# CHAPTER III

# PROPOSAL ON BMA HEALTH OFFICERS AS FOOD INSPECTORS: EVALUATION OF A TRAINING PROGRAM

## 3.1 Introduction

The Food and Drug Administration (FDA) is authorized by the Food Act B.E. 2522 to control and monitor the process to ensure food and quality of it. The goal of the FDA is health consumer protection, the FDA has authority to control the quality of products in pre- and post-marketing. According to the data there were many food and water borne infections in the community and a low quality of food was harmful for the consumer (Public Health Statistics 1993, MOPH).

The FDA solves the problem of low quality of food by controlling food in post-marketing, but the FDA has a shortage of food inspectors to inspect food in the market. The executives of the FDA solved the problem of shortage of food inspectors by appointing provincial health officers and pharmacists as food inspectors. This was applied since 1984 and since 1992 they also appointed District Health Officers (FDA, 1994). The FDA wants to delegate responsibility of the food inspection to the largest local governmental infrastructure, which is the BMA. The BMA has several health organizations under its responsibility, many of which are manned with personnel that has experience in food sanitation. This personnel are responsible for monitoring and controlling of the hygiene of markets, restaurants and food vendors within the metropolitan.

Nevertheless, this is quite a difficult project because the BMA health officers have little experience on food inspection. Several activities to strengthen and facilitate BMA health officers are planned in this project. This program has to be monitored closely in order to decide on the necessary improvements in future strategies on food inspection.

### 3.2 Background

Decentralization of the FDA was mentioned in the literature by Noraphoomphipat (1991), who reported the evaluation results of training programs and appointment of District Officers in Trang and Phuket provinces. He evaluated the performance, opinion and capabilities of officers. The study design was a retrospective evaluation after performance of 1 year by self-administered questionnaires, interviews of officers and documentary research. The result of the evaluation for performance was that the quality of food should be improved for the consumer. The coverage of the area increased. Both provinces had the same guidelines regarding organization and co-ordination, this should be kept in the same line. The officers were of the opinion that they liked the job because it was beneficiary for the consumers and it guaranteed the safety of products. The two kinds of officers who were appointed to carry out the jobs, pharmacists and district health officers, have the same capabilities and are suitable for the job. The officers also expressed that a change in behavior of selection and consumption was necessary to select the right products. To perform the job in the right way, the officers should have essential knowledge on management, coordination, law, food, drugs and technical knowledge. To be capable to perform the jobs, the personnel

had to be able to plan the activities, they should have knowledge in the selection of products for the people, and they should be able to advise entrepreneurs to produce and sell good products.

The appointment of District Officers in Trang and Phuket province could increase the coverage area of health consumer protection including organization, development and coordination of tambon, district and province. To improve the contact between province and district, a core-coordination of 7 activities has to be set up: basic information survey, health consumer protection plan, inspection and surveillance, public relation and training entrepreneur report, implementation, supervision, organization setting and coordination.

In 1994, the FDA reported that it had appointed following officers for product inspection:

(1) Executives: Provincial Chief Medical officers.
Directors of community hospitals.
Directors of General Hospital where have no community hospital.

(2) Head of pharmacy section in Provincial health Offices.

(3) District Offices: Pharmacist in community hospital.
District Health officers.
Pharmacists in general hospital where have no community hospital

The FDA (1994) reported the evaluation result of the project to appoint District Officers for Food, Drug and Volatile Substances Control Acts on fiscal year 1992-1993. They evaluated the changes of District Officers on their knowledge, attitude and opinion before and after appointment by mail questionnaires to 3 groups of officers as follows:

(1) Executives: Provincial Chief Medical officers.
Directors of community hospitals.
Directors of General Hospital where have no community hospital.

(2) Head of pharmacy section in Provincial health Offices.

(3) District Offices: Pharmacist in community hospital.
District Health officers.
Pharmacists in general hospital where have no community hospital.

58.3 % (1,287/2,207) of the questionnaires were returned. The evaluation results found that Executives, Heads of Pharmacy sections and District Officers had a moderate level of attitude and opinion on the health consumer protection job. For knowledge, both Heads of Pharmacy sections and District Officers had lower scores on knowledge after training. Performance result increased on a moderate level.

