

CHAPTER II

LITERATURE REVIEW

The research approaches the application of community participation concept to *Aedes aegypti* larvae control at Pho Sadet Sub-District, Muang District, Nakorn Si Thammarat Province. The researcher has studied theories, Ideas and related researches, apply to the activities that support the research as followed;

Part 1: The knowledge of Dengue Haemorrhagic Fever and *Aedes aegypti* larvae control

1. Dengue Haemorrhagic Fever
2. *Aedes aegypti* larvae control

Part 2: The approach to concept and theories community participation

Part 3: The approach to concept and theories family health volunteer

Part 4: Related researches

1. *Aedes aegypti* larvae control
2. Community participation

The Concept and Theory

Part 1. The knowledge of Dengue Haemorrhagic Fever and *Aedes aegypti* larvae control

1. Dengue Haemorrhagic Fever (WHO, 1996: 6-7)

The first epidemic outbreak in Thailand occurred in 1958 with 2706 case and 296 deaths with morbidity rate of 10.6 per 100,000 population. The DHF has persisted since 1958 with the first case outside Bangkok was reported in 1964. Subsequently, it spread gradually throughout the country by 1978 and now occurs in cities, small towns and even in rural areas.

In 1987, a major epidemic occurred with the highest incidence of 174,285 cases and 1,008 deaths. In 1990 was another serious year with 111,116 cases and 397 deaths were reported. In 1993, there were 67,017 cases and 222 deaths and in 1994 there were 51,688 cases and 140 deaths.

Every year, beginning February, there is gradually by increase in the DHF cases in Thailand which peaks in July and August with the monthly number of cases declining thereafter. All the four stereotype of Dengue are circulating in Thailand though the proportion of each stereotype varies from year to year.

The trend of the incidence of the disease has continued to increase in a cyclic pattern. The disease mainly affects the younger age groups of less than 15 years with the highest proportion of cases occurring in the age group: 5-9 years, followed by the age group: 10-14 years. As can be expected, DHF is the main cause of pediatric hospitalization in Thailand. Despite the increment number of cases, the CFR has declined as the physicians have gained experience in the treatment of young patients: the CFR has declined from above 10 percent between 1985 and 1960 to 0.27 percent in 1994.

1.1 Virus Transmission (Department of Communicable Control, 1997:52)

A vector mosquito may become infected when it feeds on a viremia human host. In the case of DF/DHF, viremia in the host starts from the onset of fever and lasts for about five days. The virus grows through the midgut of the mosquito to infect other tissues, including the salivary glands. After an intrinsic incubation period of 10-12 days. It bites other susceptible persons after the salivary glands become infected, and transmits Dengue virus to those persons by injecting the salivary fluid before sucking the blood.

1.2 Clinical signs (WHO, 1995: 3)

The following clinical manifestations have selected as indication a clinical diagnosis of DHF. The use of these criteria may prevent over diagnosis of the disease.

1. Fever: acute onset, high, continuous and lasting two to seven days.
2. Haemorrhagic manifestations, including at least a positive touniquet test.

Any of following may be present: petechiae, purpura, ecchymosis(red spots with small surface heamorrhages), epitaxis(nose bleed), gum bleeding. Haematemesis (vomiting blood) and / or melena(bloody stools).

3. Enlargment of liver: however, this is not always a constant feature in children with DHF.
4. Shock – manifested by rapid and weak pulse with lowering of pressure (< 20 mmHg) or hypotention, with the presure of cold, clammy skin and restlessness.

1.3 Treatment (WHO, 1995: 2)

There is no specific treatment for Dengue Fever. However, careful clinical management by the experienced physicians and nurses frequently save the lives of DHF patients.

2. Aedes Aegypti Larvae Control

The most important vector of Dengue virus is mosquito *Aedes aegypti*, which should be the main target of surveillance and control activities. Other species should be considered for vector control only where is reliable evidence that they play an epidemiologically significant role in the transmission of Dengue infections.

2.1 Ecology and Bionomics (WHO, 1998: 50)

Eggs

Eggs are deposited singly on damp surfaces just above the water line. Most female *Aedes aegypti* will lay eggs in several oviposition sites during a single

gonotrophic cycle. Embryonic development is usually completed in 48 hours in warm and humid environment. Once embryonation development is complete, the eggs can withstand long periods of desiccation (more than a year). Eggs hatch once the containers are flooded, but not all eggs hatch at the same time. The capacity of eggs to withstand desiccation facilitates the survival of the species during adverse climatic conditions.

Larvae and pupae (WHO, 1998: 51)

The larvae pass through four developmental stages. The duration of larval development depends on temperature, availability of food, and larval density in the receptacle. Under optimal conditions, the time taken from hatching to adult emergence can be as short as seven days, including two days in the pupa stage. At low temperatures, however, it may take several weeks for adults to emerge.

Adults (WHO, 1998: 51)

Soon after emergence, the adult mosquitoes mate and the inseminated female may take a blood meal within 24 –36 hours. Blood is the source of protein essential for the maturation of eggs.

The adults female *Aedes* mates and takes its first blood meal about 48 hours after emergence, and can take multiple blood meals between different gonotrophic/generation cycles. Engorgement to ovipositor takes two to five days. Generally, a single female lays about 60-100 eggs in initial ovipositor.

After feeding on a person whose blood contains Dengue virus, the female *Aedes* mosquitoes normally require an incubation period of 8 - 10 days, when the virus multiplies in the mosquito salivary gland. Thereafter, the mosquitoes become infectious again. In man, the incubation period is from five to seven days. The females *Aedes* mosquitoes can also transmit the virus immediately from an infected person to another individual by a change of host when its blood meal is interrupted. This is termed “mechanical transmission”.

