



## 2. Development of the surveillance system

The surveillance system was developed. It was consisted of 3 phases as following:

### **Phase 1: Planning and designing the surveillance system**

There were 6 steps in planning the surveillance system. First, we had to identify the stakeholders who will monitor the problems of alcohol consumption from literature reviews and context of the study areas. Then contacted the stakeholders to corporately define the objectives of establishing a surveillance system of alcohol consumption followed by identifying potential data sources within the community. Since the model development process needed various inputs, assessing available resources was an essential step we had to conduct. Before processing to the next phase of implementation, all stakeholders were consulted to get advice to help shaping up the system. The details of the system development were:

Step 1: Identified the stakeholders to take a role of monitoring alcohol consumption problems.

Step 2: Defined the objective of establishing a surveillance system and problems of alcohol consumption

Step 3: Defined population for surveillance

Step 4: Identified potential data sources

Step 5: Assessed available resources

Step 6: Informed and involved stakeholders

For step 1, we were able to indentify 3 groups of stakeholders who will take the role of monitoring the alcohol consumption problems. There details of each group were:

Group 1, consisted of organizations, which need the surveillance system since their mandates were to make sure that people are safe. These organizations were primary care unit, hospitals, district public health office, police station, and district municipality, sub-district administration organization. These organizations needed this information to formulate policies to prevent and mange the alcohol consumption problems in the areas.



Group 2, were organizations and staff which had capacity for data collection and able to access to information sources for surveillance network, in this study they were the epidemiology unit of hospital.

Group 3 was the organizations, which will use the information from the developed surveillance system, including public health office, hospital, police station, municipality, and sub-district administration organization.

Step 2: The researchers and stakeholders had worked together to identify objectives of the model, which will be developed. Their general purpose was to develop a surveillance system for epidemiology of alcohol consumption in the areas. In addition, specific objectives were developing a mechanism to monitor the epidemiology of alcohol consumption, and to prepare the data, which indicate the situation of the alcohol consumption epidemiology.

### **2.1 The population under surveillance**

Surveillance population was the population aged 12-65 years old who lived in Sam Sung district, Khon Kaen Province. There were total of 18,467 people of which 9,247 people were males and 9,220 was females.

### **2.2 Identify Potential Data Sources**

The literature reviewed indicated that in order to monitor the alcohol consumption situation in a population. The information must cover three aspects of demand, supply and impacts of alcohol consumption. Researchers seriously considered whether the data of all three aspects were available and were from reliable sources. It was found that there were existing of records and reports of information and easily to access and used in the areas. It was possible to collect data from 2 major sources as follow:

### **2.3 Secondary data sources**

The secondary data sources were from the reports and documents of the relevant authorities such as:

2.3.1 Alcohol consumer information was from a database of production, import, and tax systems.

2.3.2 Behavioral data was from the surveillance and random breath test.

2.3.3 The impacts of alcohol consumption were from health care system and justice system.

#### **2.4 The primary data source**

The primary data sources were from our survey or research.

2.4.1 The information on consumption behavior and its impact on an individual level

2.4.2 Consumption information which included in the reporting system.

#### **2.5 The feasibility study and evaluate the information sources**

At this stage, the researchers conducted field study to explore the context of the region and organize meetings with relevant organizations. The main objectives of the field study were to assess the possibility of data collection and utilization of data in the developed surveillance system. The results of the field study were as follows.

#### **2.6 Context of the region**

Amphoe Sam Sung was originally part of Amphoe Kranuan. King Amphoe Sam Sung was established by the Ministry of Interior on 31 March 1994 and was upgraded to be a district or amphoe on 24 August 2007. Amphoe Sum Sung covered the land area of 188 square kilometers in the northeast of Khon Kaen province. It shared the borders with Amphore Kranuan in the North, Amphoe Cheun Chum, Mahasarakham and Amphe Muang, Khon Kaen in the South, and Amphoe Num Phong in the West.

In 2009, Sum Sung consists of 5 sub-districts (Tamboon) and 35 villages. There were five local government organizations, one was a municipality, and the rest 4 were sub-district administration organizations. Its population was 23,647 persons, of which included 11,824 males and 11,823 females. Most of them were farmers.

There were representative of various organizations joint the meeting organized by the researcher including:

- 1) Representative of Sam Sung District
- 2) Representatives from the municipalities
- 3) Representatives from the District Administration Organizations

- 4) Representatives from the District Health Offices
- 5) Representatives from the hospital
- 6) Representatives from the primary care unit (PCU)
- 7) Representatives from community leaders such as Kamnan
- 8) Village Health Volunteers

In these sessions, the researcher explained the purpose of research. Therefore, these organizations knew their roles and responsibility. In the explanatory meeting, the researchers aware of some limitation in conducting this research, therefore, the feasibility study was essential and was conducted a feasibility study in technical feasibility elements, possibility of management, and possibility of politic

**Table 6** The results of the feasibility of the system

Academic	Possibility
1) Study design. - Research and development design	Research design is appropriate with high possibility to be success.
2) Samples - Samples were from Amphoe Sam Sung, Khon Kaen Province, who were - Male or female aged between 12-65 years olds in 5 tamboons (35 villages). - Vulnerable population from the BAC check points, 100 per checkpoint per month.	Samples were appropriate with high possibility to be able to reach.
3) Equipments used for data collection. - A record form of patients who were treated in health facilities with disease associated with alcohol	It is possible to use the records for data collection. These tools had good content validity, appropriated in term of language, and had high reliability.

**Table 6** The results of the feasibility study of the system (Cont.)

<b>Academic</b>	<b>Possibility</b>
<ul style="list-style-type: none"> <li>- A record form of arrest / detention from drunk driving.</li> <li>- A record form of young people aged &lt; 18 years old who violated the Delinquent Act of Alcohol Sales, 2006</li> <li>- Alcohol survey in convenient stores, wholesale and retail stores in the community.</li> </ul>	
<p>4) Mechanisms for data collection and data driven</p> <ul style="list-style-type: none"> <li>- The data collected in the survey received fully supported by village health volunteers.</li> </ul>	<p>Data collection and data driven mechanism was possible with high technical feasibility.</p>
<p>1) People</p> <ul style="list-style-type: none"> <li>- Persons who responsible for drug control in the areas.</li> <li>- Community organizations such as village committee/ Sub-district Administration Organization</li> </ul>	<ul style="list-style-type: none"> <li>- Limitation was that it increased their workload. Therefore, it was integrated into the routine work on drugs.</li> </ul>
<b>Political</b>	<b>Possibility</b>
<p>National policy, it is important to assess the alcohol consumption situation at household level annual.</p>	<ul style="list-style-type: none"> <li>- Integrated with the drug abuse and focused monitoring in local policy framework to solve the problems of alcohol consumption in the area.</li> </ul>

In the context of the study area and the feasibility of the system indicators derived from a literature review, several indicators at the national, regional levels were not fit or available with the areas (see details in Appendix II). We had to exclude those indicators.

## 2.7 Demand Situation

Demand situation: average alcohol consumption per day, average alcohol consumed on the drinking day, frequency of drinking, number of day with heavy drinking, volume of alcohol consumed per year.

## 2.8 Supply situation

Supply situation including the number of available sources of alcohol in the area, volume of alcohol sales in the areas.

## 2.9 Impact

Impact such as number of patients with diseases caused by or associated with alcohol consumption. Legal cases caused by or associated with alcohol consumption.

## 2.10 Definitions of indicators used in the surveillance system

2.10.1 Average Daily Intake mean an average daily intake refers to the minimum amount of alcohol that a person had on average per day. It indicated a person's drinking volume on average per day, equally both on the day of drinking and not drinking during the study period (365 days).