Sripraphan and Chindawatana (1994) reported an evaluation of a project to decentralize the FDA on Food, Drugs, Narcotics, Medical Devices and Volatile Substances Acts. The researchers used the comprehensive participatory evaluation method. The conclusions of the results were as follows:

(1) Decentralization of the FDA that appointed the province as licenser on Food, Drugs, Narcotics and Medical Devices Act, and appoint District Health Officers and pharmacists in community hospitals as officers on Food , Drugs and Volatile Substances Acts. This provided more convenience for the people.

(2) The FDA allocated adequate and suitable resources to the provinces.

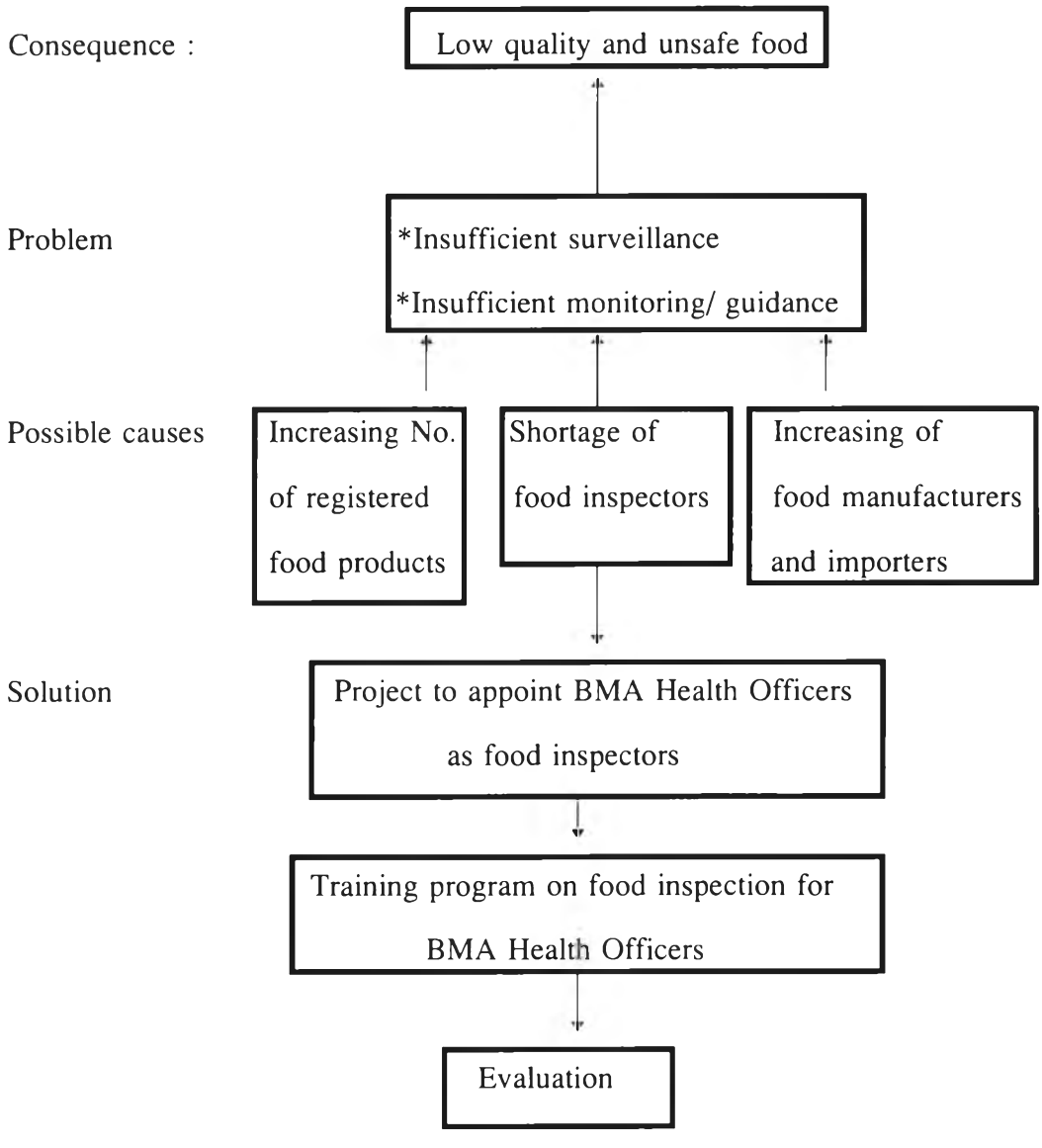
(3) The order of appointment was not clear for Practical Officers.

