอะไรที่จอดรถ**ได้นานๆ**
    - ก. ขาว - แดง
    - ข. ขาว - เหลือง
    - ค. ขาว - ดำ
    - ง. ได้ทุกข้อ

12. ขอบทางสีอะไรที่จอดรถ**ได้ชั่วคราว**
    - ก. ขาว - แดง
    - ข. ขาว - เหลือง
    - ค. ขาว - ดำ
    - ง. ได้ทุกข้อ

13. ขอบทางสีอะไรที่**ห้ามจอดรถ**
    - ก. ขาว - แดง
    - ข. ขาว - เหลือง
    - ค. ขาว - ดำ
    - ง. ได้ทุกข้อ

14. คนขับรถที่ปลอดภัยนั้น ต้องมีลักษณะอย่างไร
    - ก. สุขภาพดี ขับรถดี มีน้ำใจ เคารพกฎจราจร
    - ข. มีใบขับขี่ ขับรถถึงจุดหมายได้ทันเวลา
    - ค. ขับรถได้ทนทานแม้จะง่วงนอนหรืออ่อนเพลีย
    - ง. เคารพกฎจราจรเมื่อพบตำรวจ

15. เครื่องหมายห้ามแซงบนถนนมีลักษณะอย่างไร
    - ก. เส้นปะสีเหลืองตามถนน
    - ข. เส้นปะสีขาวตามถนน
    - ค. เส้นทึบสีเลืองตามถนน
    - ง. เส้นทึบสีขาวตามถนน

สำหรับผู้วิจัย

16. ในเวลากลางคืนเพื่อความปลอดภัยในการข้ามถนนควรสวมเสื้อสีอะไร ☐
    ก. ดำ
    ข. ม่วง
    ค. เทา
    ง. ขาว

17. ในการเกิดอุบัติเหตุจราจร ทุกครั้งก่อให้เกิดความสูญเสียแก่ใครบ้าง ☐
    ก. ผู้ประสบอุบัติเหตุ
    ข. ครอบครัว
    ค. สังคมและประเทศชาติ
    ง. ถูกทุกข้อ

18. ขณะฝนตกผู้ขับขี่ควรปฏิบัติอย่างไร ☐
    ก. เปิดไฟหรี่
    ข. เปิดไฟหน้ารถ
    ค. เปิดไฟกระพริบด้านซ้ายตลอดเวลา
    ง. เปิดไฟกระพริบด้านขวาตลอดเวลา

19. ก่อนขับขี่รถบนถนนหลวง ควรปฏิบัติอย่างไร ☐
    ก. บรรลุนิติภาวะก่อน
    ข. ฝึกหัดขับขี่รถให้ชำนาญและมีใบขับขี่
    ค. มีใบขับขี่และพอขับรถได้
    ง. สามารถขับขี่รถได้โดยใช้มือข้างเดียว

20. รถจักรยานยนต์ที่จะทำให้มีความปลอดภัยสูง คือข้อใด ☐
    ก. มีเสียงท่อไอเสียดังเป็นพิเศษ
    ข. ถอดกระจกมองหลังออกให้รถเบา
    ค. ถอดไฟเลี้ยวออก
    ง. กำลังม้าหรือความเร็วต่ำ

สำหรับผู้วิจัย

21. ผู้ป่วยที่ได้รับอุบัติเหตุอย่างไรที่อาจทำให้เสียชีวิตได้ ☐
    ก. สมอง / กะโหลกศีรษะ ค. แขน
    ข. ขา ง. หลัง

22. การดาม หรือเข้าเฝือก ใช้ในกรณีใด ☐
    ก. ผู้ป่วยเลือดออก
    ข. ผู้ป่วยแขน - ขาหัก
    ค. ผู้ป่วยศีรษะแตก
    ง. ผู้ป่วยแผลถลอก

23. การเคลื่อนย้ายผู้ป่วยกระดูกสันหลังหัก เพื่อให้ปลอดภัย ควรทำอย่างไร ☐
    ก. ใช้วิธีอุ้มผู้ป่วยแล้วนำส่งโรงพยาบาลให้เร็วที่สุด
    ข. ใช้เปลหรือไม้กระดานหามโดยให้ผู้ป่วยนอนเปล หรือไม้กระดานเท่านั้น
    ค. ประคองให้ผู้ป่วยค่อยๆ เดินไป
    ง. ขอให้ไปโรงพยาบาลอย่างเร็วไม่ต้องคำนึงถึงว่าจะต้องเคลื่อนย้ายแบบใด

24. ผู้ป่วยอุบัติเหตุที่เป็นอัมพาต มักเกิดจากอะไร ☐
    ก. ศีรษะแตก
    ข. กระดูกสันหลังหัก
    ค. ขาหัก
    ง. หน้าตาได้รับการกระทบกระเทือน

25. การส่งต่อผู้ป่วยอุบัติเหตุไปโรงพยาบาลที่รวดเร็ว ควรโทรแจ้งหมายเลขใด ☐
    ก. 191
    ข. 1559
    ค. 1669
    ง. 1569

ตอนที่ 3

ทัศนคติต่อการป้องกันอุบัติเหตุจากการจราจร

คำชี้แจง โปรดใส่เครื่องหมาย / ในช่องที่ตรงกับความรู้สึกของท่าน

ความเชื่อในการป้องกัน/และแก้ไขปัญหาอุบัติภัยจากการจราจร	เห็นด้วย	ไม่เห็นด้วย	ไม่แน่ใจ	สำหรับผู้วิจัย
1.ท่านเห็นว่าคนดื่มสุรามีโอกาสเสี่ยงต่อการเกิดอุบัติเหตุได้				☐
2.ท่านเห็นว่าการสวมหมวกนิรภัยไม่ค่อยมีประโยชน์เลย				☐
3. ท่านเห็นว่าการคาดเข็มขัดนิรภัยขณะขับหรือนั่งรถช่วยป้องกันอุบัติภัยที่ร้ายแรงได้				☐
4.ท่านเห็นว่าการมีใบขับขี่ไม่เป็นสิ่งจำเป็นในการขับรถ				☐
5. ท่านเห็นว่าอุบัติเหตุเป็นเรื่องของเคราะห์กรรม				☐
6.ท่านเห็นว่าอุบัติเหตุเป็นเรื่องที่สามารถป้องกันได้				☐
7.ท่านเชื่อว่าการงดดื่มสุราเมื่อมีการขับขี่เป็นวิธีการป้องกันการเกิดอุบัติเหตุได้				☐
8.คนที่ขับรถเร็วย่อมเสี่ยงต่อการเกิดอุบัติเหตุได้มาก				☐
9.ท่านเห็นว่าอุบัติเหตุเป็นเรื่องป้องกันได้ควรหลีกเลี่ยงการขับรถ				☐
10. ถ้าง่วงนอนอ่อนเพลีย เหนื่อยล้าควรหลีกเลี่ยงการขับรถ				☐
11. การขับรถขณะฝนตก ฟ้าคะนองมีโอกาสเกิดอุบัติเหตุได้มาก				☐
12.การสวมหมวกนิรภัยจำเป็นเฉพาะการขับรถทางไกลเท่านั้น				☐
13.การดื่มสุราแล้วขับรถยิ่งเพิ่มความระมัดระวังมากขึ้นไม่น่าจะเป็นอันตราย				☐

APPENDIX A: (3) STUDENTS (THAI)

ความเชื่อในการป้องกัน/และแก้ไขปัญหาอุบัติภัยจากการจราจร	เห็นด้วย	ไม่เห็นด้วย	ไม่แน่ใจ	สำหรับผู้วิจัย
14. การตรวจเช็คสภาพรถเป็นประจำจะช่วยลดการเกิดอุบัติเหตุ				☐
15. การให้สัญญาณไฟหรือสัญญาณมือทุกครั้งเมื่อเลี้ยวรถจะช่วยป้องกันอุบัติเหตุ				☐
16. การปฏิบัติตามกฎจราจรจะไม่ทำให้เกิดอุบัติเหตุได้				☐
17. ท่านเห็นว่าการขับขี่รถตัดหน้าคันอื่นจะก่อให้เกิดอันตรายได้				☐
18. วัยรุ่นที่ชอบถอดกระจกมองหลังออกจะไม่มีผลให้เกิดอุบัติเหตุได้				☐
19. เมื่อเกิดอุบัติเหตุการสวมหมวกนิรภัยหรือไม่สวมหมวกนิรภัยก็มีโอกาสเจ็บเท่ากัน				☐
20. การขับรถแข่งบนท้องถนนในเวลาดึกๆเป็นเรื่องธรรมดาของวัยรุ่น				☐
21. การขับรถเมื่อถึงทางแยกที่คุ้นเคยไม่จำเป็นต้องชะลอความเร็ว				☐
22. ควรใช้สัญญาณไฟและสัญญาณแตรเมื่อแซงรถคันอื่นเสมอ				☐
23. การป้องกันอุบัติเหตุจากการจราจรเป็นเรื่องที่หลายๆฝ่ายต้องร่วมมือกัน เช่น ตำรวจ อบต. ครู เจ้าหน้าที่สาธารณสุขและชาวบ้าน				☐
24. ท่านคิดว่าอุบัติเหตุเป็นเรื่องที่ต้องเร่งแก้ไข				☐
25. เป็นหน้าที่ของทุกคนที่ต้องร่วมมือกันแก้ไขปัญหาในชุมชน				☐

ตอนที่ 4

ความตั้งใจในการดำเนินงาน

ความตั้งใจ	ใช่	ไม่ใช่	ไม่แน่ใจ	สำหรับผู้วิจัย
1. ท่านตั้งใว่าจะเป็นผู้กระตุ้นเพื่อนบ้านในการป้องกันอุบัติภัยจากการจราจร				☐
2. ท่านตั้งใจจะร่วมจัดกิจกรรมป้องกันอุบัติภัยจากการจราจร				☐
3. ท่านตั้งใจจะสวมหมวกนิรภัยทุกครั้งที่มีการขับขี่รถจักรยานยนต์				☐
4. ท่านตั้งใจจะคาดเข็มขัดนิรภัยถาเดินทางโดยรถยนต์				☐
5. ท่านตั้งใจจะร่วมสร้างมาตรการเพื่อความปลอดภัยในชุมชนหรือโรงเรียนของท่าน				☐
6. ท่านตั้งใจว่าจะเป็นแบบอย่างที่ดีในการป้องกันอุบัติภัยจาการ				☐
7. ท่านตั้งใจว่าจะร่วมณรงค์ป้องกันอุบัติภัยจากการจราจร				☐
8.ท่านตั้งใจว่าจะร่วมจัดทำแผนการป้องกันอุบัติภัยจากการจราจรขององค์การบริหารส่วนตำบลของท่าน				☐
9. ท่านตั้งใจว่าจะไม่ใช้ความเร็วสูงในการขับรถ				☐