2.10.2 Average Drinking Intensity mean volume of alcohol consume on the drinking days only, which excluded non-drinking days. It indicated the severity or intensity of drinking on the day the person drink (Sawitree, et al, 2550). Reporting of average drinking intensity was recommended by the World Health Organization guidelines as follows.

**Table 7** The Average Daily Intake with the risk to harms

Level of risk	Men (adults aged 25-60 years)	Women (adults aged 25-60 years)
Low	10-40 grams per day	1-20 grams per day
Moderate	41-60 grams per day	21-40 grams per day
High	61-100 grams per day	41-60 grams per day
Severe	> 100 grams per day	> 60 grams per day

2.10.3 Frequency of drinking is the number of drinking days within the period specified. It was reported as frequency per week, per month or per year.

2.10.4 Binge Drinking means drinking more than five standard units per transaction. In this study, which compared the amount of more than 6 cans of beer or 3 large bottles of 5 or more glass or half-flat or more than five glasses of wine or half a bottle at a time.

2.10.5 Total Annual Consumption refers to the total amount of alcohol a person drank for the whole year. It is the drink volume of the total population in the community. It does not indicate the severity of the risk of drinking and the level of individuals drinking.

2.10.6 The supply situation means places which sell alcohol such as grocery stores, retail shop, entertainment complex, restaurant, Korean barbecue restaurant, karaoke, pubs, bars, liquor store, traditional alcohol medicina, booth, cart, beer bar, snooker club, supermarket and pharmacies. It was reported as number of shop or venue which sell alcohol.

2.10.7 The impact situation mean patients with disease caused by alcohol mean patients who were diagnosed by medical doctor and reported in the medical records as patients caused by or related to alcohol using ICD-10 (detail in appendix). The measurement unit was persons/month included both new and old cases.

2.10.8 Alcohol-use Disorder refers to abnormal conditions caused by drinking, which reflect the characteristics of chronic drinking problems. It is screened the alcohol use disorder developed by the Working Group of the World Health Organization. It is widely used globally from its high validity and reliability (Saunders, Aaslander et al.1993). In addition, it has been tested and used to examine the validity and reliability in Thailand by Dr. Sawitree Asanangkornchai. It is the Alcohol Use Disorder Identification Test or AUDIT, which has 10 questions.

Alcohol use disorder by the AUDIT test is classified into four levels ranging from > 8 points is identified as alcohol-use disorder as follows:

**Table 8** The Alcohol Use Disorder Identification Test

Scores (Points)	Risk Level
0-7	Non-drinker or Low-risk drinker
8-15	Hazardous drinker or Moderate risk intake
16-19	Harmful drinker or High risk drinker
≥ 20	Dependence drinker

NOTE: score  $\geq 8$  points is classified as alcohol use

Legal cases caused by drinking alcohol means cases caused by alcohol which were categorized into six groups.

1. Offenses with related to officer.

- Offenses against the officer
- Offenses against the justice officer
- Guilty of causing fire by negligence

2. Sexual offenses

- Rape
- Related to rape
- Sexual assaults

3. Physical and life offense

- Life offenses
- Life offenses by negligence
- Physical offenses by negligence
- Defamation

4. Offenses related to property

- Offences relating to theft
- Offences relating to property,
- Offenses relating to theft, property

5. The offense rolled out property theft and extortion robs

- Offences relating to extortion
- The offense rolled out property

- Offences relating to robbery
  - Offences relating to rob
  - Offenses relating to the robbery loot
  - Offences relating to lost property
  - Offences relating to trespass
6. Other offenses under the Criminal Procedure Code
- Liquor Act
  - Road Traffic Act
  - Cases of life and body
  - Crimes against the property

After the defining, the indicators, which will be used to monitor the situation, the researcher then, developed a tool that will be used to record the relevant surveillance data.

### **2.11 The tools used to collect data**

2.11.1 Structured interview questionnaire on alcohol consumption behavior of people in the area which was modified from an alcohol drinking behaviors survey form of the Addictive Substance Academic Organization Network. The questionnaire consisted of alcohol consumption behavior during the past year, drinking patterns and styles and environment related to drinking context (19 items) and impact of drinking alcohol (14 items) every 6 months and was used every 6 months.

2.11.2 Alcohol Use Disorder Identification Test or AUDIT, a series of questions asked 10 questions about alcohol consumption of the samples during the past 12 months.

### **2.12 Tools used to monitor the supply side**

The tool used to collect data is a survey form for shops selling alcohol in the community both wholesale and retail.

### **2.13 The tools used to collect data to monitoring the impact**

1) A record form of patients admitted to in-patient department with diseases related to alcohol.

2) A record form of the patients to the emergency departments with alcohol related causes.

3) A record form of arrest / detention case of drunk driving

4) A record form of adolescent >18 years violated to the

Delinquent Act, Alcohol Sales Act 2549

### **2.14 Tools used to processing and analyze data**

Microsoft Excel program, a program based on Windows operating system that all agencies have was used to develop the monitoring systems.

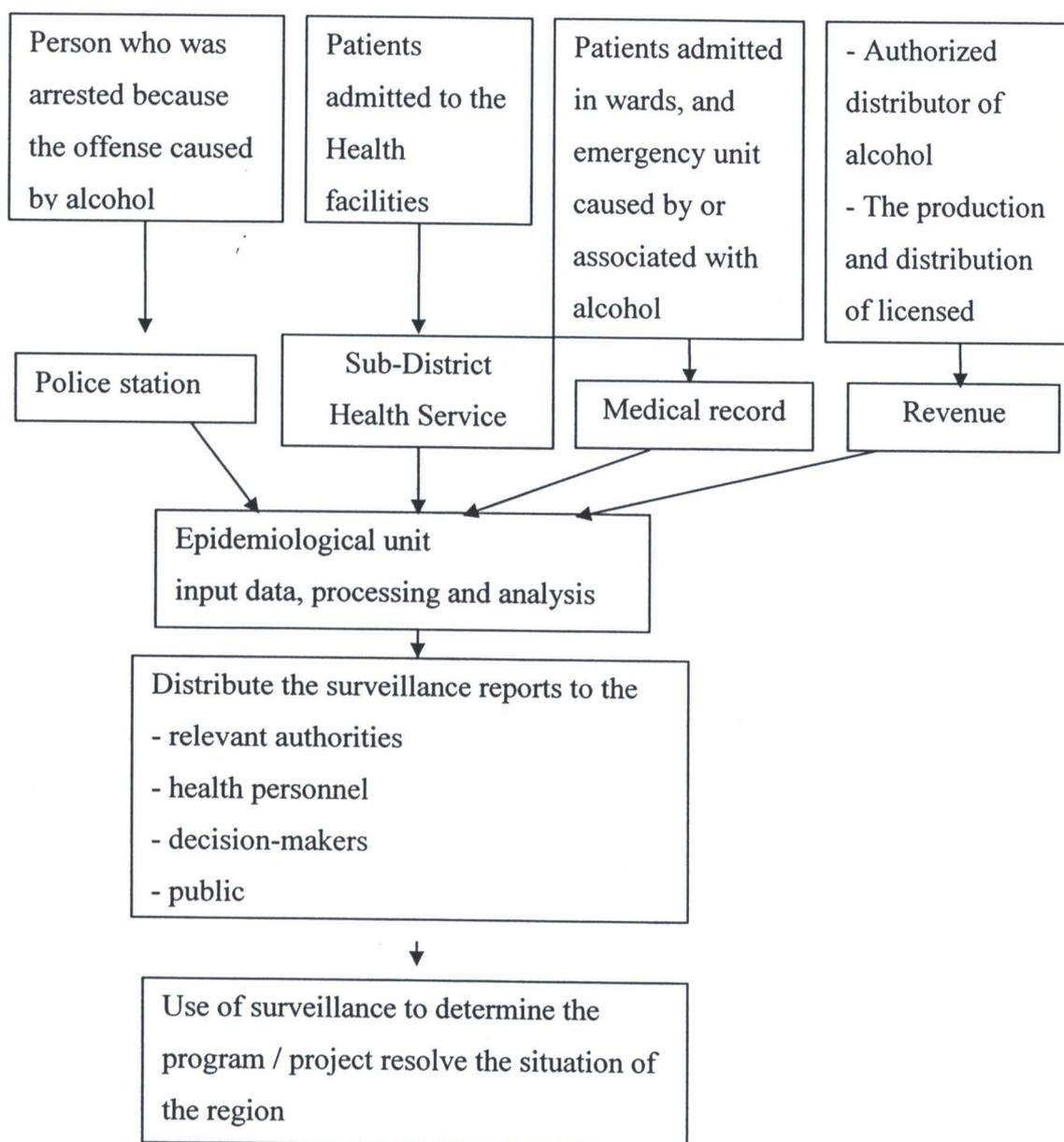
### **2.15 Inform and involved stakeholders**