(4) Manuals were too technical.

(5) Officers needed a refresher course at least once a year.

So for me, I am also interested to evaluate this project concerning knowledge and attitude during pre- and post-training, I also like to evaluate skills, performance and perception of the shop owners because this had not been done before.

### 3.3 Conceptual framework




Previously the FDA coordinated and encouraged provincial health offices to collect food samples for analysis in the country. The results obtained are shown in table 3.1

Table 3.1

Results of food samples analysis (1987-1994)

| Year | Type |
|---|---|
| | Food found below standard |
| 1987 | 40.23 % (764/1899) |
| 1988 | 15.23 % (724/4689) |
| 1989 | 20.74 % (566/2729) |
| 1990 | 26.10 % (337/1291) |
| 1991 | 21.11 % (284/1364) |
| 1992 | 23.71 % (927/3910) |
| 1993 | 33.12 % (970/2929) |
| 1994 | 25.07 % (714/2848) |

Source: FDA, Technical Division and Inspection Division, MOPH.

Table 3.1 shows the yearly results of food samples in the country. I found that percentages below standard of food range from 15 to 40 percent. The results were found to be stable during the above mentioned years. In some years, food sample analysis showed that approximately 30 % were low in quality. This can not be generalized for all food products. There may be several factors, such as low coverage, low rate of food analysis (due to lack of facilities, lack of technicians, late arrival of samples etc.) and loop holes in taking action.

The possible causes that influence the quality and safety of food are as follows:

(1) Increasing number of food manufacturers and importers. The number of food manufacturers increased from 7 in 1979 to 3,225 in 1994 and also the number of food importers increased from 1 in 1979 to 1,022 in 1994 (FDA, 1995). This numbers create a high workload in the FDA, therefore alternative manpower recruitment is necessary to tackle this task.

(2) Increasing number of registered food products (manufacture and import) during 1979-1994. The increasing number of registered food products can be seen in Table 3.2

Table 3.2

Number of Registered Food Products ( Manufacture and Import ) period 1979-1994

| Year | Manufacture | Import |
|---|---|---|
| 1979 | 212 | 140 |
| 1980 | 747 | 326 |
| 1981 | 626 | 189 |
| 1982 | 1230 | 397 |
| 1983 | 999 | 297 |
| 1984 | 581 | 326 |
| 1985 | 545 | 266 |
| 1986 | 685 | 427 |
| 1987 | 696 | 297 |
| 1988 | 1154 | 421 |
| 1989 | 1205 | 399 |

| continuation Table 3.2 | | |
|---|---|---|
| Year | Manufacture | Import |
| 1990 | 1100 | 446 |
| 1991 | 1471 | 690 |
| 1992 | 1336 | 900 |
| 1993 | 1102 | 748 |
| 1994 | 1175 | 853 |

Source: FDA Thailand (1995), MOPH.

Table 3.2 shows an increasing number of registered food products, both manufacture and import from 1979 to 1994. This increasing numbers create a high workload for the FDA. For this reason surveillance coverage went down and low quality food appeared in the market.

(3) Shortage of food inspectors

The FDA has only 7 food inspectors in Bangkok for a population of 61,005,000 (National Statistics Office, 1995).

Due to shortage in manpower, there is insufficient surveillance, monitoring and guidance. This resulted in low coverage in food inspection. A noticeable level of unsafe food in the market is harmful for consumers. Therefore, the FDA tried to use a strategy on alternative manpower program in which a training program was included. The FDA would like to evaluate whether this program meets the objectives or not.

## 3.4 Objectives of the study

The objectives of the study can be divided into 2 parts, general and specific objectives.

General objective:

To evaluate the training program on food inspection for BMA Health Officers for future planning.

Specific objectives:

The specific objectives focus on trainees (BMA Health Officers) concerning activities before, during and after training. These objectives also concentrate on the FDA in terms of support, supervision, distribution of information and on related shop owners. The specific objectives are as follows:

(1) Concerning the trainees:

- To evaluate changes in knowledge and attitudes of the BMA Health Officers before and after the training program.
- To evaluate levels of skills and performance of the BMA Health Officers after the training program.
- To evaluate activities during the training program on food inspection for BMA Health Officers.

(2) Concerning the FDA in terms of support, supervision and distributing information.

- To evaluate activities of support, supervision and distributing information after the training program.

(3) Concerning the shop owners.

- To evaluate perception of shop owners towards performance of the BMA Health Officers.