More *Aedes aegypti* are found indoors than outdoors, unlike *Aedes albopictus*. Generally, *Aedes aegypti* prefer to rest indoors in shaded places, whereas *Aedes albopictus* prefer to rest outdoors in shrubs and trees.

For oviposition, *Aedes aegypti* lays eggs in the practically all types of man-made (artificial) containers, and in some natural containers, and *Aedes albopictus* oviposits in both natural and artificial containers.

Vector breeding habitats (WHO, 1995: 12 -14)

In relation to their biology, both *Aedes* species breed in and around houses in close association with human habitations.

The main indoor breeding sites are: earthen jars used for water storage; ant traps for protection of cabinets in kitchens; concrete water storage tanks for the bathrooms; uncovered water storage tanks flower vases; saucers for ornamental potted plants; soft drink bottles; water trays of refrigerators with automatic defrosting and air

conditioner trays; metal drums for water storage; plastic containers; and any others which can accumulate water for up to seven days.

Main outdoor breeding sites are: tree – holes; bamboo stumps; leaf axils of various plant species (palm, banana, yam, etc.); earthen jars for water storage; bamboo pots and stumps; discarded types; metal drums for water storage; rain barrels for collecting rainwater; deficient and clogged up roof gutters; coconut shells and husks; latex collection cups in rubber plantation; cocoa husks and pods; canoes and small fishing boats; and all artificial containers which can breed mosquitoes.

2.2 Larvae Survey (WHO, 1993: 129 -130)

Due to the nature of the larval habitats and the ease with which larvae can be collected, larval surveys are commonly used for *Aedes* species, and involve the collection of larvae and pupae. The immature stages are collected from water- holding containers found both inside and outside houses. Information concerning the locality, date of survey, precise location and classification of the container or source is carefully recorded. Receptacles which are negative for immature stages on examination are also recorded. The exact format of such records will vary from place to place depending on the type of breeding site and the purpose of the survey. Larval surveys may be of three types: those concerned with all larvae, or a number of larvae, from all positive containers; those concerned with a single larvae from each positive container, and Visual.

In order to carry out above, which results in a saving of time for field workers, detailed information about the composition of the *Aedes* species breeding in containers should be available. Visual larval surveys, and the one larva per container survey are only accurate when one species, e.g. *Aedes aegypti*, as is the case in some urban areas. In the urban areas of Bangkok, Thailand, one larva per container surveys were found most suitable for comparison of *Aedes aegypti* populations between localities and seasons.

The method involving all larvae has been used in Singapore, where both *Aedes aegypti* and *Aedes albopictus* are common. Both methods have advantages and disadvantages and their use depends on the objectives of the survey.

Larvae indices

The commonly used larvae indices are as follows:

House or premises Index referred to the percentage of houses or premises with one or more habitats positive for *Aedes aegypti* or related species. It is calculated as follow:

$$\text{House Index (H.I.)} = \frac{\text{Number of infested houses} \times 100}{\text{Number of inspected houses}}$$

Container Index referred to the percentage of containers with one or more habitats positive for *Aedes aegypti* or related species. It is calculated as follow :

$$\text{Container Index (C.I.)} = \frac{\text{Number of infested containers} \times 100}{\text{Number of inspected containers}}$$

Breteau Index referred to the percentage of containers with one or more habitats positive for *Aedes aegypti* or related species per total of houses. It is calculated as follow :

$$\text{Breteau Index (B.I.)} = \frac{\text{Number of infested containers} \times 100}{\text{Number of inspected houses}}$$

The Breteau index is generally considered the best of the commonly used indices (such as the House or Premise Index and the Container Index) since it combines dwellings and containers and is more qualitative and of more epidemiological significance. The House Index is most frequently used and understood. It also involves less labor because, when the first positive container is located in a house, there is no need to proceed further. This index does not take into account the number of positive containers in an infested house. The House Index gives an index of the percentage of houses positive for vector breeding and hence the percentage of the population at risk. If the index is high, transmission occurs easily to neighboring houses, and if the index is low transmission occurs less rapidly.

Epidemiological Interpretation of Surveillance Data

It is not possible to give a precise density figure for *Aedes aegypti* or *Aedes albopictus* at which no transmission will occur. However, the usefulness and significance of an estimated threshold density cannot be over-emphasized.

Entomologists and health officers should try to work out, in their own localities, possible threshold vector densities required for transmission of Dengue

Haemorrhagic Fever. Constant monitoring of this index through routine surveillance enables epidemiologists to predict the trend of disease and vector control efforts when the suspected critical level is reached. In actual practice there are, unfortunately, many situations where low vector indices are not maintained and the disease remains endemic on a year round basis.

As general guide, indices are interpreted as follows:

- Breteau index more than 50 : high risk of transmission
- Breteau index less than 5 : low risk of transmission
- House index more than 10 : high risk of transmission
- House index less than 1 : low risk of transmission

2.3 Vector control for containment of Epidemic (WHO, 1997: 12 -15)

Dengue/Dengue Haemorrhagic Fever outbreaks, whenever they occur, build up in a short time; thus early action are required to immediately exterminate the infected mosquitoes to interrupt transmission and to reduce or eliminate new breeding ground of *Aedes aegypti*. Mobilization of government resources to meet such emergencies are always slow and before they come into operation much damage is already done. In countries where no *Aedes aegypti* control program exists, the things are still worse. This was exemplified by the Dengue outbreak in some cities of Member Countries in 1996 as the local authorities were caught unawares and it took a couple of weeks before a full-scale effective vector control campaign could be put into action. Therefore, to meet such emergencies it is essential that everybody at all level, viz. Individual, family, community and government, can contribute to arrest the spread

of the epidemic. In the following paragraphs an attempt is made to highlight the actions which everybody can take as and when the first case of DEN/DHF is detected.