When the tool for data collection was developed and tools for surveillance data were installed and ready to be used. The researcher organized meeting with relevant organization to form the surveillance network, assigned responsibility in filling surveillance information into the system, define the surveillance data flow mechanism. The organization joining the surveillance network filled data into the system every month through the hospital epidemiology unit. The data was sent to the unit on the last day of each month. The hospital epidemiological unit checked the accuracy of the data, process and analyzed the data. After getting the results, the results were distributed the report to all agencies within 15 days of the following month.

Agencies with formed the surveillance networks were:

- 1) Health center / community hospital, hospital epidemiological unit, or district level
- 2) Sub-district police station and district level
- 3) Municipal / District Administration Organization





**Figure 5** Flow of data management

### **Phase 2: Implementation of surveillance system**

Since the developed alcohol problems surveillance system was a population based system, which synthesized from data collected in the studied areas. Therefore, the information had to be collected from all stakeholders and data sources. The implementation phase consisted of data collection, processing, analysis, reporting and distribution of the surveillance data. In order to make the system properly function, we formed the network and trained relevant staff of the network before activating the surveillance system network. Therefore, this phase covered 3 more steps (step 7-10).

Step 7 Data Collection

Step 8 Data handling and analysis

Step 9 Report and distribution of surveillance data

Step 10 Training of staff and activation of network surveillance system

### **Phase 3: Evaluation of surveillance system**

Step 11 Establish the key criterion in evaluating the quality of the surveillance system

Step 12 Establish the framework for evaluating surveillance systems

Step 13 Data collection and time to collect data to assess the range of 1 month after initial operation and periodically as every 3 months

Step 14 Conclusions and recommendations for improvement

## **3. Implementation of surveillance system**

### **3.1 Inputting the Data**

The information on how the data was collected and its frequency of operation by the network were describe in table 9

**Table 9** Inputting the Data

<b>Agency</b>	<b>Type of data</b>	<b>Responsible person</b>	<b>Method</b>	<b>Frequency</b>
Hospital	- statistics of patients with diseases caused by alcohol	- Statistical staff	- Record form	Every month
Sub-District Health Office	- Statistics of diseases caused by alcohol	- Health officer	- Record form	Every month
Police	- Statistics of arrested offenders related to alcohol - Statistics of children younger than 18 years	- On duty police	- Record from	Every month

**Table 9** Inputting the Data (Cont.)

<b>Agency</b>	<b>Type of data</b>	<b>Responsible person</b>	<b>Method</b>	<b>Frequency</b>
Revenue Department	- Statistics of registered stores which sell alcohol - Statistics on distribution and manufacturing liquor in the community	- Revenue officer	- Record form	every month
Researcher	- alcohol consumption behavior	- Researcher	- Survey	Anually

### **3.2 Establish a Data Processing System**

3.2.1 Researcher and coordinator collected data from tools and instruments developed for the alcohol consumption problems surveillance system development.

3.2.2 Validate and revision of the data

3.2.3 Coding, process and statistical analysis by computer program

### **3.3 Reporting and dissemination of the results**

Researchers designed and reported the results in the geographic information chart format in order to make it easy to understand. The distributed to relevant agencies or users for policymaking. Planning for prevention and control to monitor the system was conducted monthly. The summary report was distributed one a year.

## **4. Alcohol Consumption Situation from Developed Surveillance System**

### **4.1 Demand Situation**

Most of the samples were in low risk group for alcohol average dairy intake (47.9%), followed by moderate, high and severe risk (22.1%, 17.1 % and 12.9 % respectively). The severe group were mostly found in Kanuan sub-district (24.4 %) and Khu Kum (22.4 %)

For the AUDIT scores, most of the sample were in the low risk group (0-7 points) (42.3 %), followed by moderated (8-15 points) and severe (alcohol dependence) (> 20 points) 8.8 %. The alcohol dependence group were mostly found in Kanuan (25%) and Khu Kum and Kum Mad (18.7%)

There were 33.7% of respondents drank alcohol during the past one years, 21.1 % during the past one month. Only 1.1 % were binge drinking during the past one year and mostly lived in Kanun (22.6 %) followed by Ban Non (21.8%).

Beer was the most common type of alcohol which the samples had drank for the hole life (15.2%), followed by whisky (14.6 %). Chinese whiskey was consumed by only 6.6% of the samples, the lowest among all types of alcohol.

The most common types of alcohol consumed by the sample during the past one month was beer (27.1%), followed by red whiskey (24.8 %) and the lowest was Chinese whiskey (3.3%).

**Table 10** Alcohol Drinking Behavior by Area

Drinking Behavior	Sub-District					Total
	Ban Non	Kranuan	Khu-Kum	Huai Toei	Kum Mad	
<b>The amount of alcohol per day (ml.)</b>						380
Low risk	35(19.2)	40(21.9)	34(18.6)	35(19.2)	38(20.8)	182(47.9)
Moderate	17(20.2)	18(21.4)	16(19.04)	18(21.4)	15(17.8)	84(22.1)
More risk	13(15.4)	16(24.6)	12(18.4)	13(20)	11(16.9)	65(17.1)
Severe risk	10(20.4)	12(24.4)	11(22.4)	9(18.3)	7(14.2)	49(12.9)
<b>Level of risk from drinking alcohol</b>						430
Do not drink / low risk. (0-7 points)	35(19.2)	40(22)	34(18.7)	35(19.2)	38(20.9)	92(42.3)
Moderate risk (8-15 points)	35(19.8)	37(21.0)	34(19.3)	35(19.8)	35(19.8)	176(40.9)

Table 10 Alcohol Drinking Behavior by Area (Cont.)