APPENDIX A: (3) STUDENTS (THAI)

ตอนที่ 5

การปฏิบัติตัวในการป้องกันอุบัติภัยจากการจราจร

การปฏิบัติตัวในการป้องกันอุบัติภัยจากการจราจร	ปฏิบัติประจำ	ปฏิบัติบางครั้ง	ไม่เคยปฏิบัติ	สำหรับผู้วิจัย
1. ท่านสวมหมวกนิรภัยเมื่อขับขี่รถจักรยานยนต์				☐
2. ท่านกระตุ้นเตือนเพื่อนบ้านในการป้องกนอุบัติภัยจากการจราจรเสมอ				☐
3. ท่านร่วมสร้างมาตรการป้องกันอุบัติภัยจากการจราจรในชุมชนของท่าน				☐
4. ท่านตรวจเช็คสภาพรถทุกครั้งก่อนออกเดินทาง				☐
5. ท่านร่วมรณรงค์ป้องกันอุบัติภัยจากการจราจรในโรงเรียนหรือในชุมชน				☐
6. ท่านเคยโทรศัพท์ถึงตำรวจเพื่อมาช่วยผู้ป่วยอุบัติเหตุ				☐
7. ท่านเคยโทรศัพท์เพื่อขอรับการช่วยเหลือด้านการรักษาแก่คนที่ได้รับอุบัติเหตุ				☐
8. ท่านใช้ความเร็วสูงในการขับรถ				☐
9ท่านเป็นนักเรียนอาสาจราจร				☐

APPENDIX A: (3) STUDENTS (THAI)

แนวคำถามเพื่อข้อมูลเชิงคุณภาพ

เรื่อง การพัฒนาศักยภาพผู้เกี่ยวข้องในการป้องกันอุบัติเหตุทางการจราจร

ตอนที่ 1 ข้อมูลส่วนบุคคล

ชื่อ .....นามสกุล.....

อายุ..... กำลังศึกษาอยู่ระดับชั้น .....

โรงเรียน .....

ตอนที่ 2 การป้องกันอุบัติเหตุจากการจราจรด้านบุคคล

1. โรงเรียนมีการอบรมป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

2. มีสื่อการสอนเรื่องการป้องกันอุบัติเหตุจากการจราจร หรือไม่ อย่างไร
.....
.....

3.มีการเผยแพร่ความรู้ในการป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

4.มีผู้รับผิดชอบในการดำเนินงานป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

5. มีการประสานการดำเนินงานระหว่างโรงเรียนกับสถานีอนามัย สถานีตำรวจ และองค์การบริหารส่วนตำบล เพื่อการป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

6. นักเรียนมีการปฏิบัติตามกฎจราจรมากน้อยแค่ไหน อย่างไร เช่น การสวมหมวกนิรภัย การขับรถเร็ว
.....
.....

7. นักเรียนได้รับการป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

APPENDIX A: (3) STUDENTS (THAI)

ตอนที่ 3 การป้องกันอุบัติเหตุจากการจราจรด้านถนน

1. ลักษณะถนนในโรงเรียนเป็นอย่างไร มีความเสี่ยงต่อการเกิดอุบัติเหตุมากน้อยอย่างไร
.....
.....

2. โรงเรียนมีการปรับปรุงถนนที่ขรุขระ เป็นหลุมเป็นบ่อหรือที่เสี่ยงต่อการเกิดอุบัติเหตุให้ใช้การได้ดีหรือไม่ อย่างไร
.....
.....

ตอนที่ 4 การป้องกันอุบัติเหตุจากการจราจรด้านยานพาหนะ

1. สภาพรถที่ใช้ในโรงเรียนเป็นอย่างไร
.....
.....

2. การตรวจเช็ครถก่อนใช้เป็นอย่างไร
.....
.....

3. อุปกรณ์ประกอบต่างๆของการใช้มอเตอร์ไซค์เป็นอย่างไร
.....
.....

4. การขับขี่ยานพาหนะของนักเรียนเป็นอย่างไรบ้าง
.....
.....

5. โรงเรียนมีมาตรการจำกัดความเร็วในการขับขี่อย่างไร
.....
.....

ตอนที่ 5 การป้องกันอุบัติเหตุจากการจราจรด้านสิ่งแวดล้อม

1.โรงเรียนมีสิ่งแวดล้อม หรือสิ่งก่อให้เกิดทัศนวิสัยไม่ดีที่เป็นสาเหตุของการเกิดอุบัติเหตุอย่างไร
.....
.....

2.โรงเรียนมีมาตรฐานการดูแลรักษาสิ่งแวดล้อมเพื่อไม่ให้เป็นสาเหตุของการเกิดอุบัติเหตุอย่างไรบ้าง
.....
.....

3.มีป้ายเตือน ป้ายห้าม และป้ายประชาสัมพันธ์ ในการจราจรหรือไม่ อย่างไร
.....
.....

การพัฒนาศักยภาพการดำเนินงานป้องกันและแก้ไขปัญหาอุบัติภัยจากการจราจรของชุมชนริมทางหลวง

ตอนที่ 1 สำหรับประชาชน

แบบสอบถามข้อมูลส่วนบุคคล

คำชี้แจง โปรดใส่เครื่องหมาย / ในช่องที่ตรงกับความจริง หรือเติมข้อความให้สมบูรณ์

---

1. ปัจจุบันท่านอายุ ..... ปี

2. เพศ ☐ ชาย ☐ หญิง

3. อายุ
   - ☐ ต่ำกว่า 10 ปี
   - ☐ 10 - 15 ปี
   - ☐ 16 - 20 ปี
   - ☐ 21- 30 ปี
   - ☐ 31 - 40 ปี
   - ☐ 41 - 50 ปี
   - ☐ 51 - 60 ปี

4. อาชีพ/ตำแหน่ง
   - ☐ ข้าราชการ
   - ☐ รับจ้าง
   - ☐ ค้าขาย
   - ☐ พนักงานบริษัท/ห้างร้าน
   - ☐ อื่นๆ (โปรดระบุ).....

ตอนที่ 2

ความรู้เรื่องการป้องกันอุบัติภัยจากการจราจร

คำชี้แจง โปรดใส่เครื่องหมาย(×)ทับข้อที่ถูกต้องเพียงข้อเดียว

	สำหรับผู้วิจัย
1. สภาพรถในข้อใดที่อาจจะทำให้เกิดอุบัติเหตุได้ ก. ไม่มีกระจกมองหลังและไฟเลี้ยว ข. ไม่มีกันชน ค. ไม่มีเสียงดังจากท่อไอเสีย ง. ไม่มีถุงลม	☐
2. สภาพถนนแบบใดที่ทำให้มองไม่เห็นสภาพการจราจรข้างหน้า ก. ถนนขรุขระ ข. ถนนโค้งหักศอก ค. ถนนที่มีการจราจรแออัด ง. ถนนลาดยางทำให้มีแสงสะท้อน	☐
3. เมื่อทัศนวิสัยไม่ดีเช่นมีควันไฟข้างทางควรปฏิบัติอย่างไร ก. ขับรถด้วยความเร็วมากยิ่งขึ้น ข. จอดรถจนกว่าไฟจะดับ ค. แจ้งตำรวจ ง. เปิดไฟหรือสัญญาณเตือน	☐
4. ผู้ขับขี่รถมอเตอร์ไซค์สามารถลดความรุนแรงจากอุบัติภัยได้อย่างไร ก. ขับรถที่สภาพดี ข. ขับรถต้องใช้เบรกให้คล่อง ค. ขับรถต้องสวมหมวกนิรภัย ง. ขับรถบนถนนที่สภาพดี	☐
5. ทำไมจึงไม่ควรรับประทานยาบ้าเมื่อขับรถ ก. ทำให้เกิดอาการง่วงนอน ข. ทำให้เกิดความหงุดหงิด ค. ทำให้เกิดอารมณ์เศร้าซึม ง. ทำให้จิตใจคึกคะนองขาดความระมัดระวัง	☐

สำหรับผู้วิจัย

6. ผู้โดยสารที่ดีควรปฏิบัติอย่างไร ☐
   - ก. ขึ้นหรือลงรถเมื่อรถจอดสนิทแล้วเท่านั้น
   - ข. เหยียบบันไดให้มั่นคงเมื่อห้อยโหน
   - ค. ยื่นศีรษะออกนอกรถเพื่อรับอากาศเย็นๆ
   - ง. นั่งโดยสารบนหลังคารถอย่างเป็นระเบียบ

7. ข้อใดเป็นข้อควรปฏิบัติเมื่อข้ามถนนในเขตเมือง ☐
   - ก. ข้ามถนนโดยออกจากหน้ารถ หรือหลังรถ
   - ข. ข้ามถนนใต้สะพานลอยให้คล่องแคล่ว
   - ค. ข้ามถนนตรงทางม้าลายเสมอ
   - ง. ข้ามตรงไหนก็ได้

8. สภาพรถแบบใดที่ไม่ควรนำมาขับขี่ในตอนกลางวัน ☐
   - ก. ดอกยางสึกเล็กน้อย กระจกมองหลังร้าว
   - ข. เบรกแตก
   - ค. ไฟหน้าเสีย
   - ง. ไฟเบรกเสีย

9. วัยที่เกิดอุบัติเหตุจากการจราจรได้บ่อยที่สุด ☐
   - ก. วัยเด็ก
   - ข. วัยรุ่น
   - ค. วัยผู้ใหญ่
   - ง. วัยชรา