2.4 Larvae Control (WHO, 1995: 23-29)

Aedes larvae are container-breeders which thrive in both clean and organically rich water in both natural and artificial containers. Hence, container management to reduce the sources of breeding habitats is one of the best approaches for controlling *Aedes aegypti* and *Aedes albopictus*.

Container Management

Container management should take into consideration the householder's use of the containers. If the population considers the containers to be useful or essential (such as earthen jars, rainwater drums, ornamental plant containers), the strategy employed will be the prevention of Aedes breeding in containers rather than destruction or removal of the containers.

If the containers are to be useless or non-essential (such as discarded types, abandoned domestic containers), removal and destruction is desirable. Natural habitats that accumulate water (such as tree holes, plant axils, bamboo stumps) can also be either eliminated or appropriately modified to prevent the breeding of Aedes.

Elimination or alteration of breeding sites

Destruction or elimination of unwanted natural and artificial containers in and around human living premises definitely contribute to an overall reduction of the Aedes population. Examples of such source reduction are as follows:

Rubbish which includes artificial and natural containers should be cleaned up, packed in disposable plastic bags and away through the local rubbish collection system. Municipal sanitation department collaboration should be obtained. If a local rubbish collection system is not available, the discarded containers should be buried. Discarded tyres should be disposed of the such in such a way that they are kept away from occupied premises and not exposed to rain. In tyre collection and storage areas for the districts, they should be properly arranged, placed under shelters and covered to prevent breeding of Aedea. Types also can be shaedded and placed in a landfill away from populated areas.

Tree holes around housing compounds should be filled with sand or concrete to prevent breeding.

Structurally deficient roof gutters should be repaired. All roof gutters should be cleared of debris regularly.

Household and garden utensils(buckets, bowls and watering devices) kept outdoors should be turned upside down when not in use to prevent accumulation of rainwater and breeding of Aedes.

Leaf axis of various plant species within the house compound (palm, banana, etc.) often contain rainwater which should be removed or treated with proper larvicides to prevent Aedes breeding.

Canoes and small fishing boats should be emptied of water and turned upside down when not in use.

Agriculture crop remains (coconut shell, cocoa husks) should be disposed of properly. For the extraction of cocoa seed, the fruit should be opened with three cuts, one at the middle and two at both ends to prevent accumulation of water.

2.5 Method of survey (WHO, 1993: 129-130)

Surveillance of vectors is an essential step in the planning of control measures and their evaluation, and in studies to determine the risk of outbreak of Dengue/ DHF. Surveys are also necessary for studying the ecology and distribution of vectors.

Surveys enable information concerning the presence of vectors, their frequency of occurrence, their movements including migration, and their establishment in other areas to be obtained. These survey also assist in stratification of areas where outbreaks of Dengue Fever can occur. Vector surveillance should be routine and include the monitoring of ecological and epidemiological parameters from both the virological and entomological points of view. The objectives of these surveys have been summarized as follows:

To pin-point high risk areas (areas with high vector density and high disease endemically) through the plotting of vector distribution and DHF cases on maps, so that these areas can serve as priority areas for control during both normal and epidemic conditions: to detect, through routine surveillance, any changes in vector density,

distribution, or the other epidemiological parameters relating to the vectorial capacity of the vector : to determine the seasonal population fluctuations of the vectors so that special emphasis can be given you the maintenance of control and alertness during peak periods, and to determine the major breeding places in domestic environments so that source reduction or elimination, with public participation, can be carried out through health education, campaigns and law enforcement.

Part 2. The Approach to Concept and Theories Community Participation

Meaning of the participation

Participation of people in the sense of United Nation, is the action in willing to processes deal with various groups of the masses in the aim of socials and sharing of the resources.

Berkley defined the participation thus, the leader allow as much as followers to take part in making decision, such as the allowance of follower, or the under command take part in set up the policy and condition of activities, even the election of the leader or commander.

Chanin Jaroenkul (1983: 34-35) said about the participation that there are four acquainted terms in English, like Community participation, Community Involvement, Popular Participation and People Participation. There may be different in definition, but the main idea is focus on making decision by group of people. The community should get all benefits from the participation, and the evaluation.

Prapon Piyarat (1991: 5) said that participation of the community mean to take part seriously of people in the community in planning, proceeding and control, rely on the local resources to gain the local benefits by themselves.

As the above mentioned The researcher, in opinion it means people got their chance in making decisions, setting of their goals for the activities that effect to their own community.

The decisions in proceeding of activities must be accepted, as was their own resolutions.

Necessities in the participation

Community participation in development can be taken place under the appropriate factors, and the factors that effect to the masses are namely as.

- Behavior in harmonious to fundamental belief of himself, and the community.
- Behavior in harmonious to the standardize of himself and the community.
- The promotion, protection and maintenance for the goal of himself and the community.
- Behavior that came follow the unusual experience.
- Expectation, of the things what they want, that hardly to get from other people, but treated other people in the way they are expected.

To set themselves as precedence, individual person or group of persons usually choose the way they want in performance.

- The chance, person or groups usually take part in social activities only in the way that fit for them or social structure.
- The ability, individual person or group usually take part in activities that possible for them.
- The support, individual person or group begin their activities only in the occasion they get the good support.