Drinking Behavior	Sub-District					Total
	Ban Non	Kranuan	Khu-Kum	Huai Toei	Kum Mad	
<b>Level of risk from drinking alcohol(continue)</b>						430
Risk (16-19 points)	12(21.4)	13(23.2)	11(19.6)	12(21.4)	8(14.2)	56(30.8)
Dangerous (> 20 points)	2(12.5)	4(25)	3(18.7)	4(25)	3(18.7)	
<b>Experience of alcohol drinking</b>						380
Never drank	3(20)	3(20)	3(20)	3(20)	3(20)	15(3.9)
Drink in seven days	17(21.2)	18(22.5)	15(18.7)	15(18.7)	15(18.7)	80(21.1)
Drink in 30 days	17(21.5)	19(24.1)	12(15.1)	17(21.5)	14(17.7)	79(20.8)
Drink in a year	28(21.8)	29(22.6)	25(19.5)	24(18.7)	22(17.1)	128(33.7)
Stop drinking> 1 year	7(19.40)	8(22.2)	6(16.6)	8(22.2)	7(19.4)	36(9.4)
Heavily drinking in one year	9(21.4)	14(33.3)	4(9.5)	10(23.8)	5(11.9)	42(11.1)
<b>Type of alcoholic beverage</b>						2163
Juice mixed with alcohol	45(19.2)	49(20.9)	48(20.5)	46(19.6)	46(19.6)	234(10.8)
Beer	65(19.7)	72(21.8)	67(20.3)	65(19.7)	69(20.9)	329(15.2)
Wine	43(18.7)	51(22.2)	44(19.2)	45(19.6)	46(20.1)	229(10.6)
Red wine	62(19.6)	67(21.2)	62(19.6)	61(19.3)	64(20.2)	316(14.6)
White wine	47(20.1)	49(21.3)	45(19.3)	45(19.3)	47(20.1)	223(10.8)

**Table 10** The Alcohol Drinking Behavior by Area (Cont.)

Drinking Behavior	Sub-District					Total
	Ban Non	Kranuan	Khu-Kum	Huai Toei	Kum Mad	
<b>Type of alcoholic beverage(Cont.)</b>						2163
Traditional mediana	34(20.1)	37(21.8)	32(18.9)	31(18.3)	35(20.7)	169(7.8)
Chinese liquor	29(20.2)	32(22.3)	28(19.5)	27(18.8)	27(18.8)	143(6.6)
Moonshine	32(20.2)	35(22.1)	32(20.2)	31(19.6)	28(17.7)	158(7.3)
RTD	32(20.2)	37(23.4)	29(18.3)	32(20.2)	28(17.7)	158(7.3)
<b>Type of alcoholic beverage last 30 days</b>						1134
Juice mixed with alcohol	21(19.6)	25(23.3)	20(18.6)	19(17.7)	22(20.5)	107(9.3)
Beer	62(20.1)	69(22,4)	61(19.8)	59(19.2)	59(19.2)	307(27.1)
Wine	14(20)	17(24.2)	12(17.1)	13(18.5)	14(20)	70(6.2)
Red wine	56(19.9)	59(20.9)	55(19,5)	54(19.2)	57(20.2)	281(24.8)
White wine	17(19.3)	19(21.5)	17(19.3)	18(20.4)	17(19.3)	88(7.8)
Traditional mediana	10(19.6)	12(23.5)	11(21.5)	9(17.6)	9(17.6)	51(4.5)
Chinese liquor	7(18.9)	9(24.3)	7(18.9)	7(18.9)	7(18.9)	37(3.3)
Local alcohol	11(18.9)	13(22.4)	12(20.6)	11(18.9)	11(18.9)	58(5.1)
Moonshine	8(19.04)	11(26.1)	7(16.6)	7(16.6)	9(21.4)	42(3.7)
RTD	21(22.5)	20(21.5)	21(22.5)	16(17.2)	15(16.1)	93(8.2)

#### 4.2 The quantity and frequency of drinking alcohol

Most of the samples were in the moderate risk (38.9%). Among this group, most of them was male aged 20-24 years old (16.9 %) followed by 25-44 years old group (14.9 %). It is interesting that the male aged 12-19 years old group had the highest proportion in the severe risk group (23.4 %). The lowest proportion of severe risk group were in female aged (12-19 years old and 25-44 years old), 7.8 % each.

**Table 11** The volume and frequency of drinking alcohol by age group and sex

Quantity and frequency of drinking	Age Group								Total
	12-19 years		20-24 years		25-44 years		45-65 years		
	Male	Female	Male	Female	Male	Female	Male	Female	
Low risk	15(28.3)	2(3.8)	10(18.9)	6(11.3)	12(22.6)	5(9.4)	1(1.9)	2(3.8)	53(13.9)
Moderate	21(14.2)	7(4.7)	25(16.9)	17(11.5)	22(14.9)	19(12.8)	23(15.5)	14(9.5)	148(38.9)
More risk	18(17.6)	6(5.9)	12(11.8)	13(12.7)	13(12.7)	10(9.9)	18(17.6)	12(11.8)	102(26.9)
Violence Risk	18(23.4)	6(7.8)	11(14.3)	6(7.8)	12(15.5)	6(7.8)	9(11.7)	9(11.7)	77(20.3)

**Table 12** The level of risk from drinking alcohol by age group and sex

Level of risk	Age group								Total
	12-19 years		20-24 years		25-44 years		45-65 years		
	Male	Female	Male	Female	Male	Female	Male	Female	
Do not drink / low risk (0-7 points)	16(34)	3(6.4)	10(21.3)	6(12.8)	5(10.6)		7(14.9)		47(12.6)
Moderate risk (8-15 points)	20(14.8)	6(4.4)	24(17.8)	15(11.1)	22(16.3)	19(14.1)	20(14.8)	9(24.3)	135(36.3)
Risk(16-19 points)	18(15.9)	6(5.3)	13(11.5)	15(13.3)	17(15.0)	10(8.8)	22(19.6)	12(10.6)	113(30.4)
Dangerous - Addictive (> 20 points)	18(23.4)	6(7.8)	11(14.3)	6(7.8)	12(15.5)	6(7.8)	9(11.7)	9(11.7)	77(20.7)

The majority risk level from drinking alcohol in moderates (8-15 points) 36.3 percent, followed by large volume (16-19 points) at 30.4 per cent dangerous - drugs (more than 20 points), 20.7 percent. In addition, at low risk (0-7 points) 12.6 per cent interest is. Dangerous levels - drugs. Found in Male, 12-19 years age group most at 23.4 percent followed by the 25-44 year age group, 15.5 per cent. (See table 12)

### **4.3 Alcohol consumption experience**

The majority of them had experience of drinking within the last 7 days (29.5 %), followed by drank during the past 30 days (26.8 %). The male samples age 12-19 years old and 45-65 years old were groups which more likely to drink the past 30 days (17.6 % each), whereas the male aged 20-24 years olds were more likely to drink during the past 7 days. Only 3.9 % had never drunk alcohol in their life. (See tables 13).





#### 4.4 The type of alcoholic beverage by drinking experience

Table 14 The type and experience of drinking by age group and sex

Types of Beverage	Drinking in the total life										Total
	Age group										
	12-19 years		20-24 years		20-24 years		45-65 years				
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Juice mixed with alcohol	13(56.5)	6(54.5)	86(75.4)	33(76.7)	67(57.7)	25(78.1)	10(29.4)	-			2331
Beer	19(82.6)	5(45.4)	107(93.8)	39(90.6)	110(94.8)	25(78.1)	28(82.3)	2(28.5)			335(14.4)
Wine	12(52.1)	7(63.6)	82(71.9)	30(69.7)	66(56.8)	20(62.5)	17(50)	1(14.2)			235(10.1)
Wine Red	17(73.9)	6(54.5)	107(93.8)	33(76.7)	106(91.3)	24(75)	28(82.3)	2(28.5)			323(13.9)
Brandy	6(26.08)	2(18.1)	60(52.6)	12(27.9)	54(46.5)	12(37.5)	11(32.3)	2(28.5)			159(6.8)
Wine white	17(73.9)	3(27.2)	90(78.9)	23(53.4)	73(62.9)	10(31.2)	24(70.5)	1(14.2)			241(10.3)
Drug liquor	8(34.7)	2(18.1)	69(60.5)	11(25.5)	56(48.2)	5(15.6)	22(64.7)	1(14.2)			174(7.5)
Cooper China	6(26.08)	2(18.1)	51(44.7)	7(16.2)	53(45.6)	6(18.7)	22(64.7)	1(14.2)			148(6.3)
Local alcohol	8(34.7)	5(45.4)	67(58.7)	15(34.8)	65(56.03)	12(37.5)	26(76.4)	1(14.2)			199(8.5)
Moonshine	6(26.08)	2(18.1)	58(50.8)	9(20.9)	55(47.4)	9(28.1)	23(67.6)	1(14.2)			163(7.4)
RTD	8(34.7)	1(9.09)	53(46.4)	12(27.9)	31(26.7)	7(21.8)	2(5.8)				114(4.9)