## 3.5 Research Questions

The research questions are based on the specific objectives of the study concerning the trainees, the FDA in terms of support, supervision, distributing information after training and shop owners. The research questions are as follows:

(1) Do the knowledge and attitudes of the BMA Health Officers increase or not after the training program ?

(2) What are the levels of skills and performance of BMA Health Officers after the training program ?

(3) How are the activities during training program on food inspection for BMA Health Officers?

(4) How are the activities of support, supervision, and distributing information after the training program ?

(5) How do the shop owners perceive the performance of BMA Health Officers?

## 3.6 Operational definitions

The definitions used in this proposal are:

(1) Knowledge: Knowledge of the BMA Health officers who were taught on food inspection, on violation of food distribution for practical officers,

essential regulation in food control distribution and guidelines to inspect evidence during training programs.

(2) Attitudes: Viewpoints of the BMA Health Officers towards roles and tasks concerning the Food Act of 1979.

(3) Skills: Skills of the BMA Health Officers who were trained to inspect food during training program on food inspection for BMA Health Officers.

(4) Activities during the training: Activities of trainers, contents of lectures, place, time, and teaching techniques during training program for BMA Health Officers.

(5) Activities of support, supervision and distributing information: Organizing activities of the FDA that support, supervise and distribute information to the BMA Health Officers.

(6) Shop owners: The shopkeepers or the employees in the shops who are responsible for food selection and sale of food.

(7) Perception: The perception of shop owners regarding the performance of the BMA Health Officers.

(8) Performance: The performance of BMA Health Officers who work on the food inspection job according to the Food Act of 1979.

## 3.7 Research methodology

Study design

This is an evaluative study of assessing knowledge, attitude, skills and activities during the training program on food inspection for BMA Health Officers. Activities of support, supervision, distributing information and performance of BMA Health

Officers are also evaluated. A one-group pretest-posttest design to evaluate pre-training and post-training stages was applied.

Judd, Smith and Kidder (1991) also reported about a one group pretest-posttest design that:

> The Independent variable varies between individuals. Thus, comparisons between treatment and control conditions involve comparisons of average scores on the dependent variable between different groups of individuals. The one-group pretest-posttest design also known as a simple panel design in survey research, is based on within-individual treatment comparisons. Although this design is not threatened by selection, it is subject to the internal validity threats. The following alternative explanations are threats to this conclusion:
> 1. History: Since the posttest observations are made after the pretest, the difference between them may be a result of historical events intervening during the period.
> 2. Maturation: during the course of the study, the individuals became older. They may also have become more relaxed, retired from work, or matured in other ways that affected their serenity.
> 3. Testing: If the pretest measurement of serenity sensitized the people we were studying and made them believe that they should relax or slow down, the pretesting alone could have produced higher serenity scores on the posttest. The shorter the time between pretest and posttest, the more plausible are testing effects.
> 4. Instrumentation: If we changed our serenity questions or scoring system between the pretest and posttest, these changes in the measuring instrument could account for a difference between pretest and posttest levels of serenity (p. 112).

Study population

BMA Technical Sanitation Officers, Health Officers working in district offices and entrepreneurs (including small shop owners) in Bangkok.

Period of evaluation

The evaluation will be organized six months after the end of the course and a second time one year after the end of the course. The evaluation will be executted on: knowledge and attitude in pre and post-training; skill in post-training; activities during training program on food inspection for BMA Health Officers; activities of support, supervision, distributing information.

Sample size

The sample size to measure knowledge, attitude, skills, activities during training program on food inspection for BMA Health Officers and activities of support, supervision and distributing information are all Technical Sanitation Officers and Health Officers who work in district offices in Bangkok.

The sample size to measure the performance and perception are the shop owners, towards BMA Health Officers' performance are 200 food distributors in 4 districts, 8 BMA Health Officers, and 200 shop owners.

There are 38 districts, so sampling 4 from 38 districts (10 %). 50 shops per districts because in each district there are about 500-1,000 shops. So sampling 50 shops.

Fowler (1993), reported that:

> When one is sampling 10 percent or more of a population, this adjustment can have a discernible effect on sampling error estimates. The vast majority of survey samples, however, involve very small fractions of populations. In such instances, small increments in the fraction of the population included in a sample will have no effect on the ability of a researcher to generalizes from a sample to a population (p. 33).