World Health Organization suggested for basic factors to pool the people's efforts in participation. It is the motivation that bring people to join any activities in labors or resource motivation that mentioned is first they realize that the benefits gained from their activities. The second they are skillful in that activities. To involve people to the activities there need the right of pattern arrangement of the relation, like the leadership, rules and always open to all to take part in the development. The participation can either by agent or direct, in clearly of time limited. The participant can set up their condition according to their own status, and the activities should be in certain appearance.

The persons in participation of the development, it is necessary to give opportunities to all people in the community who are ready and willingly to join the development, and know what the benefit they will get. Reduction of leader's roles, and be equal in sharing of Ideas, making decision, and proceed according to the

referendum. The technique of brain storming, and group discussion can be used to activate, to bring the acceptance, and cooperation in hygienic job development.

Type of the participation

The participation in various community are different in specific type and (Cohen & Norman Uffhoff, 1990: 219-222) have divided the participation in four types.

1. Participation in decision making compose of 3 steps initiation of decision, making decision, and practice of decision.
2. Participation in practice (implementation) they are the support by resources, services and the joining for cooperatives.
3. Participation in benefits, what ever the benefits are from objects, social, or personal benefits.
4. Participation in evaluation.

We can say that the step to begin in participation should be participate in thinking search for the problems, and the cause of problems. Participation in planning, to do in according to the plan. Participation in benefits, and evaluation.

(Lee J. Cary, 1976:144) has divided the participation in 5 type

1. Being member
2. Member in attendance of the meeting
3. Member in financial contribution
4. Being a committee (membership on committee)
5. Being a leader of chairman

United Nation Department of International Economic and Social Affairs (1981:8) Has collected the type of participation namely as

1. Spontaneous participation by volunteer or the joining group to solve the problems for their own, aiming at the target with out any support from others.
2. Participation by the inducement, to join by the government approval and supportive for which a general pattern in developing country.
3. Compulsory participation, the participants are under government policy in performing, under management of government staffs or direct command, this pattern the subject get benefits instantaneously, but not long term. The disadvantage they will not get any support from people in at last.

Wallerstein & Berstein (1994: 140) blame for the role of government hygienic staffs that they are usually in outstanding of consideration, direct command, and making decisions in various problems, other than let it be the duty of community in making decision, find the way to solve the problem for themselves.

World Health Organization (1918: 41-49) proposed the type of participation for which believed to be the most perfect pattern. In actually there need to be composed of 4 steps namely

To take part in planning, analyze the problems, make sequence of the problems, control the resource expense, set up process to follow, and evaluation. The essential is

to take part in all steps of making decision, activities, budgets and service distribution, consuming of the benefits.

People should be able to bring activities to become benefits, in order to upgrade the ability in rely on themselves. People gain their benefit equally, from the distributed of local community.

Participation is separated in three types

- Type of the content, mean people take part in the development to make decision, planning, joining to the job, sharing of the benefits and take responsible in evaluation.
- Type in arrangement of the relation, or the organization mean people involved to the content above, in pattern of the relation to each other, either in the community or outside the community, the participation can be the preference by the persuasion or by forced the participation that mentioned above is possibly participate by the agent.
- Type in activities mean people joint with the content or any type of relation, for it can be competition type non competition type or sluggishly.

In this study the researcher brings the type of the content participation and applied to the families agents to joint the activity “ Family health volunteers participation for Aedes aegypti larvae control ”.

Measurement of the participation

Kasperson and Breitbart (1974: 3-4) presented first stage of measurement that what is the action to be called the participation. There are three in summarized, action individually not by a group of people, may cause the wrong conclusion as the individual attitude in participation mean their value, perception and behavior for each one.

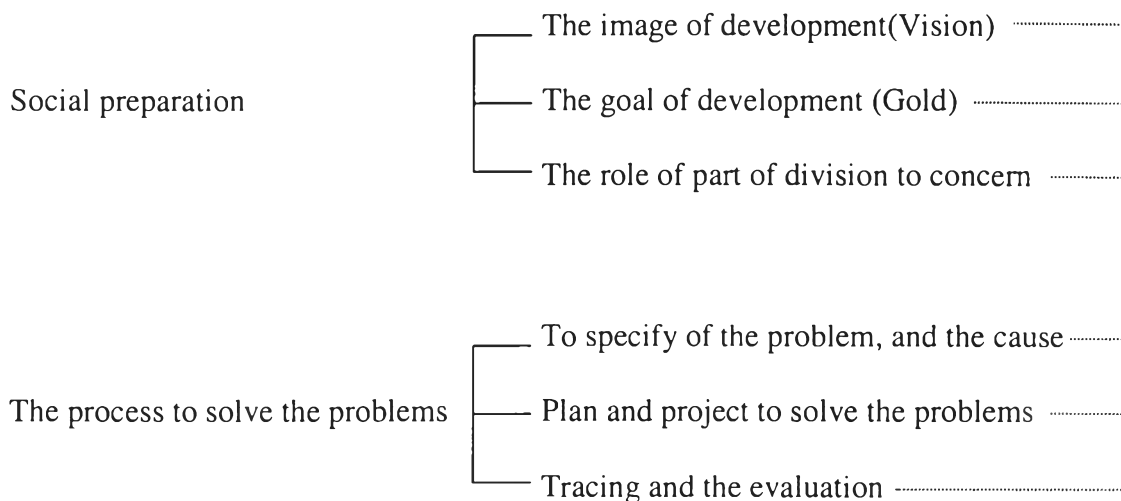
That is to say, the action to be called participation such as the action that react directly to each one. Frequent of the actions showing by more often practice in cooperative. The long term of activity, that is to be bound, motivate to increase the quality of participation study from the result and reaction from the first action, such as the responsibility, the decision, broaden in acceptance of the abilities, opinions and have the evaluation

Sequences and the outline of the idea in development with the participation are mentioned in many ways i.e.