**Table 14** The type and experience of drinking by age group and sex(cont.)

Type of Beverage	Drinking in the past 30 days										Total
	Age group										
	12-19 years		12-19 years		12-19 years		12-19 years		12-19 years		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Juice mixed with alcohol	9(39.1)	5(45.4)	32(28.07)	17(39.5)	26(22.4)	16(50)	2(5.8)	-			1130
Bear	18(78.2)	4(36.3)	102(89.4)	34(79.06)	101(87.06)	21(65.6)	25(73.5)	2(28.5)			307(27.2)
Wine	4(17.3)	3(27.2)	15(13.1)	10(23.2)	25(21.5)	9(28.1)	4(11.70)	-			70(6.2)
Wine Red	13(56.5)	5(45.4)	97(85.08)	28(65.1)	90(77.5)	22(68.7)	24(70.5)	2(28.5)			286(25.3)
Brandy	1(4.3)	-	10(8.7)	5(11.6)	17(14.6)	3(9.3)	3(8.8)	-			39(3.5)
Wine white	6(26.08)	-	22(19.2)	3(6.9)	39(33.6)	5(15.6)	13(38.2)	5(71.4)			93(8.2)
Drug liquor	6(26.08)	1(9.09)	14(12.2)	1(2.3)	18(15.5)	1(3.1)	9(26.4)	1(14.2)			51(4.5)
Cooper China	1(4.3)	-	9(7.8)	-	15(12.9)	1(3.1)	10(29.4)	1(14.2)			37(3.3)
Local alcohol	1(4.3)	-	19(16.6)	1(2.3)	20(62.5)	5(15.6)	12(35.2)	-			58(5.1)
Moonshine	13(56.5)	-	19(16.6)	1(2.3)	8(6.8)	1(3.1)	-	-			42(3.7)
RTD	4(17.3)	-	12(10.5)	5(11.6)	15(12.9)	3(9.3)	1(2.9)	-			40(3.5)

A beverage sample had experience drinking in life and in about 30 days ago was the most beer (Percentage 14.4 and percentage 27.2, respectively), followed by wine red (percent 13.9 percent and 25.3, respectively). The drinks were experienced drinking in life was the least RTD percent of 4.9, followed by liquor Chinese percent 6.3 The drinks were experienced drink in 30 days at most liquor, China 3.3 percent. Followed by the RTD and brandy in the same ratio is 3.5 percent.

#### 4.5 The supply situation

##### 4.5.1 Source Location, time and opportunity to drink alcohol by area

**Table 15** The source Location, time, and opportunity to drink alcohol by area

Drinking Pattern	Sub-District					Total
	Ban Non	Kranuan	Khu-Kum	Huai Toei	Kum Mad	
<b>Source of beverage</b>						<b>151</b>
Custom manufacture	5(14.3)	10(28.6)	8(22.8)	7(20.0)	5(14.3)	<b>35(23.2)</b>
Neighbors fabrication	3(11.1)	9(33.2)	5(18.5)	5(18.5)	5(18.5)	<b>27(17.9)</b>
Specific store		1(100)				<b>1(0.7)</b>
Supermarket / Grocery Store	5(20.8)	8(33.3)	4(16.7)	4(16.7)	3(12.5)	<b>24(15.9)</b>
Restaurant	10(21.7)	12(26.0)	10(21.7)	9(19.7)	5(10.9)	<b>46(30.5)</b>
Get it free	5(27.7)	4(22.2)	3(16.7)	3(16.7)	3(16.7)	<b>18(11.8)</b>
<b>Usual Drinking Places</b>						<b>448</b>
In own home	5(7.9)	15(23.8)	10(15.9)	18(28.6)	15(23.8)	<b>63(14.1)</b>
At friend's or relative's house	10(17.7)	10(17.7)	15(27.1)	9(16.1)	12(21.4)	<b>56(12.5)</b>
At workplace	2(6.2)	8(25.0)	9(28.1)	5(15.6)	8(25)	<b>32(7.1)</b>

**Table 15** The source Location, time, and opportunity to drink alcohol by area (Cont.)

Drinking Pattern	Sub-District					Total
	Ban Non	Kranuan	Khu-Kum	Huai Toei	Kum Mad	
<b>Source of beverage(Cont.)</b>						<b>151</b>
At Food / Restaurant / Karaoke	15(22.0)	20(29.3)	18(26.8)	10(14.7)	5(7.2)	<b>68(15.2)</b>
Sum alcohol / drug Dong	5(27.8)	4(22.4)	3(16.6)	3(16.6)	3(16.6)	<b>18(4.0)</b>
<b>Drinking Places</b>						<b>448</b>
Party	20(18.5)	25(23.9)	20(18.5)	18(16.6)	25(23.1)	<b>108(24.1)</b>
Grocery / liquor store	20(29.4)	20(29.4)	10(14.8)	9(13.2)	9(13.2)	<b>68(15.2)</b>
Other (Temple, car mobile )	2(5.7)	9(25.7)	8(22.9)	9(25.7)	7(20.0)	<b>35(7.8)</b>
<b>Time</b>						<b>172</b>
Previous work in the morning						
Before lunch						
During lunch	3(14.3)	5(23.8)	5(23.8)	5(23.8)	3(14.3)	<b>21(12.2)</b>
After Work	10(14.4)	18(26.1)	19(27.5)	10(14.5)	12(17.5)	<b>69(40.1)</b>
Evening / night	15(18.3)	20(24.4)	18(21.9)	15(18.3)	14(17.1)	<b>82(47.7)</b>
Before going to bed						
<b>Opportunity</b>						<b>389</b>
When social	10(20.0)	11(22.0)	3(6.0)	11(22.0)	15(30.0)	<b>50(12.9)</b>
Celebrations are / happiness	2(4.5)	6(12.7)	12(25.5)	12(21.1)	15(31.8)	<b>47(12.1)</b>
Inopportunity	10(16.9)	15(25.4)	10(16.9)	11(25.5)	13(22.2)	<b>59(15.1)</b>

**Table 15** The source Location, time, and opportunity to drink alcohol by area (Cont.)

Drinking Pattern	Sub-District					Total
	Ban Non	Kranuan	Khu-Kum	Huai Toei	Kum Mad	
<b>Opportunity(Cont.)</b>						<b>389</b>
Uncomfortable	8(25.8)	5(16.1)	9(29.0)	2(18.6)	7(22.6)	<b>31(8)</b>
Such as New Year Songkran Festival	30(14.9)	55(27.2)	32(15.8)	40(19.8)	45(22.3)	<b>202(51.9)</b>
<b>Drink with anyone</b>						<b>213</b>
Drinking alone	10(15.4)	18(27.7)	15(23.0)	10(15.4)	12(18.5)	<b>65(30.5)</b>
Drinking with friends / party	25(27.5)	28(30.8)	18(19.8)	12(13.7)	8((8.8)	<b>91(42.7)</b>
Relatives	15(26.4)	10(17.5)	10(17.5)	12(21.1)	10(17.5)	<b>57(26.8)</b>

When classified by region showed that Sources of alcohol most of the samples were ordered from a restaurant in this number, 30.5 percent of the district most Kranuan 26.0 percent, followed by district and Khu Ban Non words In the same ratio is 21.7 percent of the source of the drink minimum is only 0.7 percent shop. Location drinking were most was the party percentage 24.1, of the samples from the district Kranuan highest percentage 23.9, followed by Kham Mad percent 23.1 Khu Kham and Ban Non ratios. The same is 18.5 percent of the Huai Toei least 16.6 percent.