10. ทำไมต้องสวมหมวกนิรภัยเวลาขับรถจักรยานยนต์ ☐
   - ก. ป้องกันการเกิดอุบัติเหตุ
   - ข. ป้องกันแสงแดดและความร้อน
   - ค. ป้องกันลมและแมลงเข้าตา
   - ง. ป้องกันอันตรายต่อสมอง ถ้าเกิดอุบัติเหตุ

APPENDIX A: (4) STAKEHOLDERS (THAI)

	สำหรับผู้วิจัย
11. ขอบทางสีอะไรที่จอดรถ**<u>ได้นานๆ</u>** ก. ขาว - แดง ข. ขาว - เหลือง ค. ขาว - ดำ ง. ได้ทุกข้อ	☐
12. ขอบทางสีอะไรที่จอดรถ**<u>ได้ชั่วคราว</u>** ก. ขาว - แดง ข. ขาว - เหลือง ค. ขาว - ดำ ง. ได้ทุกข้อ	☐
13. ขอบทางสีอะไรที่**<u>ห้ามจอดรถ</u>** ก. ขาว - แดง ข. ขาว - เหลือง ค. ขาว - ดำ ง. ได้ทุกข้อ	☐
14. คนขับรถที่ปลอดภัยนั้น ต้องมีลักษณะอย่างไร ก. สุขภาพดี ขับรถดี มีน้ำใจ เคารพกฎจราจร ข. มีใบขับขี่ ขับรถถึงจุดหมายได้ทันเวลา ค. ขับรถได้ทนทานแม้จะง่วงนอนหรืออ่อนเพลีย ง. เคารพกฎจราจรเมื่อพบตำรวจ	☐
15. เครื่องหมายห้ามแซงบนถนนมีลักษณะอย่างไร ก. เส้นปะสีเหลืองตามถนน ข. เส้นปะสีขาวตามถนน ค. เส้นทึบสีเลืองตามถนน ง. เส้นทึบสีขาวตามถนน	☐

สำหรับผู้วิจัย

16. ในเวลากลางคืนเพื่อความปลอดภัยในการข้ามถนนควรสวมเสื้อสีอะไร ☐
    ก. ดำ
    ข. ม่วง
    ค. เทา
    ง. ขาว

17. ในการเกิดอุบัติเหตุจราจร ทุกครั้งก่อให้เกิดความสูญเสียแก่ใครบ้าง ☐
    ก. ผู้ประสบอุบัติเหตุ
    ข. ครอบครัว
    ค. สังคมและประเทศชาติ
    ง. ถูกทุกข้อ

18. ขณะฝนตกผู้ขับขี่ควรปฏิบัติอย่างไร ☐
    ก. เปิดไฟหรี่
    ข. เปิดไฟหน้ารถ
    ค. เปิดไฟกระพริบด้านซ้ายตลอดเวลา
    ง. เปิดไฟกระพริบด้านขวาตลอดเวลา

19. ก่อนขับขี่รถบนถนนหลวง ควรปฏิบัติอย่างไร ☐
    ก. บรรลุนิติภาวะก่อน
    ข. ฝึกหัดขับขี่รถให้ชำนาญและมีใบขับขี่
    ค. มีใบขับขี่และพอขับรถได้
    ง. สามารถขับขี่รถได้โดยใช้มือข้างเดียว

20. รถจักรยานยนต์ที่จะทำให้มีความปลอดภัยสูง คือข้อใด ☐
    ก. มีเสียงท่อไอเสียดังเป็นพิเศษ
    ข. ถอดกระจกมองหลังออกให้รถเบา
    ค. ถอดไฟเลี้ยวออก
    ง. กำลังม้าหรือความเร็วต่ำ

APPENDIX A: (4) STAKEHOLDERS (THAI)

	สำหรับผู้วิจัย
21. ผู้ป่วยที่ได้รับอุบัติเหตุอย่างไรที่อาจทำให้เสียชีวิตได้ ก. สมอง / กะโหลกศีรษะ ค. แขน ข. ขา ง. หลัง	☐
22. การดาม หรือเข้าเฝือก ใช้ในกรณีใด ก. ผู้ป่วยเลือดออก ข. ผู้ป่วยแขน - ขาหัก ค. ผู้ป่วยศีรษะแตก ง. ผู้ป่วยแผลถลอก	☐
23. การเคลื่อนย้ายผู้ป่วยกระดูกสันหลังหัก เพื่อให้ปลอดภัย ควรทำอย่างไร ก. ใช้วิธีอุ้มผู้ป่วยแล้วนำส่งโรงพยาบาลให้เร็วที่สุด ข. ใช้เปลหรือไม้กระดานหามโดยให้ผู้ป่วยนอนเปล หรือไม้กระดานเท่านั้น ค. ประคองให้ผู้ป่วยค่อยๆ เดินไป ง. ขอให้ไปโรงพยาบาลอย่างเร็วไม่ต้องคำนึงถึงว่าจะต้องเคลื่อนย้ายแบบใด	☐
24. ผู้ป่วยอุบัติเหตุที่เป็นอัมพาต มักเกิดจากอะไร ก. ศีรษะแตก ข. กระดูกสันหลังหัก ค. ขาหัก ง. หน้าตาได้รับการกระทบกระเทือน	☐
25. การส่งต่อผู้ป่วยอุบัติเหตุไปโรงพยาบาลที่รวดเร็ว ควรโทรแจ้งหมายเลขใด ก. 191 ข. 1559 ค. 1669 ง. 1569	☐

ตอนที่ 3

ทัศนคติต่อการป้องกันอุบัติเหตุจากการจราจร

คำชี้แจง โปรดใส่เครื่องหมาย / ในช่องที่ตรงกับความรู้สึกของท่าน

ทัศนคติ	เห็นด้วย	ไม่เห็นด้วย	ไม่แน่ใจ	สำหรับผู้วิจัย
1.การดื่มสุราแล้วขับรถยิ่งเพิ่มความระมัดระวังมากขึ้น ไม่น่าจะเป็นอันตราย				☐
2. การตรวจเช็คสภาพรถเป็นประจำจะช่วยลดการเกิดอุบัติเหตุ				☐
3. การให้สัญญาณไฟหรือสัญญาณมือทุกครั้งเมื่อเลี้ยวรถจะช่วยป้องกันอุบัติเหตุ				☐
4. การปฏิบัติตามกฎจราจรจะไม่ทำให้เกิดอุบัติเหตุได้				☐
5. ท่านเห็นว่าการขับขี่รถตัดหน้าคันอื่นจะก่อให้เกิดอันตรายได้				☐
6. วัยรุ่นที่ชอบถอดกระจกมองหลังออกจะไม่มีผลให้เกิดอุบัติเหตุได้				☐
7. เมื่อเกิดอุบัติเหตุการสวมหมวกนิรภัยหรือไม่สวมหมวกนิรภัยก็มีโอกาสเจ็บเท่ากัน				☐
8. การขับรถแข่งบนท้องถนนในเวลาดึกๆเป็นเรื่องธรรมดาของวัยรุ่น				☐
9. การขับรถเมื่อถึงทางแยกที่คุ้นเคยไม่จำเป็นต้องชะลอความเร็ว				☐
10. ควรใช้สัญญาณไฟและสัญญาณแตรเมื่อแซงรถคันอื่นเสมอ				☐
11. การป้องกันอุบัติเหตุจากการจราจรเป็นเรื่องที่หลายๆฝ่ายต้องร่วมมือกัน เช่น ตำรวจ อบต. ครู เจ้าหน้าที่สาธารณสุขและชาวบ้าน				☐
12. ท่านคิดว่าอุบัติเหตุเป็นเรื่องที่ต้องเร่งแก้ไข				☐
13. เป็นหน้าที่ของทุกคนที่ต้องร่วมมือกันแก้ไขปัญหาในชุมชน				☐

APPENDIX A: (4) STAKEHOLDERS (THAI)

ตอนที่ 4
ความเชื่อต่อการป้องกันอุบัติเหตุจากการจราจร

คำชี้แจง โปรดใส่เครื่องหมาย / ในช่องที่ตรงกับความรู้สึกของท่าน

ความเชื่อ	เห็นด้วย	ไม่เห็นด้วย	ไม่แน่ใจ	สำหรับผู้วิจัย
1. ท่านเห็นว่าคนดื่มสุรามีโอกาสเสี่ยงต่อการเกิดอุบัติเหตุได้				☐
2. ท่านเห็นว่าการสวมหมวกนิรภัยไม่ค่อยมีประโยชน์เลย				☐
3. ท่านเห็นว่าการคาดเข็มขัดนิรภัย ขณะขับหรือนั่งรถช่วยป้องกันอุบัติภัยที่ร้ายแรงได้				☐
4. ท่านเห็นว่าการมีใบขับขี่ไม่เป็นสิ่งจำเป็นในการขับรถ				☐
5. ท่านเห็นว่าอุบัติเหตุเป็นเรื่องของเคราะห์กรรม				☐
6. ท่านเห็นว่าอุบัติเหตุเป็นเรื่องที่สามารถป้องกันได้				☐
7. ท่านเชื่อว่าการงดดื่มสุราเมื่อมีการขับขี่เป็นวิธีการป้องกันการเกิดอุบัติเหตุได้				☐
8. คนที่ขับรถเร็วย่อมเสี่ยงต่อการเกิดอุบัติเหตุได้มาก				☐
9. ท่านเห็นว่าอุบัติเหตุเป็นเรื่องป้องกันได้ควรหลีกเลี่ยงการขับรถ				☐
10. ถ้าง่วงนอนอ่อนเพลีย เหนื่อยล้า ควรหลีกเลี่ยงการขับรถ				☐
11. การขับรถขณะฝนตก ฟ้าคะนองมีโอกาสเกิดอุบัติเหตุได้มาก				☐
12. การสวมหมวกนิรภัยจำเป็นเฉพาะการขับรถทางไกลเท่านั้น				☐