Sampling procedure

Probability sampling was used by systematic random sampling of districts. From 38 districts, the 1st, 11th, 21st and 31st list of districts were selected. For shops, also systematic random sampling was used from the registered list and then every 1st, 11th, 21st. etc. Finally 50 shops per district and 200 shops per 4 districts, and 200 shop owners from these shops. These shops will be checked before and after BMA food inspectors had taken action.

Fowler (1993) reported that:

> Simple random sampling is, in a sense, the prototype of population sampling. With most lists, there is a way to use a variation called systematic sampling that will have precision equivalent to a simple random sample and will be mechanically easier to create and probability sampling is the only approach that makes possible representative sampling plans (p. 14).

Data collection method

The questionnaires were prepared by the researcher. The contents of the questionnaire on knowledge and skills were contents of lectures during the training program on food inspection for BMA Health Officers, attitudes toward roles and tasks under the Food Act of 1979, activities during the training on lecture, place, trainers, content and activities of organizing in term of support, supervision and distributing information.

The contents of the questionnaire consists of 2 parts as follow:

Part 1: General information on sex, age, year of service, job and level of education.

Part 2: (1) Knowledge on essential regulation in food control at distribution,

guideline to inspect evidences, violation of food distribution for practical officers.

(2) Attitude toward roles and tasks for Food Acts 1979.

(3) Skill test

(4) Activities during training in term of content, trainers, lecture, place, time.

(5) Performance of BMA Health Officers

(6) Activities of support, supervision and distributing information

(7) Perception of shop owners toward BMA Health Officers performance

After preparation, the questionnaire was tested for reliability of contents by consulting the experts and tested for objectivity, wording, content, sequence. The questionnaire has been revised again before actual data collection.

Knowledge, attitude, skills of BMA Health Officers and process of training program and activities of support, supervision, distributing information will be evaluated by the self-administered questionnaires.

Performance of BMA Health Officers will be assessed by interviewing them and shop owners in respective districts with pre-structured questionnaire.

The interviewers who will be trained to use this questionnaire will conduct interviews at 6 months after the training and again after 1 year.

Data analysis

Data analysis will be carried out with Epi info software.

Knowledge on training program:

Right answer gets 1 mark

Wrong answer gets 0 mark

Total scores are 20 marks

If scores < 10 = low knowledge

11-15 = moderate knowledge

16-20 = high knowledge

Reason:

< 10 = low knowledge because less than 50 % of scores.

11-15 = moderate knowledge because 50-80 % of scores.

16-20 = high knowledge because > 80 % of scores.

Attitude on training program:

Question 1-8 are positive statement so if answer

Strongly agree = 5

Agree = 4

Un-decided = 3

Disagree = 2

Strongly disagree = 1

Question 9-11 are negative statement so if answer

Strongly agree = 1

Agree = 2

Un-decided = 3

Disagree = 4

Strongly disagree = 5

So if mean scores of attitude are:

3.51-5.00 = Good Attitude

2.51-3.50 = Moderate Attitude

1.00-2.50 = Low Attitude

Judd et al. (1991) reported that:

> Likert (1932) are the most widely used in the social sciences today. Only monotone items are used in Likert scales that is, items that are definitely favorable or unfavorable in direction-not, items that reflect a middle or uncertain position on the issue. finally, the scale score is derived by summing the numerically coded agree and disagree responses to each item (with sign reversals for negatively worded items) rather than by averaging the scale values of the items with which the subject agree. The basis for the interpretation is that probability of agreeing with favorable items (or disagreeing with unfavorable ones) increases directly with the degree of favorability of the subject's attitude (this is the definitions of monotone items). (p. 163).

The scores of attitude range from 1 to 5, that are 4 intervals. So, divide 4 scores into 3 parts but there are decimals. So each decimal added into each good and low attitude. The moderate attitude range 1 score and good and low attitude get 1.5 score.

Skill on training program:

Right answer get 1 mark

Wrong answer get 0 mark

Total scores of skill are 36 marks

If scores 31-36 = High skill

25-30 = Moderate skill

< 25 = Low skill

Reason:

31-36 = high skill because > 85 of score

25-30 = moderate skill because 70- less than 85 % of scores

< 70 % = low skill because less than 70 % of scores

Hypothesis:

(1) Knowledge of trainees

Alternative Hypothesis : Increase of scores in knowledge after training

Null Hypothesis : There is no change of scores in knowledge after training

(2) Attitudes of trainees

Alternative Hypothesis : Increase of scores in attitude after training

Null Hypothesis : There is no change of scores in attitudes after training

For data analysis knowledge and attitude of trainees, we do as follows:

1 to 5 components that are sex, age, job, year of service and level of education effect on attitude or not ? (t-test).

$$t = \frac{\text{mean difference}}{\frac{\text{Standard deviation}}{\sqrt{\text{sample size}}}}$$

2. 5 components that are sex, age, job, year of service and level of education effect on difference of knowledge or not ?