The majority of the time like drinking alcohol most evenings / night 47.7 per cent, of the samples from most districts Kranuan 24.4 percent, followed by samples from the Khu 21.9 percent.

The majority of opportunities to drink alcohol most festivals such as Songkran New Year's 51.8 percent, followed by 15.1 per cent did not choose the opportunity. Interesting is the majority of opportunities that alcohol was the least uncomfortable 8 percent.

The majority of drinking alcohol with friends / social life the most, followed by 42.7 per cent were drinking alone, drinking, and 30.5 percent with 26.8 percent of the relatives.

#### 4.5.2 Source Location, time and opportunity to drink beverages by sex and age group

**Table 16** The source location, time, and opportunity to drink beverages in male

Pattern of drinking	Male				
	12-19 years	12-19 years	12-19 years	12-19 years	Total
<b>Source of beverage</b>	<b>181</b>				
Custom manufacture	4(16.0)	5(20.0)	7(28.0)	9(36.0)	25(13.8)
Neighbors fabrication	4(16.0)	4(16.0)	5(20.0)	12(48.0)	25(13.8)
Specific store	3(9.4)	4(12.5)	7(21.9)	18(56.2)	32(17.7)
Supermarket / Grocery Store	5(14.3)	5(14.3)	10(28.6)	15(42.8)	35(19.3)
Restaurant	4(10.0)	6(15.0)	12(30.0)	18(45.0)	40(22.1)
Get it free	2(8.3)	4(16.7)	10(41.7)	8(33.3)	24(13.3)
<b>Drinking Places</b>	<b>390</b>				
Their own home	5(15.2)	4(12.1)	9(27.3)	15(45.4)	33(8.5)
Home friends / relatives	10(18.9)	12(22.6)	13(24.5)	18(34)	53(13.6)
Work		3(11.5)	8(30.8)	15(57.7)	26(6.7)
Food / Restaurant / Karaoke	9(18.8)	9(18.8)	12(25.0)	18(37.4)	48(12.3)
Sum alcohol / drug Dong	5(17.9)	4(14.3)	4(14.3)	15(53.5)	28(7.2)
Sum alcohol / drug Dong	18(18.0)	25(25.0)	28(28.0)	29(29.0)	100(25.6)
Grocery / liquor store	15(21.4)	18(25.7)	18(25.7)	19(27.2)	70(17.9)
Other (Temple, car	5(15.6)	10(31.3)	9(28.1)	8(25.0)	32(8.2)

**Table 16** The source location, time, and opportunity to drink beverages in male  
(Cont.)

Pattern of drinking	Male				Total
	12-19 years	20-24 years	25-44 years	45-65 years	
<b>Time</b>					134
Before lunch					
During lunch		5(27.8)	4(22.2)	9(50.0)	18(13.3)
After Work	9(18.4)	12(24.5)	13(26.5)	15(30.6)	49(36.7)
Evening / night	9(13.3)	20(29.9)	18(26.9)	20(29.9)	67(50.0)
Before going to bed					
<b>Opportunity</b>					335
When social	15(19.7)	18(23.7)	18(23.7)	25(32.9)	76(22.7)
Celebrations are / happiness	18(19.8)	20(21.8)	25(27.5)	28(30.9)	91(27.2)
No opportunity to choose	5(13.9)	8(22.2)	13(36.1)	10(27.8)	36(10.7)
Uncomfortable	5(17.2)	8(27.6)	8(27.6)	8(27.6)	29(8.7)
Such as New Year Songkran Festival	20(19.4)	25(24.3)	28(27.2)	30(29.1)	103(30.7)
<b>Drink with anyone</b>					112
Drinking alone	3(16.6)	5(27.8)	5(27.8)	5(27.8)	18(16.1)
Drinking with friends / social life	10(16.7)	15(25.0)	20(33.3)	15(25.0)	60(53.6)
Relatives	5(14.7)	7(20.6)	10(29.4)	12(35.3)	34(30.4)

**Table 17** The source location, time, and opportunity to drink beverages in female

Pattern of drinking	Female					
	12-19 years	20-24 years	25-44 years	45-65 years	Total	
<b>Source of beverage</b>						<b>76</b>
Custom manufacture						
Neighbors fabrication		(20.0)	3(20.0)	8(53.3)	15(19.7)	
Specific store		3(25.0)	3(25.0)	8(66.7)	12(15.8)	
Supermarket / Grocery Store	2(12.5)	2(12.5)	6(37.5)	8(50.0)	16(21.1)	
Restaurant	1(10.0)	3(30.0)	3(30.0)	5(50.0)	10(13.2)	
Get it free	2(9.5)	10(47.6)	5(23.8)	4(19.5)	21(27.6)	
<b>Drinking Places</b>						<b>143</b>
In own home	1(14.2)	2(28.6)	2(28.6)	2(28.6)	7(4.9)	
At friend's or relative's house	1(5.5)	6(33.4)	6(33.4)	7(38.9)	18(12.5)	
At workplace		3(23.1)	3(23.1)	8(61.5)	13(9.1)	
Food / Restaurant / Karaoke	2(10.0)	4(20.0)	4(20.0)	10(10.0)	20(14.0)	
Sum alcohol / drug Dong	1(10.0)	2(20.0)	2(20.0)	5(50.0)	10(7.0)	
Sum alcohol / drug Dong	2(4.3)	15(31.9)	15(31.9)	18(38.3)	47(32.9)	
Grocery / liquor store	1(4.0)	8(32.0)	8(32.0)	7(28.0)	25(17.5)	
Other (Temple, car mobile )		1(33.3)	1(33.3)	1(33.4)	3(2.1)	
<b>Time</b>						<b>48</b>
Before lunch						
During lunch						
After Work		5(31.3)	4(25.0)	7(43.7)	16(33.3)	

**Table 17** The source location, time, and opportunity to drink beverages in female  
(Cont.)

Pattern of drinking	Female				Total
	12-19 years	20-24 years	25-44 years	45-65 years	
<b>Time(Cont.)</b>					<b>48</b>
Evening / night	3(9.4)	5(15.6)	12(37.5)	12(37.5)	32(66.7)
<b>Opportunity</b>					<b>194</b>
When social	9(20.9)	9(20.9)	10(23.3)	15(34.9)	43(22.2)
Celebrations are / happiness	12(19.4)	12(19.4)	18(29.0)	20(32.2)	62(32.0)
In opportunity	3(15.8)	4(21.1)	7(36.8)	5(26.3)	19(9.8)
Uncomfortable	2(16.7)	4(33.3)	4(33.3)	2(16.7)	12(6.2)
Such as New Year Songkran Festival	10(17.2)	15(25.9)	18(31.0)	15(25.9)	58(29.8)
<b>Drink with anyone</b>					<b>57</b>
Drinking alone	1(11.1)	3(33.3)	3(33.3)	2(22.3)	9(15.8)
Drinking with friends / party	5(16.1)	7(22.6)	10(32.3)	9(29)	31(54.4)
Relatives	3(17.6)	3(17.6)	5(29.4)	6(35.4)	17(29.8)

In a sample of male The source of most alcoholic beverages were ordered from the restaurant 22.1 percent, followed by supermarkets Tong / grocery stores 19.3 percent.