ตอนที่ 5

ความตั้งใจในการดำเนินงาน

ความตั้งใจ	ใช่	ไม่ใช่	ไม่แน่ใจ	สำหรับผู้วิจัย
1. ท่านตั้งใว่าจะเป็นผู้กระตุ้นเพื่อนบ้านในการป้องกันอุบัติภัยจากการจราจร				☐
2. ท่านตั้งใจจะร่วมจัดกิจกรรมป้องกันอุบัติภัยจากการจราจร				☐
3. ท่านตั้งใจจะสวมหมวกนิรภัยทุกครั้งที่มีการขับขี่รถจักรยานยนต์				☐
4. ท่านตั้งใจจะคาดเข็มขัดนิรภัยถาเดินทางโดยรถยนต์				☐
5. ท่านตั้งใจจะร่วมสร้างมาตรการเพื่อความปลอดภัยในชุมชนหรือโรงเรียนของท่าน				☐
6. ท่านตั้งใจว่าจะเป็นแบบอย่างที่ดีในการป้องกันอุบัติภัยจาการ				☐
7. ท่านตั้งใจว่าจะร่วมณรงค์ป้องกันอุบัติภัยจากการจราจร				☐
8. ท่านตั้งใจว่าจะร่วมจัดทำแผนการป้องกันอุบัติภัยจากการจราจรขององค์การบริหารส่วนตำบลของท่าน				☐
9. ท่านตั้งใจว่าจะไม่ใช้ความเร็วสูงในการขับรถ				☐

APPENDIX A: (4) STAKEHOLDERS (THAI)

ตอนที่ 6

การปฏิบัติตัวในการป้องกันอุบัติภัยจากการจราจร

การปฏิบัติตัวในการป้องกันอุบัติภัยจากการจราจร	ปฏิบัติประจำ	ปฏิบัติบางครั้ง	ไม่เคยปฏิบัติ	สำหรับผู้วิจัย
1. ท่านสวมหมวกนิรภัยเมื่อขับขี่รถจักรยานยนต์				☐
2. ท่านกระตุ้นเตือนเพื่อนบ้านในการป้องกนอุบัติภัยจากการจราจรเสมอ				☐
3. ท่านร่วมสร้างมาตรการป้องกันอุบัติภัยจากการจราจรในชุมชนของท่าน				☐
4. ท่านตรวจเช็คสภาพรถทุกครั้งก่อนออกเดินทาง				☐
5. ท่านร่วมรณรงค์ป้องกันอุบัติภัยจากการจราจรในโรงเรียนหรือในชุมชน				☐
6. ท่านเคยโทรศัพท์ถึงตำรวจเพื่อมาช่วยผู้ป่วยอุบัติเหตุ				☐
7. ท่านเคยโทรศัพท์เพื่อขอรับการช่วยเหลือด้านการรักษาแก่คนที่ได้รับอุบัติเหตุ				☐
8. ท่านใช้ความเร็วสูงในการขับรถ				☐
9. ท่านเป็นอาสาจราจร				☐

แนวคำถามเพื่อข้อมูลเชิงคุณภาพ

เรื่อง การพัฒนาศักยภาพผู้เกี่ยวข้องในการป้องกันอุบัติเหตุทางการจราจร

ตอนที่ 1 ข้อมูลส่วนบุคคล

ชื่อ .....นามสกุล.....

อายุ.....สถานที่ทำงาน .....

ที่อยู่ .....

ตอนที่ 2 การป้องกันอุบัติเหตุจากการจราจรด้านบุคคล

1. ทางชุมชนมีการอบรมป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

2. มีสื่อการสอนเรื่องการป้องกันอุบัติเหตุจากการจราจร หรือไม่ อย่างไร
.....
.....

3.มีการเผยแพร่ความรู้ในการป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

4. มีผู้รับผิดชอบในการดำเนินงานป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

5. มีการประสานการดำเนินงานระหว่างโรงเรียนกับสถานีอนามัย สถานีตำรวจ และองค์การบริหารส่วน ตำบล เพื่อการป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

6. ท่านมีการปฏิบัติตามกฎจราจรมากน้อยแค่ไหน อย่างไร เช่น การสวมหมวกนิรภัย การขับรถเร็ว
.....
.....

7. ท่านได้รับการป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

APPENDIX A: (4) STAKEHOLDERS (THAI)

ตอนที่ 3 การป้องกันอุบัติเหตุจากการจราจรด้านถนน

1. ลักษณะถนนในชุมชนเป็นอย่างไร มีความเสี่ยงต่อการเกิดอุบัติเหตุมากน้อยอย่างไร
.....
.....

2. ชุมชนมีการปรับปรุงถนนที่ขรุขระ เป็นหลุมเป็นบ่อหรือที่เสี่ยงต่อการเกิดอุบัติเหตุให้ใช้การได้ดีหรือไม่ อย่างไร
.....
.....

ตอนที่ 4 การป้องกันอุบัติเหตุจากการจราจรด้านยานพาหนะ

1. สภาพรถที่ใช้ในชุมชนเป็นอย่างไร
.....
.....

2. การตรวจเช็ครถก่อนใช้เป็นอย่างไร
.....
.....

3. อุปกรณ์ประกอบต่างๆของการใช้มอเตอร์ไซค์เป็นอย่างไร
.....
.....

4. การขับขี่ยานพาหนะของท่านเป็นอย่างไรบ้าง
.....
.....

5. ชุมชนมีมาตรการจำกัดความเร็วในการขับขี่อย่างไร
.....
.....

ตอนที่ 5 การป้องกันอุบัติเหตุจากการจราจรด้านสิ่งแวดล้อม

1. ชุมชนมีสิ่งแวดล้อม หรือสิ่งก่อให้เกิดทัศนวิสัยไม่ดีที่เป็นสาเหตุของการเกิดอุบัติเหตุอย่างไร
.....
.....

2.ชุมชนมีมาตรฐานการดูแลรักษาสิ่งแวดล้อมเพื่อไม่ให้เป็นสาเหตุของการเกิดอุบัติเหตุอย่างไรบ้าง
.....
.....

3. มีป้ายเตือน ป้ายห้าม และป้ายประชาสัมพันธ์ ในการจราจรหรือไม่ อย่างไร
.....
.....

การพัฒนาศักยภาพการดำเนินงานป้องกันและแก้ไขปัญหาอุบัติภัยจากการจราจรของชุมชนริมทางหลวง

ตอนที่ 1 สำหรับประชาชน

แบบสอบถามข้อมูลส่วนบุคคล

คำชี้แจง โปรดใส่เครื่องหมาย / ในช่องที่ตรงกับความจริง หรือเติมข้อความให้สมบูรณ์

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1. ปัจจุบันท่านอายุ ..... ปี

2. เพศ ☐ ชาย ☐ หญิง

3. อายุ
   - ☐ ต่ำกว่า 10 ปี
   - ☐ 10 – 15 ปี
   - ☐ 16 – 20 ปี
   - ☐ 21- 30 ปี
   - ☐ 31 – 40 ปี
   - ☐ 41 – 50 ปี
   - ☐ 51 – 60 ปี

4. อาชีพ/ตำแหน่ง
   - ☐ ข้าราชการ
   - ☐ รับจ้าง
   - ☐ ค้าขาย
   - ☐ พนักงานบริษัท/ห้างร้าน
   - ☐ อื่นๆ (โปรดระบุ) .....

ตอนที่ 2

ความรู้เรื่องการป้องกันอุบัติภัยจากการจราจร

คำชี้แจง โปรดใส่เครื่องหมาย(×)ทับข้อที่ถูกต้องเพียงข้อเดียว

	สำหรับผู้วิจัย
1. สภาพรถในข้อใดที่อาจจะทำให้เกิดอุบัติเหตุได้ ก. ไม่มีกระจกมองหลังและไฟเลี้ยว ข. ไม่มีกันชน ค. ไม่มีเสียงดังจากท่อไอเสีย ง. ไม่มีถุงลม	☐
2. สภาพถนนแบบใดที่ทำให้มองไม่เห็นสภาพการจราจรข้างหน้า ก. ถนนขรุขระ ข. ถนนโค้งหักศอก ค. ถนนที่มีการจราจรแออัด ง. ถนนลาดยางทำให้มีแสงสะท้อน	☐
3. เมื่อทัศนวิสัยไม่ดีเช่นมีควันไฟข้างทางควรปฏิบัติอย่างไร ก. ขับรถด้วยความเร็วมากยิ่งขึ้น ข. จอดรถจนกว่าไฟจะดับ ค. แจ้งตำรวจ ง. เปิดไฟหรือสัญญาณเตือน	☐
4. ผู้ขับขี่รถมอเตอร์ไซค์สามารถลดความรุนแรงจากอุบัติภัยได้อย่างไร ก. ขับรถที่สภาพดี ข. ขับรถต้องใช้เบรกให้คล่อง ค. ขับรถต้องสวมหมวกนิรภัย ง. ขับรถบนถนนที่สภาพดี	☐
5. ทำไมจึงไม่ควรรับประทานยาบ้าเมื่อขับรถ ก. ทำให้เกิดอาการง่วงนอน ข. ทำให้เกิดความหงุดหงิด ค. ทำให้เกิดอารมณ์เศร้าซึม ง. ทำให้จิตใจคึกคะนองขาดความระมัดระวัง	☐

	สำหรับผู้วิจัย
6. ผู้โดยสารที่ดีควรปฏิบัติอย่างไร ก. ขึ้นหรือลงรถเมื่อรถจอดสนิทแล้วเท่านั้น ข. เหยียบบันไดให้มั่นคงเมื่อห้อยโหน ค. ยื่นศีรษะออกนอกรถเพื่อรับอากาศเย็นๆ ง. นั่งโดยสารบนหลังคารถอย่างเป็นระเบียบ	☐
7. ข้อใดเป็นข้อควรปฏิบัติเมื่อข้ามถนนในเขตเมือง ก. ข้ามถนนโดยออกจากหน้ารถ หรือหลังรถ ข. ข้ามถนนใต้สะพานลอยให้คล่องแคล่ว ค. ข้ามถนนตรงทางม้าลายเสมอ ง. ข้ามตรงไหนก็ได้	☐
8. สภาพรถแบบใดที่ไม่ควรนำมาขับขี่ในตอนกลางวัน ก. ดอกยางสึกเล็กน้อย กระจกมองหลังร้าว ข. เบรกแตก ค. ไฟหน้าเสีย ง. ไฟเบรกเสีย	☐
9. วัยที่เกิดอุบัติเหตุจากการจราจรได้บ่อยที่สุด ก. วัยเด็ก ข. วัยรุ่น ค. วัยผู้ใหญ่ ง. วัยชรา	☐
10. ทำไมต้องสวมหมวกนิรภัยเวลาขับรถจักรยานยนต์ ก. ป้องกันการเกิดอุบัติเหตุ ข. ป้องกันแสงแดดและความร้อน ค. ป้องกันลมและแมลงเข้าตา ง. ป้องกันอันตรายต่อสมอง ถ้าเกิดอุบัติเหตุ	☐