Jermak Pinthong (1984: 10) divided the steps of people in participation in four steps, participation in searching for the problems, participation planning and proceed the activities participation in sharing capitals and practice, participation in tracing and evaluation.

Prapon Piyarat (1991: 7-8) summarized the outline of Idea, and the development with participation system i.e.

Outline of the Idea, and the development with participation system.



(Prapon Piyarat, 1991: 7-8)

The most important from the Idea outline of the development with participation system is the social preparation, that help people to concern get ready, then to start the machination in sequence and the process of development. The detail i.e.

Social preparation

Preparation for the ready of people who concern the development, In order to help people understand, and willing to join the jobs that bring prosperity to the community, it is important to develop the human resource prior to the development activities. In case of the good result in social preparation, each part to concern, will look through the role for their own to be performed.

The government sector, The developer.

Expert in the idea of development with participation, and the process in development of life quality.

To join the idea in development quality of life with the development of social and economic, for the reason that life quality development is the development of human resource, that is the development of social and economic in the commonweal.

Have through knowledge in development quality of life, that it does not belong to any of government department, but it belongs to the people. There need the cooperation from every sector to support the procedure, to go on the right way of people development.

Supervision in adherence to solve the problems for the people in regularly, and give them the right encouragement.

Frequent of meeting, and consult together with all ministries and divisions to revise the perception in the development.

Keep respect in people's humanity, as their wisdom is from the experience learn from that area for a long time, and may get the better idea than the government sector to solve the problems in population.

The people sector

Expert in system of development with participation, also the process and trick in development quality of life in their, so that they can treat their own community.

Transfer skill and knowledge in community development to others communities, and so does the help adherent for their accomplishment.

Mobilize the local resources of human, budget, and the equipment's to develop their own community.

To help each other among the community to solve problems and troubles, and ask for other's help in necessary.

Revise the perception about the continual development by joining among people in the community or join with others divisions.

Private sector

Provide of the resource when people or community are in need of money or man power. Educate and train of knowledge and technology in appropriate to the field that skillful.

Coordinate in activity with the government, as to relieve the load from government, also bring the process or ideas that used to be effective in elsewhere to do the experiment or research in the community.

In the social preparation, there are not effective way in specific especially for the people. The objective in community preparation is to help people realize state of their own problems in reality by themselves. The officer have to be patient for a long term hobnobbing with the people in creative activities to strengthen their group. To be familiar with peoples is to know their life style, and the reality for their need. Try to get a chance for chat and propose the idea to indicate them what their real problems are.

The people should take part in discussion, propose their ideas. Joining with the people to evaluate their perception before any activities. It is not the way of casual in joining with people for a moment then assign them dictatorially for jobs, that could be hard for the cooperation, or can be said its lack of readiness in that community (Alisra Chuchart, et al., 1995: 10-11).

Sequence and the process in participation

When all is in good readiness, and ready for the procedure, then go on the job with the participation. For they are the survey of data, analyze of the problems, guideline in solving the problems, assign the responsibility for each. Proceed in according to the plan, and the evaluation.

Co-worker activity coordination.

Participation with the several sectors in development. There need the co-worker coordination, combine of the idea and the perception there need three elements from the co-worker such as:

1. Mind the friendship and good human relations the respect and modest, be honor to each other, sincere, honest, equal in humanity, sympathy and sacrifice.
2. The Idea and principle, Thinking with the reasons, and aim at the right goal, the success belong to every one.
3. Activity mean various jobs, willing to do according to the plan, the role, and in as much as to be assigned by sharing the responsibility.

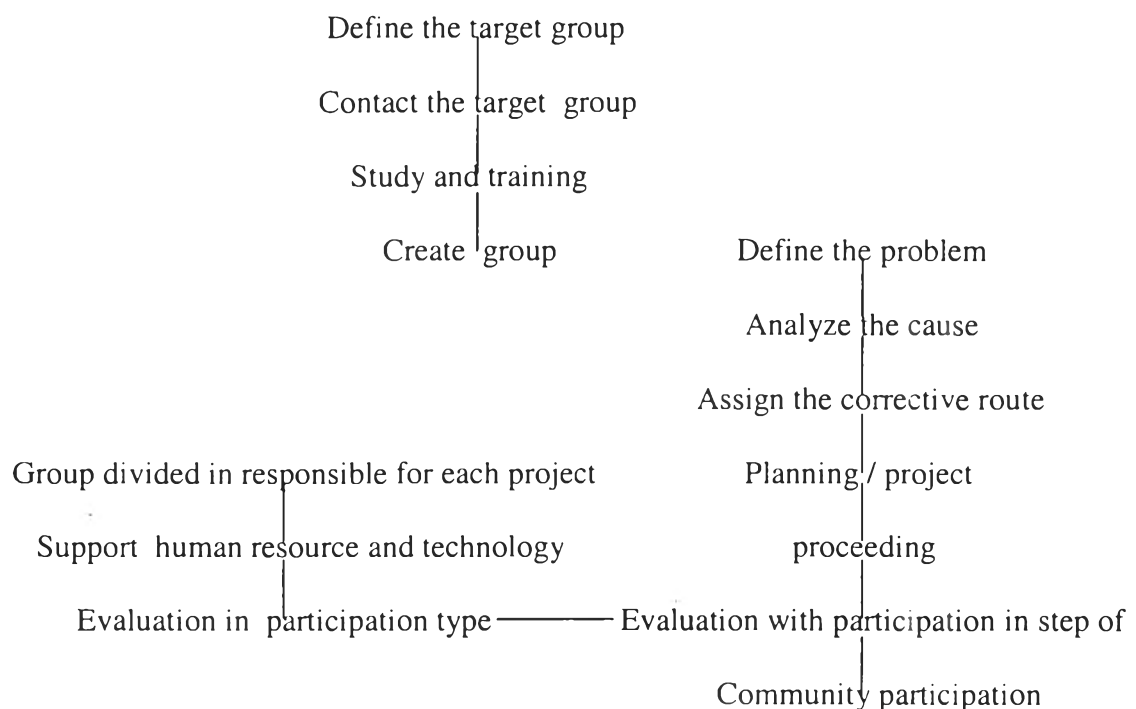
How well do the three elements can be occurred it is depend upon the potential, knowledge, improvement in each one.