Location drinking regularly is 25.6 percent of the party, of the 45-65 year age group most at 29.0 percent followed by the 25-44 year age group, 28.0 per cent. The majority of the time alcohol is the evening / night of 50 percent, followed by 36.7 per cent after work.

The majority of opportunities to drink alcohol are the Songkran New Year festival, such as 30.7 percent, followed by various celebrations / happy. The

opportunity to drink at least was not comfortable 8.7 per cent of these had the same ratio in the sample aged 20-24 years, 25-44 years and 45-65 years was 27.6 per cent of the sample aged 12-19 years was 17.2 percent.

Most males were drinking alcohol with friends / social 53.6 percent, followed by 30.4 percent relative to drinking and drinking alone, 16.1 percent.

In a sample of women was the source of most alcoholic beverages were free to come in this number, 27.6 percent were aged 20-24 years are most at 47.6 percent, followed by subjects age 25 – 44 years were 23.8 per cent.

Place of regular drinking were female, most of the party 32.9 percent, followed by a friend's / relative 12.5 percent. When most women were, drinking alcohol is the evening / night 66.7 percent, followed by 33.3 per cent after work. Opportunities were female, most alcohol is most celebrations are / happiness percent 32 was followed by festivals such as New Year Songkran 29.8 percent of the opportunities that were mostly drink minimum time uncomfortable 6.2 percent, of the sample group, age group 20-24 years and 25-44 years in the same ratio is 33.3 percent.

#### 4.6 The sale of alcohol beverages in the area

**Table 18** The Number and Percentage of selling alcoholic beverages by area

Category	Sub-district					Total
	Ban Non	Kranuan	Khu-Kum	Huai Toei	Kum Mad	52
Grocery retailers	5(20.8)	8(33.3)	4(16.7)	4(16.7)	3(12.5)	24(46.1)
Entertainment places		4(57.1)	1(14.3)	1(14.3)	1(14.3)	7(13.5)
Food, beverages Korean barbecue beef restaurant	1(20.0)	2(40.0)		1(20.0)	1(20.0)	5(9.6)
Pub Bar						

**Table 18** The Number and Percentage of selling alcoholic beverages by area(Cont.)

Category	Sub-district					Total
	Ban Non	Kranuan	Khu-Kum	Huai Toei	Kum Mad	
						52
Convenience store						
Karaoke	1(20)	2(40)		1(20)	1(20)	5(9.6)
Liquor store		1(100)				1(1.9)
Traditional mediana shop / booth / cart /	2(22.3)	3(33.2)	1(11.1)	1(11.1)	2(22.3)	9(17.4)
Beer						
Snooker club		1(100)				1(1.9)

Most of alcohol were sold in grocery store / retail trade (46.1 percent), mostly in Kranuan (33.3 percent), followed by 20.8 percent in Ban Non. Type of stores that sell alcoholic beverages in the area is small 1 snooker club and only found in Kranuan.

#### 4.7 The impact of alcohol

Alcohol consumption had affected their health including chronic illness that is attributed to alcohol related absence from work and revenue.

The tables showed the proportion of people who suffered from the problems of alcohol consumption among drinkers during the past 12 months by age and sex in term of physical, work, and financial of almost 20%.

**Table 19** The proportion of people who suffer from the problem of alcohol consumption in the past 12 months in male

Types of problems	Male (percent)				Total
	12-19 years	20-24 years	25-44 years	45-65 years	
1. Adversely affect on family life or a close relationship with a lover	3.6	6.2	15.6	14.6	13.7
2. Adversely affect on relationships with family members and children	11.0	9.6	14.9	13.7	13.8
3. Adversely affect on relationships with friends or social life	10.4	9.3	7.2	5.6	6.9
4. Never quarrel while drinking alcohol	26.1	23.4	15.5	6.6	13.4
5. Had legal problems due to driving after drinking alcoholic beverages	4.3	4.9	3.9	2.0	3.3
6. Adversely affect on the working and the opportunity to work	18.2	18.6	15.8	13.9	15.5
7. Adversely affect on housework	10.3	10.5	12.1	12.0	11.8
8. Financial problems	19.1	24.1	20.7	15.1	18.8
9. Had health problems	9.2	14.6	18.3	15.8	16.5

**Table 19** The proportion of people who suffer from the problem of alcohol consumption in the past 12 months in male (Cont.)

Types of problems	Male (percent)				Total
	12-19 years	20-24 years	25-44 years	45-65 years	
10. Ever feel guilty or regret after drinking alcoholic beverages	18.6	23.0	21.3	15.7	16.2
11. Had legal problems related to alcohol consumption	2.2	3.3	2.5	1.5	2.2
12. Have lost their jobs, or nearly out of work due to alcohol consumption	1.1	2.3	2.4	2.1	2.2
Without any problems at all	0.6	0.6	0.8	1.8	1.1
Barriers of 1-2 problems	48.4	50.9	46.9	49.7	48.3
The problem is greater than or equal to 3 problems	51.0	48.5	52.2	48.5	50.5



**Table 20** The proportion of people who suffer from the problem of alcohol consumption in the past 12 months in female

Types of problems	Female (percent)				Total
	12-19 years	20-24 years	25-44 years	45-65 years	
1. Adversely affect family life or a close relationship with a lover	1.7	10.9	7.7	7.3	7.3
2. Adversely affect relationships with family members and children	6.3	8.8	8.6	7.6	8.1
3. Adversely affect relationships with friends or social life	3.9	1.2	3.4	2.4	2.9
4. Never quarrel while drinking alcohol	8.2	9.3	5.3	2.1	4.9
5. Had legal problems due to driving after drinking alcoholic beverages	2.7		1.2		0.9
6. Adversely affect the working class, the opportunity to work	9.8	11.2	5.7	3.5	5.8
7. Adversely affect housework	4.2	7.9	6.9	5.6	6.3
8. Financial problems	14.4	14.1	10.6	7.6	10.3
9. Had health problems related to alcohol consumption	9.3	12.4	16.4	12.9	14.3
10. Ever feel guilty or regret after drinking	17.5	13.8	13.9	11.3	13.3

**Table 20** The proportion of people who suffer from the problem of alcohol consumption in the past 12 months in female (Cont.)

Types of problems	Female (percent)				Total
	12-19 years	20-24 years	25-44 years	45-65 years	
11.Had legal problems related to alcohol consumption	1.2	1.3	1.1	0.3	0.8
12. Have lost their jobs, or nearly out of work due to alcohol consumption		0.2	0.7	0.3	0.5
13. Mate had said they would quit drinking because alcohol	1.3	2.0	3.0	2.8	2.7
14.Felt resentment because someone criticized about drinking alcoholic beverages	11.9	11.7	7.1	8.9	8.5
Without any problems at all	0.7	2.5	0.6	0.8	0.8
Barriers 1-2 problems	67.6	55.2	61.9	62.2	61.9
The problem is greater than or equal to 3 problems	31.6	42.3	37.6	37.0	37.3

The female in problem drinkers in all aged group felt guilty. Young women who drank a large volume of had more financial problems and seemed to have more health problems than male. It is interesting that only 1 percent of those who drank alcohol during the past 12 months did not have problems for all 14 items. About half

of drinking was men and one-third of drinkers were female. Every age group had physical, work, and financial problems.