สำหรับผู้วิจัย

11. ขอบทางสีอะไรที่จอดรถ**ได้นานๆ** ☐
    - ก. ขาว – แดง
    - ข. ขาว – เหลือง
    - ค. ขาว – ดำ
    - ง. ได้ทุกข้อ

12. ขอบทางสีอะไรที่จอดรถ**ได้ชั่วคราว** ☐
    - ก. ขาว – แดง
    - ข. ขาว – เหลือง
    - ค. ขาว – ดำ
    - ง. ได้ทุกข้อ

13. ขอบทางสีอะไรที่**ห้ามจอดรถ** ☐
    - ก. ขาว – แดง
    - ข. ขาว – เหลือง
    - ค. ขาว – ดำ
    - ง. ได้ทุกข้อ

14. คนขับรถที่ปลอดภัยนั้น ต้องมีลักษณะอย่างไร ☐
    - ก. สุขภาพดี ขับรถดี มีน้ำใจ เคารพกฎจราจร
    - ข. มีใบขับขี่ ขับรถถึงจุดหมายได้ทันเวลา
    - ค. ขับรถได้ทนทานแม้จะง่วงนอนหรืออ่อนเพลีย
    - ง. เคารพกฎจราจรเมื่อพบตำรวจ

15. เครื่องหมายห้ามแซงบนถนนมีลักษณะอย่างไร ☐
    - ก. เส้นปะสีเหลืองตามถนน
    - ข. เส้นปะสีขาวตามถนน
    - ค. เส้นทึบสีเลืองตามถนน
    - ง. เส้นทึบสีขาวตามถนน

	สำหรับผู้วิจัย
16. ในเวลากลางคืนเพื่อความปลอดภัยในการข้ามถนนควรสวมเสื้อสีอะไร ก. ดำ ข. ม่วง ค. เทา ง. ขาว	☐
17. ในการเกิดอุบัติเหตุจราจร ทุกครั้งก่อให้เกิดความสูญเสียแก่ใครบ้าง ก. ผู้ประสบอุบัติเหตุ ข. ครอบครัว ค. สังคมและประเทศชาติ ง. ถูกทุกข้อ	☐
18. ขณะฝนตกผู้ขับขี่ควรปฏิบัติอย่างไร ก. เปิดไฟหรี่ ข. เปิดไฟหน้ารถ ค. เปิดไฟกระพริบด้านซ้ายตลอดเวลา ง. เปิดไฟกระพริบด้านขวาตลอดเวลา	☐
19. ก่อนขับขี่รถบนถนนหลวง ควรปฏิบัติอย่างไร ก. บรรลุนิติภาวะก่อน ข. ฝึกหัดขับขี่รถให้ชำนาญและมีใบขับขี่ ค. มีใบขับขี่และพอขับรถได้ ง. สามารถขับขี่รถได้โดยใช้มือข้างเดียว	☐
20. รถจักรยานยนต์ที่จะทำให้มีความปลอดภัยสูง คือข้อใด ก. มีเสียงท่อไอเสียดังเป็นพิเศษ ข. ถอดกระจกมองหลังออกให้รถเบา ค. ถอดไฟเลี้ยวออก ง. กำลังม้าหรือความเร็วต่ำ	☐

APPENDIX A: (5) COMMUNITIES (THAI)

	สำหรับผู้วิจัย
21. ผู้ป่วยที่ได้รับอุบัติเหตุอย่างไรที่อาจทำให้เสียชีวิตได้ ก. สมอง / กะโหลกศีรษะ ค. แขน ข. ขา ง. หลัง	☐
22. การดาม หรือเข้าเฝือก ใช้ในกรณีใด ก. ผู้ป่วยเลือดออก ข. ผู้ป่วยแขน – ขาหัก ค. ผู้ป่วยศีรษะแตก ง. ผู้ป่วยแผลถลอก	☐
23. การเคลื่อนย้ายผู้ป่วยกระดูกสันหลังหัก เพื่อให้ปลอดภัย ควรทำอย่างไร ก. ใช้วิธีอุ้มผู้ป่วยแล้วนำส่งโรงพยาบาลให้เร็วที่สุด ข. ใช้เปลหรือไม้กระดานหามโดยให้ผู้ป่วยนอนเปล หรือไม้กระดานเท่านั้น ค. ประคองให้ผู้ป่วยค่อยๆ เดินไป ง. ขอให้ไปโรงพยาบาลอย่างเร็วไม่ต้องคำนึงถึงว่าจะต้องเคลื่อนย้ายแบบใด	☐
24. ผู้ป่วยอุบัติเหตุที่เป็นอัมพาต มักเกิดจากอะไร ก. ศีรษะแตก ข. กระดูกสันหลังหัก ค. ขาหัก ง. หน้าตาได้รับการกระทบกระเทือน	☐
25. การส่งต่อผู้ป่วยอุบัติเหตุไปโรงพยาบาลที่รวดเร็ว ควรโทรแจ้งหมายเลขใด ก. 191 ข. 1559 ค. 1669 ง. 1569	☐

ตอนที่ 3

ทัศนคติต่อการป้องกันอุบัติเหตุจากการจราจร

คำชี้แจง โปรดใส่เครื่องหมาย / ในช่องที่ตรงกับความรู้สึกของท่าน

ทัศนคติ	เห็นด้วย	ไม่เห็นด้วย	ไม่แน่ใจ	สำหรับผู้วิจัย
1.การดื่มสุราแล้วขับรถยิ่งเพิ่มความระมัดระวังมากขึ้น ไม่น่าจะเป็นอันตราย				❑
2. การตรวจเช็คสภาพรถเป็นประจำจะช่วยลดการเกิดอุบัติเหตุ				❑
3. การให้สัญญาณไฟหรือสัญญาณมือทุกครั้งเมื่อเลี้ยวรถจะช่วยป้องกันอุบัติเหตุ				❑
4. การปฏิบัติตามกฎจราจรจะไม่ทำให้เกิดอุบัติเหตุได้				❑
5. ท่านเห็นว่าการขับขี่รถตัดหน้าคันอื่นจะก่อให้เกิดอันตรายได้				❑
6. วัยรุ่นที่ชอบถอดกระจกมองหลังออกจะไม่มีผลให้เกิดอุบัติเหตุได้				❑
7. เมื่อเกิดอุบัติเหตุการสวมหมวกนิรภัยหรือไม่สวมหมวกนิรภัยก็มีโอกาสเจ็บเท่ากัน				❑
8. การขับรถแข่งบนท้องถนนในเวลาดึกๆเป็นเรื่องธรรมดาของวัยรุ่น				❑
9.การขับรถเมื่อถึงทางแยกที่คุ้นเคยไม่จำเป็นต้องชะลอความเร็ว				❑
10. ควรใช้สัญญาณไฟและสัญญาณแตรเมื่อแซงรถคันอื่นเสมอ				❑
11. การป้องกันอุบัติเหตุจากการจราจรเป็นเรื่องที่หลายๆฝ่ายต้องร่วมมือกัน เช่น ตำรวจ อบต. ครู เจ้าหน้าที่สาธารณสุขและชาวบ้าน				❑
12. ท่านคิดว่าอุบัติเหตุเป็นเรื่องที่ต้องเร่งแก้ไข				❑
13. เป็นหน้าที่ของทุกคนที่ต้องร่วมมือกันแก้ไขปัญหาในชุมชน				❑

APPENDIX A: (5) COMMUNITIES (THAI)

ตอนที่ 4

ความเชื่อต่อการป้องกันอุบัติเหตุจากการจราจร

คำชี้แจง โปรดใส่เครื่องหมาย / ในช่องที่ตรงกับความรู้สึกของท่าน

ความเชื่อ	เห็นด้วย	ไม่เห็นด้วย	ไม่แน่ใจ	สำหรับผู้วิจัย
1. ท่านเห็นว่าคนดื่มสุรามีโอกาสเสี่ยงต่อการเกิดอุบัติเหตุได้				☐
2. ท่านเห็นว่าการสวมหมวกนิรภัยไม่ค่อยมีประโยชน์เลย				☐
3. ท่านเห็นว่าการคาดเข็มขัดนิรภัย ขณะขับหรือนั่งรถช่วยป้องกันอุบัติภัยที่ร้ายแรงได้				☐
4. ท่านเห็นว่าการมีใบขับขี่ไม่เป็นสิ่งจำเป็นในการขับรถ				☐
5. ท่านเห็นว่าอุบัติเหตุเป็นเรื่องของเคราะห์กรรม				☐
6. ท่านเห็นว่าอุบัติเหตุเป็นเรื่องที่สามารถป้องกันได้				☐
7. ท่านเชื่อว่าการงดดื่มสุราเมื่อมีการขับขี่เป็นวิธีการป้องกันการเกิดอุบัติเหตุได้				☐
8. คนที่ขับรถเร็วย่อมเสี่ยงต่อการเกิดอุบัติเหตุได้มาก				☐
9.ท่านเห็นว่าอุบัติเหตุเป็นเรื่องป้องกันได้ควรหลีกเลี่ยงการขับรถ				☐
10. ถ้าง่วงนอนอ่อนเพลีย เหนื่อยล้า ควรหลีกเลี่ยงการขับรถ				☐
11. การขับรถขณะฝนตก ฟ้าคะนองมีโอกาสเกิดอุบัติเหตุได้มาก				☐
12. การสวมหมวกนิรภัยจำเป็นเฉพาะการขับรถทางไกลเท่านั้น				☐