Prapon Piyarat (1991: 8-9) summarized the administration and management of the development with the participation in documents accompany the debate of “The layout and the example of the people’s participation in the basic public health job and the basic needed” that is to say.

The process of administration and management of the development with the participation

The leader is to be in certain of problems, and get the image of the development

Participation



Step 1. The participation in searching for problems and the causes. It is the most intensive in all steps. People who are close to their problems, and clearly acquainted with the problems, but still neglect to some points. In this case, the government staffs will act like a reflection to help people analyze and reconsider.

Step 2. The participation in planning of activities, in order to help the community understand their problems and the development of their experience for they can be able to plan of their operation in later.

Step 3. The participation in putting down the capital and the operation. The community are at least they have the labor to put down. The co-investment will teach people in estimate of their fund, and more careful as they feel like sharing the ownership, while the maintenance will go on. This is different from the whole investment from the outside. To participate in the operation by themselves, they will learn and get close to the operation. The advantage they get, they will keep going on the operation by themselves in worthwhile.

Step 4. The participation in evaluation, missing of community participation in the evaluation, people will not know how beneficial of their work. More over, it help community in the exchange of knowledge and perception in the process of evaluation, and the propagation of activity to other community.

Part 3. The Approach to Concept and Theories Family Health Volunteer

The Ministry of Public Health Policy in the operation of basic public health job according to the Public Health Development Plan No.8 (1996-2000) intended on human development either in persons families and community, to gain their right of health behavior by way of public health promotion and prevention so that they can help themselves along with the basic health activity.

The tactic in operation

1. To encourage people in taking advantage of the relation and binding to level of family or community as a basic of health care to family and community member in continuity.
2. Promote development of people knowledge, and skill that appropriate and fit to take care himself and family, including the participation on prevention and solving the public health problems in the community.

The previous of basic public health operation, volunteers took high responsibility in villages. Each of them take care 8-15 families to create network of community help. Tracing found that they miss the clearness and the operating guide line in the level of population. Each family should have the member to become a network to join with volunteers and government staffs.

By the nature of Thai family, there always be one or more of the family member who act like a main core in responsible and take care of other member's health. The

group of people who did this are family health volunteers. The development of public health knowledge in the right way, to these groups of people will increase the potential of family health care in concrete. There also develop people health in continuity which is the reinforce factor that bring good health to people without exception.

The objective to the appointment of family health volunteers of the Ministry of Public Health

For every family in at least one person who is

1. Skillful in health care for himself and families members, for every one get their right health behavior.
2. In case of family illness, first aid or early treatment can be done and promptly refer the public health service place.
3. To be a local resource in cooperative of community public health development and others.

The target

The target in the year 1998 - 1999 one village in a Sub-District and every house in coverage, extend to be full area coverage in five years.

Meaning

Family health volunteers, mean the member in each family doing as a main in the duty of family health care to keep every one in wealthy, physically, and mentally strong.

The family health volunteers has already been exist in each family. It can be any one who is the family members that fit for the duty. More over, family health volunteers get their public health knowledge from various media, there still some of the error in knowledge, so there need the development in knowledge and skill in adequately. Because of the ability in read and write of the family health volunteers, their eager to know, and also time available. This could be the factors that increase their perception to learn by themselves from printed matters.

The role

Family health volunteers taking their role of

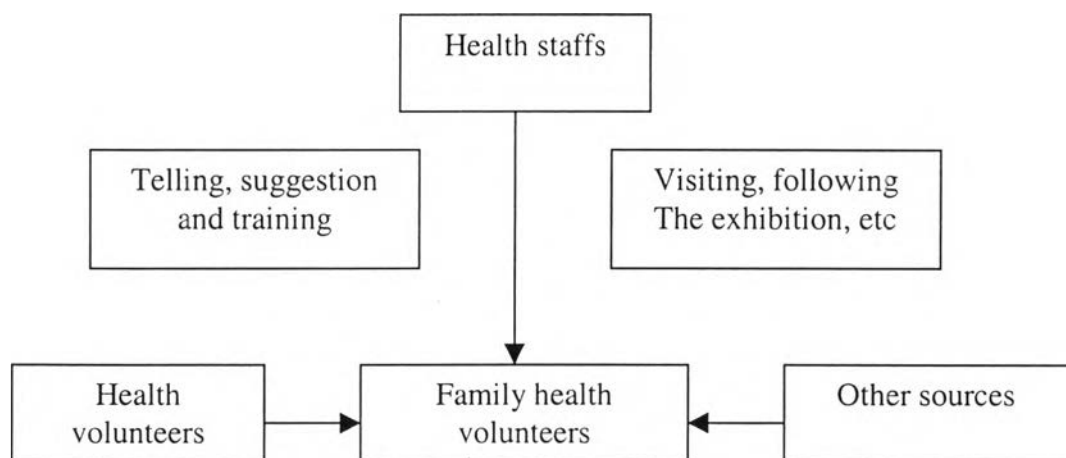
- The family main substance to take care of family member's health.
- To be a good model of health care for family members.
- Being a family coordinator to take part in solving the problems and the development of family or community public health.