**Table 21** The percentage of cases resulting from alcohol consumption by area

Type of cases	Sub-district area					Total
	Ban Non	Kranuan	Khu- Kum	Huai Toei	Kum Mad	
<b>Offenses relating to official</b>						86
1. Offenses against Officer	2(22.2)	1(11.1)	3(33.4)	1(11.1)	2(22.2)	9(40.9)
2. Offenses against the official in the Justice	3(42.9)		1(14.3)	2(28.5)	1(14.3)	7(31.8)
3. The offense of causing a fire		1(50)		1(50)		2(9.1)
4. The offense of causing a fire through negligence	2(50)		1(25)		1(25)	4(18.2)
<b>Guilty about sex</b>						10(11.6)
5. The offense of rape	1(33.3)		1(33.3)	1(33.4)		3(30)
6. The offense of molesting girls aged under 15 years		1(50)			1(50)	2(20)
7. Offenses related to rape			1(50)		1(50)	2(20)
8. The offense of indecent	1(33.3)		1(33.3)		1(33.4)	3(30)



**Table 21** The percentage of cases resulting from alcohol consumption by area  
(Cont.)

Type of cases	Sub-district area					Total
	Ban Non	Kranuan	Khu- Kum	Huai Toei	Kum Mad	
<b>Guilty about property (Cont.)</b>						11(12.79)
17. Offences relating to extortion	1(33.3)	1(20)	1(20)	1(20)	1(20)	5(29.4)
18. The offense rolled out property	1(50)		1(50)			2(11.9)
19. Offences relating to robbery						
20. Offences loot						
21. Offenses related	1(33.3)	1(33.3)	1(33.4)			3(17.6)
<b>Guilty about extortion, rolled out property, robbery</b>						17(19.8)
22. The offense lost property	2(50)		1(25)		1(20)	4(23.5)
23. Offences invasion	1(33.3)		1(33.3)		1(25)	3(17.6)
<b>Other offenses under the Criminal Procedure Code</b>						14(16.3)
24. Act of alcohol	2(50)		1(33.3)		1(33.4)	4(28.6)
25. Road Traffic Act	1(33.3)	1(20)		1(20)	2(25)	5(35.7)
26. Cases of life and body	1(50)				1(40)	2(14.3)
27. Crimes against to property	1(33.3)		1(33.3)	1(33.4)		3(21.4)

Legal cases with related to alcohol were the mostly offenses the officers (40.9 %), mostly found in of these areas Khu Khum.

The other legal cares were concerning property. Offences relating to extortion rolled out property, and robbery (19.8 percent), offences relating to extortion (29.4 %) percent

The early alarm of alcohol consumption problems from the developed surveillance system were the increasing proportion of drinkers among the 12-24 years of age group, high prevalence of drinking during the festivals, easily purchased from the grocery stores in the community. The researcher had disseminated these alarming indicators to relevant authorities including, hospital, district health office, police station, district office, sub-district administration organization, school in their monthly meeting in order to identify appropriate measures to tackle the situations.

## **5. Train Staff and Activate System**

The researcher trained the representative from relevant sectors on data analysis and interpretation for the alcohol consumption surveillance, to stimulate the system. The trainees were representatives from the District Administration Organization, representatives from the municipalities, from the police station Representatives from the PCU.

## **6. Evaluation of surveillance systems**

In term of the effectiveness of the system, the data from evaluation for accuracy, comprehensive, timely and usefulness of the data from the first months after starting operations, and periodically every 3 to 6 months to improve the monitoring system every month were monitored. The steps showed as below:

### **6.1 Step 1**

The key criterion in evaluating the quality of the surveillance system including:

#### **6.1.1 Completeness**

Completeness refers to the reliability and completeness of the report comparing the reality. Information that led to a complete system is the review included a database from other sources.

#### **6.1.2 Accuracy**

Accuracy refers to the accuracy of key indicators. Consistency measured by comparison with data from the database.

#### **6.1.3 Timeliness**

Timeliness refers to the ability of the surveillance system that will allow the use of information in a timely manner. Report submitted to the Coordination Center Surveillance time.

#### **6.1.4 Simple**

Simple refers to the surveillance system with simple structure and ease of operation, especially the flow of information.

#### **6.1.5 Utilization**

Utilization refers to data from the surveillance system and the situation of alcohol consumption level, area base is alert by the situations to other agencies involved. Governments are able to control the problem early, and use the information to develop the measures and planning for decisions to prevent and solve them operational problems from alcohol consumption properly.

### **6.2 Step 2**

The framework for evaluation the surveillance systems are the main issues that need to be evaluated, as follows.

1) Stages of the surveillance system include data collection, processing the data, data analysis, dissemination of surveillance and utilization.

2) The effectiveness of the surveillance system used in the decision of the agency involved.

### **6.3 Step 3**

This step is quality of data collection and timing was assessing within the period of 1 month after initial operation and periodically, every 3 months.

**Table 22** Timeline of data collection for evaluation surveillance system

<b>Timeline</b>	<b>1 month</b>	<b>3 months</b>	<b>6 months</b>	<b>9 months</b>	<b>12 months</b>
Completeness	/	/	/	/	/
Accuracy	/	/	/	/	/
Timeliness	/	/	/	/	/
Simple	/	/	/	/	/
Operational guidance	/	/	/	/	/
The recognition system	/	/	/	/	/
Usefulness	-	-	/	-	/

#### 6.4 Step 4

This step is for conclusions and recommendations for improvement.

Researchers evaluated the accuracy, completeness, timely record of incoming reports from the surveillance network. The results had been simplified for the better application in surveillance, operational guidance, and acceptance of the surveillance system. Evaluation was conducted through interviewing those who involved, the results were as below:

1) The completeness, some data were missing but not more 5 %.

2) Accuracy, the error was 37.9 percent.

3) The time for monitoring the network for reporting to the epidemiology unit at the district level within 5 days of each month

4) The simplicity

It was found that despite having data from various sources, but the amount of data from each source was not that much. With the good mechanism, the surveillance network was not complicate.

5) The use of the surveillance system

The use of the surveillance system concerned that the surveillance system should be useful. Classification of the areas depends on real situation. This makes it

The use of the surveillance system concerned that the surveillance system should be useful. Classification of the areas depends on real situation. This makes it convenient to allocate resources and develop the plan / policy to prevent and solve the problems in the area.

#### 6) The operational guidance

The people, who had not recognized that there were resources, had learnt from our report. However, some were still not crystallized with the process and reporting period.

## 7. Summary

From the analysis of data, it could be concluded as follows:

**7.1 Appropriate Surveillance system** on alcohol problems should have the following features:

7.1.1 Simple systems designed to be simple. While still, succeed to meet the objectives, and can reflect the real situation.

7.1.2 Continuing actions

7.1.3 Timeliness manner to report the situation promptly allowing those involved, to aware of the situation in order to solve the problems quickly.

7.1.4 A good the system is able to explain the situation of the problems caused by alcohol correctly, by whom, where, how, why

7.1.5 It is solid as a surveillance system that can provide high quality surveillance at any time.

## **7.2 Important issues for monitoring**

7.2.1 The male age group 12-19 years were found drinking alcohol at dangerous – drugs with highest percentage of 23.4

7.2.2 During the festival found to be the most common occasions for drinking.

7.2.3 Information reflected is the highest increase in alcohol consumption during the festivals sensitivity and specificity, which found to be drunk by both sex and all age groups.

7.2.4 The most serious problem reported was financial problems, followed by the negative effect on work, and the opportunity to get the job done orderly. The most important thing to monitor was the offense in respect to property.