ตอนที่ 5

ความตั้งใจในการดำเนินงาน

ความตั้งใจ	ใช่	ไม่ใช่	ไม่แน่ใจ	สำหรับผู้วิจัย
1. ท่านตั้งใว่าจะเป็นผู้กระตุ้นเพื่อนบ้านในการป้องกันอุบัติภัยจากการจราจร				☐
2. ท่านตั้งใจจะร่วมจัดกิจกรรมป้องกันอุบัติภัยจากการจราจร				☐
3. ท่านตั้งใจจะสวมหมวกนิรภัยทุกครั้งที่มีการขับขี่รถจักรยานยนต์				☐
4. ท่านตั้งใจจะคาดเข็มขัดนิรภัยถาเดินทางโดยรถยนต์				☐
5. ท่านตั้งใจจะร่วมสร้างมาตรการเพื่อความปลอดภัยในชุมชนหรือโรงเรียนของท่าน				☐
6. ท่านตั้งใจว่าจะเป็นแบบอย่างที่ดีในการป้องกันอุบัติภัยจาการ				☐
7. ท่านตั้งใจว่าจะร่วมณรงค์ป้องกันอุบัติภัยจากการจราจร				☐
8.ท่านตั้งใจว่าจะร่วมจัดทำแผนการป้องกันอุบัติภัยจากการจราจรขององค์การบริหารส่วนตำบลของท่าน				☐
9. ท่านตั้งใจว่าจะไม่ใช้ความเร็วสูงในการขับรถ				☐

APPENDIX A: (5) COMMUNITIES (THAI)

ตอนที่ 6
การปฏิบัติตัวในการป้องกันอุบัติภัยจากการจราจร

การปฏิบัติตัวในการป้องกันอุบัติภัยจากการจราจร	ปฏิบัติประจำ	ปฏิบัติบางครั้ง	ไม่เคยปฏิบัติ	สำหรับผู้วิจัย
1. ท่านสวมหมวกนิรภัยเมื่อขับขี่รถจักรยานยนต์				☐
2. ท่านกระตุ้นเตือนเพื่อนบ้านในการป้องกนอุบัติภัยจากการจราจรเสมอ				☐
3. ท่านร่วมสร้างมาตรการป้องกันอุบัติภัยจากการจราจรในชุมชนของท่าน				☐
4. ท่านตรวจเช็คสภาพรถทุกครั้งก่อนออกเดินทาง				☐
5. ท่านร่วมรณรงค์ป้องกันอุบัติภัยจากการจราจรในโรงเรียนหรือในชุมชน				☐
6. ท่านเคยโทรศัพท์ถึงตำรวจเพื่อมาช่วยผู้ป่วยอุบัติเหตุ				☐
7. ท่านเคยโทรศัพท์เพื่อขอรับการช่วยเหลือด้านการรักษาแก่คนที่ได้รับอุบัติเหตุ				☐
8. ท่านใช้ความเร็วสูงในการขับรถ				☐
9. ท่านเป็นอาสาจราจร				☐

แนวคำถามเพื่อข้อมูลเชิงคุณภาพ

เรื่อง การพัฒนาศักยภาพผู้เกี่ยวข้องในการป้องกันอุบัติเหตุทางการจราจร

ตอนที่ 1 ข้อมูลส่วนบุคคล

ชื่อ .....นามสกุล.....

อายุ..... สถานที่ทำงาน .....

ที่อยู่ .....

ตอนที่ 2 การป้องกันอุบัติเหตุจากการจราจรด้านบุคคล

1. ทางชุมชนมีการอบรมป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

2. มีสื่อการสอนเรื่องการป้องกันอุบัติเหตุจากการจราจร หรือไม่ อย่างไร
.....
.....

3.มีการเผยแพร่ความรู้ในการป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

4.มีผู้รับผิดชอบในการดำเนินงานป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
.....
.....

5.มีการประสานการดำเนินงานระหว่างโรงเรียนกับสถานีอนามัย สถานีตำรวจ และองค์การบริหารส่วนตำบล เพื่อการป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
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.....

6.ท่านมีการปฏิบัติตามกฎจราจรมากน้อยแค่ไหน อย่างไร เช่น การสวมหมวกนิรภัย การขับรถเร็ว
.....
.....

7. ท่านได้รับการป้องกันอุบัติเหตุจากการจราจรหรือไม่ อย่างไร
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.....

APPENDIX A: (5) COMMUNITIES (THAI)

ตอนที่ 3 การป้องกันอุบัติเหตุจากการจราจรด้านถนน

1. ลักษณะถนนในชุมชนเป็นอย่างไร มีความเสี่ยงต่อการเกิดอุบัติเหตุมากน้อยอย่างไร

.....

.....

2. ชุมชนมีการปรับปรุงถนนที่ขรุขระ เป็นหลุมเป็นบ่อหรือที่เสี่ยงต่อการเกิดอุบัติเหตุให้ใช้การได้ดีหรือไม่ อย่างไร

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.....

ตอนที่ 4 การป้องกันอุบัติเหตุจากการจราจรด้านยานพาหนะ

1. สภาพรถที่ใช้ในชุมชนเป็นอย่างไร

.....

.....

2. การตรวจเช็ครถก่อนใช้เป็นอย่างไร

.....

.....

3. อุปกรณ์ประกอบต่างๆของการใช้มอเตอร์ไซค์เป็นอย่างไร

.....

.....

4. การขับขี่ยานพาหนะของท่านเป็นอย่างไรบ้าง

.....

.....

5. ชุมชนมีมาตรการจำกัดความเร็วในการขับขี่อย่างไร

.....

.....

ตอนที่ 5 การป้องกันอุบัติเหตุจากการจราจรด้านสิ่งแวดล้อม

1.ชุมชนมีสิ่งแวดล้อม หรือสิ่งก่อให้เกิดทัศนวิสัยไม่ดีที่เป็นสาเหตุของการเกิดอุบัติเหตุอย่างไร

.....

.....

2.ชุมชนมีมาตรฐานการดูแลรักษาสิ่งแวดล้อมเพื่อไม่ให้เป็นสาเหตุของการเกิดอุบัติเหตุอย่างไรบ้าง

.....

.....

3. มีป้ายเตือน ป้ายห้าม และป้ายประชาสัมพันธ์ ในการจราจรหรือไม่ อย่างไร

.....

.....

Unit of Stakeholder Analysis

Table 1 Socio-demographic characteristics of stakeholders

Socio-demographic Characteristics	No (n=50)	Percentage
1. Age (years)		
26-30	1	2.00
31-35	2	4.00
36-40	4	8.00
41-45	14	28.00
46-50	14	28.00
51-55	10	20.00
56-60	5	10.00
2. Gender		
Male	40	80.00
Female	10	20.00
3. Occupation		
Government employee	26	52.00
Commerce	1	2.00
Employee	1	2.00
Agriculture	18	36.00
Other	4	8.00
4. Position		
Head of sub-district administrative organization and head of sub-district	2	4.00
Head of village	5	10.00
Health personnel	1	2.00
Policeman	5	10.00
Other: members of district administrative organization, deputy head of villages, health volunteer, EMS staff, accident prevention staff in communities	37	74.00
5. Income per month		
Less than 3,000 baht	2	4.00
3,001 – 5,000 baht	6	12.00
5,001 – 7,000 baht	5	10.00
15,001– 20,000baht	2	4.00
More than 20,000 baht	35	70.00
6. Marital status		
Single	2	4.00
Married	44	88.00
Divorced	1	2.00
Widowed	2	4.00
7. Education		
Able to read	2	4.00
Primary school	9	18.00
Secondary school	5	10.00
High school	14	28.00
Diploma	3	6.00
Bachelor's degree	17	34.00

APPENDIX B

Table 2 Number and percentage, mean, standard deviation on knowledge for traffic accident prevention

Knowledge	Number (n=50) (Percentage)	
	Correct answer	Incorrect answer
1. Car accident risk	43(86.00)	7(14.00)
2. Road with poor or obstructed visibility	30(60.00)	20(40.00)
3. Practice for traffic accident when driving: under smoky conditions	35(70.00)	15(30.00)
4. Ways of decreasing severe motorcycle accidents	39(78.00)	11(22.00)
5. Influence of amphetamines on driving performance	31(62.00)	19(38.00)
6. Proper passenger behavior	45(90.00)	5(10.00)
7. Good practice when crossing street in urban area	41(82.00)	9(18.00)
8. Types of cars that should not be used in daytime	28(56.00)	22(44.00)
9. Age group encountering traffic accidents most frequently	49(98.00)	1(2.00)
10. Effectiveness of helmet use when driving a motorcycle	30(60.00)	20(40.00)
11. Curb color in parking permitted zones	41(82.00)	9(18.00)
12. Color of temporary parking road areas	34(68.00)	16(32.00)
13. Color of no parking road areas	44(88.00)	6(12.00)
14. Safe driving behavior	41(82.00)	9(18.00)
15. Mark for passing not allowed	17(34.00)	33(66.00)
16. Color of shirt appropriate for traffic safety at night	48(96.00)	2(4.00)
17. Victim of traffic accidents	39(78.00)	11(22.00)
18. Practice driving in rain	29(58.00)	21(42.00)
19. Practice before driving on highway	34(68.00)	16(32.00)
20. Motorcycle safety characteristics	46(92.00)	4(8.00)
21. Organ damage leading to death	55(110.00)	0
22. Use of splints in injuries	42(84.00)	8(16.00)
23. How to move a patient with spinal damage	47(94.00)	3(6.00)
24. Causes of paralysis	36(72.00)	14(28.00)
25. Telephone number for requesting transfer of patient to hospital	38(76.00)	12(24.00)
$\overline{X}$ ± S.D.	19.26 ± 4.38	
Max-min	7-27	

APPENDIX B

Table 3 Number and percentage, mean, standard deviation of belief for traffic accident prevention

Belief	Number (n=50) (Percentage)		
	Agree	Unsure	Disagree
1. Drunk driving increases the risk of accident	30(60.00)	11(22.00)	9(18.00)
2. Helmet use is not useful	7(14.00)	12(24.00)	31(62.00)
3. Safety belts prevent severe traffic accidents	28(56.00)	6(12.00)	16(32.00)
4. A driver's license is not necessary while driving	15(30.00)	6(12.00)	29(58.00)
5. Accident is related with bad luck	8(16.00)	15(30.00)	27(54.00)
6. Accidents are preventable	35(70.00)	10(20.00)	5(10.00)
7. Not drinking and driving can prevent accidents	22(44.00)	11(22.00)	17(34.00)
8. Driving at high speed increases risk of accidents	37(74.00)	6(12.00)	7(14.00)
9. Traffic accidents can be prevented by avoiding driving	25(50.00)	99(18.00)	16(32.00)
10. If you feel sleepy or exhausted, you should avoid driving	36(72.00)	10(20.00)	4(8.00)
11. Driving during heavy rain may increase the risk of accident	27(54.00)	14(28.00)	9(18.00)
12. Helmet use is necessary only when driving long distances	6(12.00)	10(20.00)	34(68.00)
$\overline{X}$ ± S.D.		28.84 ± 3.36	
Max-min		22-34	