The guideline of development

Community preparation, the development of family health volunteers, first the government public health staffs have to inform the volunteers in concern the role of family health volunteers. The later, public health staffs together with the volunteers who take care in each area to consider who else in each family to take care of family health. The staffs or volunteers who get used to the community will know who can be the family health volunteers that they have to contact with. More over the staffs should know about the situation of family health in their zone. The number of family health volunteers, and what they would like to know more in the field of public health, in order to set the plan for development of family health volunteers.

To pass knowledge to the family health volunteers, they can learn or follow news about public health from various of sources and types. The volunteers and health staffs fixed in the area, will be the essential of personal media who pass skill and knowledge that necessary in health care to the family health volunteers, follow by intermittently help and consult, for they can do the most effective way in health care, other that passing knowledge directly from the health volunteers and health staffs to family health volunteers, there should be some others media like printed matters, journal, library so that they can research by themselves.

Chart 3: Sources and the process in passing knowledge to family health volunteers.



- Passing of news from broadcasting tower
- Visiting/ following
- Converse, suggestion,
- Group activity
- Study from manual book
- Reading newspaper
- Listen to radio, watching TV

Creating of the network, family health volunteers will be the family coordinator in cooperation with the health volunteers and public health staffs, in solving problems and local public health development. The public health staffs and health volunteers, have to join impartially with the family health volunteers with out exception, and continuity. This become the cooperation network in development of community health.

Gist of knowledge

The essential knowledge of family health volunteers composed of

- Knowledge of family members health care.
- Knowledge in basic take care of patients.
- Knowledge in sources of learning, and health service in case of needed.
- Knowledge in concerning the prevention and the correction of public health problems that the family can participate and evaluate that composed of
- Follow up of the progress of family health volunteers development process, in the local area of province.
- Report of the Basic public health operation result (Reported format 302) to the Basic Public Health Committee Office.

Evaluation the knowledge level in health and hygienic (Health Literacy) of the family health volunteers. There should be go on subsequently.

Part 4. Related Researches

1. The documents and the researches related to Dengue Haemorrhagic Fever.

Pan-urai, et al., (1983: 217) surveyed the prevalence of *Aedes aegypti*. By using elementary students in grade 6-7 of 38 provinces in every part of Thailand. The students used questionnaires to survey larva in containers. They were also recommended to eliminate larva by themselves. It was found that there were 74,932 containers which were breeding places, and 36,797 containers with larva (49%). The survey indicated that there was a high prevalence of larva in every part. So Dengue Haemorrhagic Fever could spread continuously. After the experiment which had been conducted in Khonkaen and in Kalasin, it was found that Dengue Haemorrhagic Fever could spread continuously. After the experiment which had been conducted in Khonkaen and Kalasin, it was found that Dengue Haemorrhagic Fever had greatly reduced.

Pantumjinda, B., et al. (1981: 1-8) studied on community's participatory learning in control *Aedes aegypti* in Panasnikom District, Chonburi Province. The community leader, public health staff and students campaigned on destroying breeding sites by adding abate sand in holding water container and destroyed unused water container and others. It was found that holding water container of 80% was added abate sand and destroyed *Aedes aegypti* larvae and found that the students cooperated on activities more than community leader.

Chalernsuk, O., et al. (1985: 247 -267) studied on prevent of *Aedes aegypti* larvae in the big cement jars and concrete tank in Khonkane Province during August to September 1985. It was found that cement jars, which was closed, and non-closed outside household had *Aedes aegypti* larvae less than the small jars in household.

Tantaariya, A. (1988: 64 - 65) studied DHF prevention and controls by health volunteer with abate sand during June to October 1988. The health volunteer were trained and motivated for participation in the project by adding abate sand and decrease container index in experimental area. There was 4 districts, 8 Thambons, 16 Villages. After experiment found that the health volunteer had better behavioral *Aedes aegypti* control than before experiment.

Wachira Panskul, O. (1997) have evaluated the control and prevent of Dengue Haemorrhagic Fever project in Nakorn Ratchasrima Province year 1995-1997 found that, the policy and criterion are clear and practicable. Mainly inadequately and in promptly supported. It is found that various ways to control and eradicate of *Aedes aegypti* larvae breeding place, but chemical way is the most effective in 95%, while the physical, bio chemical ways only 7.5 % effective.

Ar wair ni, P. (1999: 21-22) studied an effectiveness of health education program by applying the participation in prevention and control of *Aedes aegypti* larvae to primary school student in Amphur Yarang, Pattani Province. The study is quasi - experimental design, among 177 students in level 4-6 of primary school. It is found that, the process in providing of health education effect to perception of the students.