3. Pre-test and post-test are difference and there is significant difference or not ?

( pair t-test)

$$t = \frac{X_1 - X_2}{\sqrt{\frac{SD_1^2}{n_1} + \frac{SD_2^2}{n_2}}}$$

$X_1$ = the mean value of the first sample

$X_2$ = the mean value of the second sample

$SD_1$ = the standard deviation of the first sample

$SD_2$ = the standard deviation of the second sample

$n_1$ = the sample size of the first sample

$n_2$ = the sample size of the second sample

Table 3.3

Framework of activities

| Phase I | | | Phase II | | |
|---|---|---|---|---|---|
| Input | Process | Output | Input | Process | Output |
| - FDA appointed BMA Health Officers -Curriculum | - activities during training for BMA Health Officers | -changes in Knowledge Attitude Skill | -changes in Knowledge Attitude Skill | - activities of support, supervision, distributing information, manual | - performance on food inspection |

Before training | after training | 6 month

Training program on food inspection for BMA Health Officers

## 3.8 Indicators

The WHO's guideline for health program evaluation defined indicator as "variables which help to measure changes". The ideal indicators should be as follows:

(1) Valid - that is , they should actually measure what they are supposed to measure.

(2) Objective - the answer should be the same if measured by different people in similar circumstances.

(3) Sensitive - they should be sensitive to the changes in the situation.

(4) Specific - that is, they should reflect changes only in the situation concerned.

Table 3.4

Indicators

| Process | Indicators | Instrument | Information sources |
|---|---|---|---|
| Phase I<br>- Training | - No. of date<br>- Amount of time for lecture<br>- No. of trainers<br>- Level of appropriateness of content<br>- Level of appropriateness of capability of trainers<br>- Level of appropriateness of proceeding method<br>- Level of appropriateness to lecture of trainers<br>- Level of appropriateness of place | - Self-administered questionnaire | - Technical Sanitation Officers<br>- Health Officers |
| Phase II<br>- Manual | - Level of appropriateness of content | - Self-administered questionnaire | - Technical Sanitation Officers<br>- Health Officers |
| - Technical support | - Frequency of technical support per 6 months<br>- Level of appropriateness of technical support | - Self-administered questionnaire | - Technical Sanitation Officers in<br>- Health Officers |

| Continuation Table 3.4 | | | |
|---|---|---|---|
| Process | Indicators | Instrument | Information sources |
| Phase II<br>- Supervision | - Frequency of supervision per 6 months<br>- Level of appropriateness of supervision | - Self-administered questionnaire | - Technical Sanitation Officers<br>- Health Officers |
| - Distributing information | - Frequency of report per 6 months | - Self-administered questionnaire | - Technical Sanitation Officers<br>- Health Officers |

| Continuation Table 3.4 | | | |
|---|---|---|---|
| In put | Indicators | Instrument | Information sources |
| Phase I<br>- Attitude | - % level changes scores of attitude in pre- and post-training | - Self-administered questionnaire | - Technical Sanitation Officers<br>- Health Officers |
| - Skill | - % level scores of skill in post-training | - Self-administered questionnaire | - Technical Sanitation Officers<br>- Health Officers |
| - Knowledge | -% level changes scores of knowledge in pre- and post-training | - Self-administered questionnaire | - Technical Sanitation Officers<br>- Health Officers |

Continuation Table 3.4

| Out put | Indicators | Instrument | Information sources |
|---|---|---|---|
| Phase II<br>Performance<br>1 Education<br>- technical<br>- law<br>- order<br>1.1 Training target group<br>- officers<br>- entrepreneur<br>- community<br>- organization | - Total No. of training per 6 months | - Document research | - Technical Sanitation Officers<br>- Health Officers |
| 1.2 Public relation through mass media<br>- poster<br>- printed matter<br>- radio<br>- television | - Proportion of No. of subject per times<br>- Total No. of public relation per 6 months | - Document research | - Technical Sanitation Officers<br>- Health Officers |
| 2. Encouragement of consumer protection participation<br>2.1 Consumer protection group | - No. of group | - Document research | - Technical Sanitation Officers<br>- Health Officers. |