APPENDIX B

Table 4 Number and percentage, mean, standard deviation of attitude toward traffic accident prevention

Attitude	Number (n=50) (Percentage)		
	Agree	Unsure	Disagree
1. Being drunk makes people more careful when driving, so it is not dangerous	12(24.00)	14(28.00)	24(48.00)
2. Regular vehicle inspections help decrease accidents	29(58.00)	16(32.00)	5(10.00)
3. Turning traffic lights on all the time decreases accidents	27(54.00)	19(38.00)	4(8.00)
4. Respecting and following decreases traffic accidents	26(52.00)	13(26.00)	11(22.00)
5. It is dangerous to drive closely to another car or pull out suddenly in front of another car	22(44.00)	13(26.00)	15(30.00)
6. Young people like to remove car mirrors, but this has no effect on traffic accidents	8(16.00)	14(28.00)	28(56.00)
7. Using a helmet or not will not make any difference in terms of rate of injury	9(18.00)	14(28.00)	27(54.00)
8. Motorcycle racing on the highway is normal for the young	5(10.00)	18(36.00)	27(54.00)
9. When driving on the familiar road, it is not necessary to drive slowly	9(18.00)	18(36.00)	23(46.00)
10. We should use signal and horn when passing a car	29(58.00)	8(16.00)	13(26.00)
11. For traffic accident prevention all stakeholder should work together: SDAO, teacher, health personnel, head of village, etc.	32(64.00)	16(32.00)	2(4.00)
12. Traffic accidents are an urgent issue.	30(60.00)	13 (26.00)	7 (14.00)
13. It's the duty of all people in a community to solve problems together	36 (72.00)	12 (24.00)	2(4.00)
$\overline{X}$ ± S.D.		31.16 ± 3.03	
Max-min		26-39	

APPENDIX B

Table 5 Number and percentage, mean, standard deviation of intention to working toward accident prevention

Intention	Number(n=50) (Percentage)		
	Yes	Unsure	No
1. Intend to motivate neighborhood to traffic accident prevention	22(44.00)	0	28(56.00)
2. Intend to join traffic accident prevention activities	15(30.00)	0	35(70.00)
3. Intend to use helmet whenever riding motorcycle	27(54.00)	0	23(46.00)
4. Intend to use safety belt whenever traveling by car	21(42.00)	0	29(58.00)
5. Intend to follow regulations for traffic accident prevention in the community and school	22(44.00)	0	28(56.00)
6. Intend to be a role model for traffic accident prevention	33(66.00)	0	17(34.00)
7. Intend to conduct campaign for traffic accident prevention	23(46.00)	0	27(54.00)
8. Intend to plan for traffic accident prevention in sub-district administrative organization	19(38.00)	0	31(62.00)
9. Intend to work with policemen and health personnel for traffic accident prevention	29(58.00)	0	21(42.00)
10. Intend not to drive drunk	23(46.00)	2(4.00)	25(50.00)
11. Intend to cooperate with health personnel when finding a victim in traffic accident situation.	35(70.00)	0	15(30.00)
12. Intend to move victims of traffic accidents following an appropriate procedures	12(24.00)	10(20.00)	28(56.00)
13. Intend to help the health station assist victims of traffic accident safely	38(76.00)	0	12(24.00)
$\overline{X}$ ± S.D.		32.14 ± 1.55	
Max-min		30-39	

APPENDIX B

Table 6 Number and percentage, mean, standard deviation of behavior (practice) for traffic accident prevention

Behavior (Practice)	Number (n=50) (Percentage)		
	Usually	Sometimes	Never
1. Uses helmet when riding motorcycle	27(54.00)	23(46.00)	0
2. Stimulates neighborhoods for traffic accident prevention	17(34.00)	33(66.00)	0
3. Follows regulations for traffic accident prevention in the community	23(46.00)	26(52.00)	1(2.00)
4. Always checks car before driving	27(54.00)	23(46.00)	0
5. Conducts campaign for traffic accident prevention	29(58.00)	21(42.00)	0
6. Cooperates with police for traffic accident prevention in the community	23(46.00)	27(54.00)	0
7. Cooperates with health personnel for traffic accident alleviation in the community	19(38.00)	30(60.00)	1(2.00)
8. Plans for budgetary support for traffic accident prevention in the community	13(26.00)	34(68.00)	3(6.00)
9. Conducts good practice for traffic accident prevention in the community	36(72.00)	14(28.00)	0
10. Calls police to request help for traffic accident victims	16(32.00)	31(62.00)	3(6.00)
11. Calls 1669 to request help for traffic accident victims	18(36.00)	31(62.00)	1(2.00)
12. Cooperating with health personnel to help traffic accident victims	30(60.00)	17(34.00)	3(6.00)
$\overline{X}$ ± S.D.		29.32 ± 2.44	
Max-min		24-33	

APPENDIX B

Table 7 Level of knowledge on traffic accident prevention, pre- and post-test

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	23	46.00	50	100.00
Middle	18	36.00	0	0
Low	9	18.00	0	0
$\overline{X}$ ± SD	18.98 ± 4.02		24.38 ± 0.81	
Total	50	100	50	100

Total score: 25, High: More then 19, Middle: 16-19, Low: Less than 16

Table 8 Level of beliefs on traffic accident prevention, pre- and post-test

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	15	30.00	49	98.00
Middle	23	46.00	1	2.00
Low	12	24.00	0	0
$\overline{X}$ ± SD	28.84 ± 3.36		35.00 ± 1.44	
Total	50	100	50	100

Total score: 36, High: More than 30, Middle: 27-30, Low: Less than 27

Table 9 Level of attitudes toward traffic accident prevention, pre- and post-test

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	10	20.00	50	100.00
Middle	33	66.00	0	0
Low	7	14.00	0	0
$\overline{X}$ ± SD	31.16 ± 3.03		38.20 ± 1.13	
Total	50	100	50	100

Total score: 39, High: More than 32, Middle: 29-32, Low: Less than 29

Table 10 Level of traffic accident prevention intentions, pre- and post-test

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	14	28.00	50	100.00
Middle	36	72.00	0	0
Low	0	0	0	0
$\overline{X}$ ± SD	32.141.55		38.440.79	
Total	50	100	50	100

Total score: 39, High: More than 32, Middle: 29-32, Low: Less than 29

APPENDIX B

Table 11 Level of traffic accident prevention behavior (practice), pre- and post-test

Level	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	16	32.00	45	90.00
Middle	26	52.00	5	10.00
Low	8	16	0	0
$\overline{X}$ ± SD	29.322.44		34.101.96	
Total	50	100	50	100

Total score: 36, High: More than 30, Middle: 27-30, Low: Less than 27

Table 12 Comparison of knowledge on traffic accident prevention, pre- and post-test

Knowledge on traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	18.98	0.81	5.40	9.41	<0.001	4.25 to 6.55
Post-test	24.38	4.02				

Table 13 Comparison of Beliefs on Traffic Accident Prevention, Pre- and Post-test

Belief on traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	28.84	3.36	6.16	12.40	<0.001	5.16 to 7.16
Post-test	35.00	1.44				

Table 14 Comparison of attitudes toward traffic accident prevention, pre- and post-test

Attitude toward traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	31.16	3.03	7.12	15.74	<0.001	6.21 to 8.03
Post-test	38.28	1.13				

Table 15 Comparison of traffic accident prevention intentions, pre- and post-test

Intention to traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	32.14	1.55	6.30	25.76	<0.001	5.81 to 6.79
Post-test	38.44	0.79				

APPENDIX B

Table16 Comparison of traffic accident prevention behavior (practice), pre- and post-test

Behavior (Practice) on traffic accident prevention	$\overline{X}$	S.D.	$\overline{d}$	t-value	p-value	95% CI
Pre-test	29.32	2.44	4.78	11.73	<0.001	3.96 to 5.60
Post-test	34.10	1.96				

APPENDIX C

Unit of Students Analysis

Table 1 Number and percentage, mean, standard deviation of knowledge on traffic accident prevention (n=247)

Knowledge	Pre-test Number (Percentage)		Post-test Number (Percentage)	
	Correct answer	Incorrect answer	Correct answer	Incorrect answer
1. Car accident risk	241 (97.57)	6 (2.43)	246 (99.60)	1 (0.40)
2. Road with poor or obstructed visibility	187 (75.71)	60 (24.29)	243 (98.38)	4 (1.62)
3. Practice for traffic accident when driving: under smoky conditions	175 (70.85)	72 (29.15)	244 (98.79)	3 (1.21)
4. Ways of decreasing severe motorcycle accidents	213 (86.23)	34 (13.77)	246 (99.60)	1 (0.40)
5. Influence of amphetamines on driving performance	205 (83.00)	42 (17.00)	245 (99.19)	2 (0.81)
6. Proper passenger behavior	231 (93.52)	16 (6.48)	246 (99.60)	1 (0.40)
7. Good practice when crossing street in urban area	230 (93.12)	17 (6.88)	247 (100.00)	0
8. Types of cars that should not be used in daytime	189 (76.52)	58 (23.48)	243 (98.38)	4 (1.62)
9. Age group encountering traffic accidents most frequently	222 (89.88)	25 (10.12)	247 (100.00)	0
10. Effectiveness of helmet use when driving a motorcycle	200 (80.97)	47 (19.03)	235 (95.14)	12 (4.86)
11. Curb color in parking permitted zones	184 (74.49)	63 (25.51)	232 (93.93)	12 (4.86)
12. Color of temporary parking road areas	132 (53.44)	115 (46.56)	244 (98.79)	3 (1.21)
13. Color of no parking road areas	164 (66.40)	83 (33.60)	240 (97.17)	7 (2.83)
14. Safe driving behavior	183 (74.09)	64 (25.91)	243 (98.38)	4 (1.62)
15. Mark for passing not allowed	61 (24.70)	186 (75.30)	240 (97.17)	7 (2.83)
16. Color of shirt appropriate for traffic safety at night	224 (90.69)	23 (9.31)	243 (98.38)	4 (1.62)

(continued)

17. Victim of traffic accidents	196 (79.35)	51 (20.65)	241 (97.57)	6 (2.43)
18. Practice driving in rain	137 (55.47)	110 (44.53)	245 (99.19)	2 (0.81)
19. Practice before driving on highway	165 (66.80)	82 (33.20)	245 (99.19)	2 (0.81)
20. Motorcycle safety characteristics	181 (73.28)	66 (26.72)	245 (99.19)	2 (0.81)
21. Organ damage leading to death	230 (93.12)	17 (6.88)	245 (99.19)	2 (0.81)
22. Use of splints in injuries	217 (87.85)	30 (12.15)	247 (100.00)	0
23. How to move a patient with spinal damage	181 (73.28)	66 (26.72)	244 (98.79)	3 (1.21)
24. Causes of paralysis	172 (69.64)	75 (30.36)	240 (97.17)	7 (2.83)
25. Telephone number for requesting transfer of patient to hospital	198 (80.16)	49 (19.84)	247 (100.00)	0
$\overline{X}$ ± S.D.	19.10 ± 3.80		24.63 ± 0.71	
Max-min	5 - 25		21 - 25	

APPENDIX C

Table 2 Number and percentage, mean, standard deviation of belief on traffic accident prevention (n=247)

Belief	Pre-test Number (Percentage)			Post-test Number (Percentage)		
	Agree	Unsure	Disagree	Agree	Unsure	Disagree
1. Drunk driving increases the risk of accident	200 (80.97)	25 (10.12)	22 (8.91)	233 (94.33)	12 (4.86)	2 (0.81)
2. Helmet use is not useful	199 (80.57)	24 (9.72)	24 (9.72)	219 (88.66)	26 (10.53)	2 (0.81)
3. Safety belts prevent severe traffic accidents	185 (74.90)	42 (17.00)	20 (8.10)	220 (89.07)	27 (10.93)	0
4. A driver's license is not necessary while driving	181 (73.28)	31 (12.55)	35 (14.17)	208 (84.21)	39 (15.79)	0
5. Accident is related with bad luck	82 (33.20)	107 (43.32)	58 (23.48)	105 (42.51)	142 (57.49)	0
6. Accidents are preventable	170 (68.83)	35 (14.17)	42 (17.00)	205 (83.00)	42 (17.00)	0
7. Not drinking and driving can prevent accidents	199 (80.57)	28 (11.34)	20 (8.10)	230 (93.12)	17 (6.88)	0
8. Driving at high speed increases risk of accidents	196 (79.35)	24 (9.72)	27 (10.93)	221 (89.47)	26 (10.53)	0
9. Traffic accidents can be prevented by avoiding driving	109 (44.13)	83 (33.60)	55 (22.27)	134 (54.25)	111 (44.94)	2 (0.81)
10. If you feel sleepy or exhausted, you should avoid driving	214 (86.64)	27 (10.93)	6 (2.43)	231 (93.52)	15 (6.07)	1 (0.40)
11. Driving during heavy rain may increase the risk of accident	206 (83.40)	31 (12.55)	10 (4.05)	218 (88.26)	29 (11.74)	0
12. Helmet use is necessary only when driving long distances	104 (42.11)	48 (19.43)	95 (38.46)	195 (78.95)	52 (21.05)	0
$\overline{X}$ ± S.D.	30.60 ± 3.06			33.77 ± 1.73		
Max-min	16 - 36			26 - 36		

APPENDIX C

Table 3 Number and percentage, mean standard deviation of attitude toward traffic accident prevention (n=247)

Attitude	Pre-test Number (Percentage)			Post-test Number (Percentage)		
	Agree	Unsure	Disagree	Agree	Unsure	Disagree
1. Being drunk makes people more careful when driving, so it is not dangerous	165 (66.80)	39 (15.79)	43 (17.41)	199 (80.57)	46 (18.62)	2 (0.81)
2. Regular vehicle inspections help decrease accidents	177 (71.66)	41 (16.60)	29 (11.74)	225 (91.09)	19 (7.69)	3 (1.21)
3. Turning traffic lights on all the time decreases accidents	162 (65.59)	65 (26.32)	20 (8.10)	225 (91.09)	22 (8.91)	0
4. Respecting and following decreases traffic accidents	165 (66.80)	48 (19.43)	34 (13.77)	198 (80.16)	47 (19.03)	2 (0.81)
5. It is dangerous to drive closely to another car or pull out suddenly in front of another car	176 (71.26)	37 (14.98)	34 (13.77)	215 (87.04)	32 (12.96)	0
6. Young people like to remove car mirrors, but this has no effect on traffic accidents	165 (66.80)	52 (21.05)	30 (12.15)	187 (75.71)	58 (23.48)	2 (0.81)
7. Using a helmet or not will not make any difference in terms of rate of injury	97 (39.27)	79 (31.98)	71 (28.74)	173 (70.04)	73 (29.55)	1 (0.40)
8. Motorcycle racing on the highway is normal for the young	159 (64.37)	55 (22.27)	33 (13.36)	191 (77.33)	56 (22.67)	0
9. When driving on the familiar road, it is not necessary to drive slowly	159 (64.37)	38 (15.38)	50 (20.24)	219 (77.33)	56 (22.67)	0
10. We should use signal and horn when passing a car	167 (67.61)	58 (23.48)	22 (8.91)	194 (78.54)	52 (21.05)	1 (0.40)
11. For traffic accident prevention all stakeholder should work together : SDAO, teacher, health personnel, head of village, etc.	181 (73.28)	42 (17.00)	24 (9.72)	214 (86.64)	33 (13.36)	0
12. Traffic accidents are an urgent issue.	198 (80.16)	35 (14.17)	14 (5.67)	212 (85.83)	33 (13.36)	2 (0.81)
13. It's a duty of all people in a community to solve problems together	209 (84.62)	22 (8.91)	16 (6.48)	229 (92.71)	17 (6.88)	1 (0.40)
$\overline{X}$ ± S.D.	33.13 ± 2.64			36.80 ± 2.28		
Max - min	23 - 39			26 - 39		

APPENDIX C

Table 4 Number and percentage, mean, standard deviation of intention to work for accident prevention (n=247)

Intention	Pre-test Number (Percentage)			Post-test Number (Percentage)		
	Agree	Unsure	Disagree	Agree	Unsure	Disagree
1. Intend to motivate neighborhood to traffic accident prevention	174 (70.45)	54 (21.86)	19 (7.69)	156 (63.16)	90 (36.44)	1 (0.40)
2. Intend to join traffic accident prevention activities	177 (71.66)	55 (22.27)	15 (6.07)	212 (85.83)	32 (12.96)	3 (1.21)
3. Intend to use helmet whenever riding motorcycle	185 (74.90)	51 (20.65)	11 (4.45)	209 (84.62)	35 (14.17)	3 (1.21)
4. Intend to use safety belt whenever traveling by car	178 (72.06)	48 (19.43)	21 (8.50)	225 (91.09)	21 (8.50)	1 (0.40)
5. Intend to follow regulations for traffic accident prevention in the community and school	158 (63.97)	67 (27.13)	22 (8.91)	195 (78.95)	52 (21.05)	0
6. Intend to be a role model for traffic accident prevention	167 (67.61)	58 (23.48)	22 (8.91)	191 (77.33)	55 (22.27)	1 (0.40)
7. Intend to conduct campaign for traffic accident prevention	173 (70.04)	62 (25.10)	12 (4.86)	211 (85.43)	36 (14.57)	0
8. Intend to plan for traffic accident prevention in sub-district administrative organization	157 (63.56)	64 (25.91)	26 (10.53)	175 (70.85)	72 (29.15)	0
9. Intend not to speed	200 (80.97)	29 (11.74)	18 (7.29)	188 (76.11)	58 (23.48)	1 (0.40)
$\overline{X}$ ± S.D.	23.68 ±2.41			25.09 ± 1.99		
Max - min	15 - 27			18 - 27		

APPENDIX C

Table 5 Number and percentage, mean, standard deviation of behavior (practice) on accident prevention (n=247)

Behavior (Practice)	Pre-test Number (Percentage)			Post-test Number (Percentage)		
	Agree	Unsure	Disagree	Agree	Unsure	Disagree
1. Uses helmet when riding motorcycle	82 (33.20)	156 (63.16)	9 (3.64)	96 (38.87)	151 (61.13)	0
2. Stimulates neighborhoods for traffic accident prevention	65 (26.32)	163 (65.99)	19 (7.69)	67 (27.13)	175 (70.85)	5 (2.02)
3. Follows regulations for traffic accident prevention in the community	61 (24.70)	134 (54.25)	52 (21.05)	92 (37.25)	148 (59.92)	7 (2.83)
4. Always checks car before driving	97 (39.27)	121 (48.99)	29 (11.74)	14 6 (59.11)	101 (40.89)	0
5. Conducts campaign for traffic accident prevention	80 (32.39)	131 (53.04)	36 (14.57)	133 (53.85)	113 (45.75)	1 (0.40)
6. Coordinates with police for traffic accident prevention in the community	29 (11.74)	59 (23.89)	159 (64.37)	101 (40.89)	142 (57.49)	4 (1.62)
7. Coordinates with health personnel for traffic accident alleviation in community	26 (10.53)	71 (28.74)	150 (60.73)	90 (36.44)	156 (63.16)	1 (0.40)
8. Drives with high speed	117 (47.37)	94 (38.06)	36 (14.57)	148 (59.92)	99 (40.08)	0
9. Acts as a student traffic safety volunteer	74 (29.96)	62 (25.10)	111 (44.94)	155 (62.75)	92 (37.25)	0
$\overline{X}$ ± S.D.	18.12 ± 3.11			22.09 ± 1.91		
Max - min	12 - 25			17 - 27		

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2007

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