Continiation Table 3.4

| Out put | Indicators | Instrument | Information sources |
|---|---|---|---|
| 2.2 Shop, market, supermarket | - No. of shop, market, supermarket | - Document research | - Technical Sanitation Officers<br>- Health Officers |
| 3. Establishment center of complaint | | | |
| 3.1 Establish center of complaint | - 1 center of complaint per district | -Document research | - Technical Sanitation Officers<br>- Health Officers |
| 3.2 Proceeding of complaint | | | |
| 3.2.1 Receiving complaint | - No. of receiving complaint | -Document research | - Technical Sanitation Officers<br>- Health Officers |
| 3.2.2 Inform concerning complaint | - Present of information<br>- No. of giving information | -Document research | - Technical Sanitation Officers<br>- Health Officers |
| 3.2.3 Coordinate to related agencies | - Present of coordination<br>- No. of coordination | -Document research | - Technical Sanitation Officers<br>- Health Officers |

| Continuation Table 3.4 | | | |
|---|---|---|---|
| Out put | Indicators | Instrument | Information sources |
| 4. Surveillance<br>4.1 Inspection | -Total No. of inspection per 6 months<br>-Frequency of inspection per 6 months<br>-Level perception of shop owner toward BMA performance<br>-Proportion of shop inspected/uninspected | -Document research | - Technical Sanitation Officers<br>- Health Officers<br>- Shop owner |
| 4.2 Collect samples for analysis | -Total No. of samples taken per year<br>- % Found bad/year | -Document research | - Technical Sanitation Officers<br>- Health Officers<br>- Shop owner |
| 4.3 Advice | - Frequency of advice per 6 months<br>- Total No. of advice per 6 months | -Document research | - Technical Sanitation Officers<br>- Health Officers<br>- Shop owner |
| 5. Enforcement<br>5.1 confiscation/ attachment | - No. of unsatisfied shop per 6 months<br>- No. of unsatisfied samples per 6 months | -Document research | - Technical Sanitation Officers<br>- Health Officers<br>- Shop owner |

Table 3.5

Timeframe

| Activities | Month | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | 4 th | 5 th | 9 th | 15th |
| 1. Review document | | | | | | | |
| 2. Determine job description and work schedule by discuss with BMA food inspectors and superior | | | | | | | |
| 3. Discuss with working group in FDA | | | | | | | |
| 4. Develop instrument for evaluation. | | | | | | | |
| 5. Collect data for training program. | | | | | | | |
| 6. Analysis of data for training program. | | | | | | | |
| 7. Summarize training program. | | | | | | | |
| 8. Train interviewer for field evaluation | | | | | | | |
| 9. Field evaluation | | | | | | | |
| 10. Analysis of field evaluation | | | | | | | |
| 11. Summarize project | | | | | | | |
| 12. Distribution of summary report | | | | | | | |

## 3.9 Budget

| | |
|---|---|
| 1. Hire interviewer (8 person x 5 days x 200 Baht) | 8,000 Baht |
| 2. Cassette tape (60 cassette tape x 30 Baht) | 1,800 Baht |
| 3. Interviewer training expenses | 10,000 Baht |
| 4. Petrol, hire driver expenses | 7,700 Baht |
| 5. Key data expenses (5 persons x 7 days x 200 Baht) | 7,000 Baht |
| 6. Data analysis expenses | 20,000 Baht |
| 7. Evaluation summary report (500 books x 200 Baht) | 100,000 Baht |
| 8. Meeting expenses | 20,000 Baht |
| 9. Copy expenses | 6,500 Baht |
| 10. Paper | 4,000 Baht |
| 11. Computer materials | 10,000 Baht |
| 12. Mail , telephone expenses | 2,000 Baht |
| 13. Incidental cost | 3,000 Baht |
| Total | 200.000 Baht |

## 3.10 Expected Outcome

1. The changes of knowledge and attitudes of the BMA Health Officers after the training program.
2. The levels of skill and performance of the BMA Health Officers after the training program.
3. The activities during training program on food inspection for BMA Health Officers.

4. The activities of support, supervision, distributing information after the training program.
5. The perception of shop owners towards BMA Health Officers' performance.