The study of *Aedes aegypti* larvae and the people's knowledge about Dengue Haemorrhagic Fever in Phuket Province by the Department of Epidemiology Prince of Song Khla Nakarin University found people with fair knowledge 95%, they know that *Aedes aegypti* larvae are the carrier of Dengue Haemorrhagic Fever 67%, they know about the beginning symptoms of Dengue Haemorrhagic Fever 45.6%, they know that *Aedes aegypti* lay their eggs in clear and still water. The news and message they mostly get are from television and the government public health staffs. People who do not get news from the broadcasting tower are 85.3 %. *Aedes aegypti* larvae index found HI =55.8, CI = 16.2, BI = 154.5. The most obvious is water container the breeding place of *Aedes aegypti* larvae. There were 10 water trapped containers in each house. Found *Aedes aegypti* larvae in containers 100% and the rate of mosquitoes found 5 meters in radius area are 36.0 %

2. The researches related to the concept and theory of participation

Pantumjinda, B., et al. (1981: 1-8) studied on community's participatory learning in control *Aedes aegypti* in Panasnikom District, Chonburi Province. The community leader, public health staff and students campaigned on destroying breeding sites by adding abate sand in holding water container and destroyed unused water container and others. It was found that holding water container of 80% was added abate sand and destroyed *Aedes aegypti* larvae and found that the students cooperated on activities more than community leader.

Yang Kratoke, S. (1984: 127-128) researched on study of participation of people to the basic public health jobs, the test in operation that come true in area of 5

villages, found that, the basic public health activity can be accomplished by people in perception to work on that field. In the local public health there need adequate of rainwater two earthen jars, with out the toilet can cause intestinal worm disease and the accomplishment of activity there need the budget and the installment plan.

Roong Reang Sri, S. (1992: 131-134) studied the participation in passing news to people of the 210 Thumbon public health staffs and the village public health volunteers, found that people 88.2% participated by passing of the news and topics to people, participate by giving suggestion to people 89.6%. It is found that always mostly people are not at home because of their daily routine or occupation, so publicize of news, or meeting for the explain can be an obstacle.

Sukumwang, S. (1993: abstract) studied the development of nutrition project base on the participation of teachers and the community, in Thumbon Pra Bart to initiate the lunch project and the long run of agriculture project in school. The teachers and the community are increased in attitude in significant statistic than previous, they behave in moderate level to the lunch project and the agriculture project. More over, the students who under average of bodies weight tend to be better in state of nutrition.

Peng Pit, S. (1993: abstract) has studied the result of health education program development with participation process, in the post delivery ward of Nopparat Ratchatane Hospital. The study is to compare behavior in previous and afterward of hygienic job practice in post delivery ward, and compare the result of health education program development among the group of mothers in previous and afterward the

delivery. Time to spend in this study is six months. The self development, and development in each other of nurses in post delivery ward are not different in previous and the afterward of experiment. The teamwork, cooperation, satisfaction in health education program, and efficiency increased than previous of experiment in significant statistic and increase the number of post delivery mothers. This is show that the development with participation process can only develop the persons, work, the satisfaction of people who receive the service.

Jun Molee, J., et al. (1994: abstract) studied the process where people take part in publication knowledge of AIDS, that make change in significant knowledge. The group after the experimentation is better knowledge of AIDS than the group before the experimentation. The group after the experimentation is better in behavior of AIDS protection than the group before the experimentation, and the group after experiment is better participation with the AIDS protection than the group before the experimentation in significant statistic.

Rak Manee, K. (1994: abstract) has evaluated of the project of drugs and medical supplies fund in the village. The project is from the participation of people in solving short supply of essential drugs in the village which is supported by government public health staff. The study found, the number of drug funds established are not reach to the goal of the government budget. It is because of various causes, the obviousness is the volunteer have to work alone, low budget, no sharing of benefit, no meeting for the project report to members. Low benefit, no wages for the sellers, in adequate of drug to be sole in continuity, missing of instruction from government staffs,

people in major get their service from private clinic, as the convenient of communication.

Deang Han, P. (1997: 84 -92) has studied the factors that effect in making decision of controlling *Aedes aegypti* larvae of the Thumbon Administrative Organization member in northern east found that the factor are, knowledge of the members, government staff, family leaders, but in macroscopic rather good attitude to Dengue Haemorrhagic Fever. In compare with others of developments 55.2% though that they are all equal and the person who in role to show the way in making decision should be the member of Thumbon Administrative Organization.

Suwan, S.,et al. (1997) studied an effectiveness of AIDS prevent and control project in family by creating empowerment among female and community participation. It was found that a program that transferred though family health leader and developing family and participation in community of power and authority in women group, and the participation of community. Could change regarding AIDS knowledge of housewife and more increased on communication and found that more increased on potential of committee.

Way tee vootta jam, K. (1998) studied the readiness of the member of Thumbon Administrative Organization to the procedure of Communicable Disease control in Zone 6, found they mainly focus on planning of basic structure project, The public health problems that are urgent to be solve, it their opinion, they pay attention to promote of health and the environment in principal, and the minor is control of

communicable diseases. The regulations in procedure of communicable disease prevention are during the operation.

To revise the related literatures, It shows that the projects can be succeeded, in case of people participation at the beginning to the activities, they know about the problems which are the most serious to be solved or modified, that bring to the same goal of appropriate development. The group can offer permission to all members for their opinions to carry out the participation. The project or activities then come to the great success.

From this concept and relevant research about community participation, which presented to effectiveness of health education program by applying concept and relevant research about family health volunteers participation, which emphasized on participation in behavioral development. The author was interested to apply on the developing behavior in *Aedes aegypti* larvae control in the village in regard to perceived changing knowledge, susceptibility, severity, cost – benefits, participation in DHF prevention in community and behavior in *Aedes aegypti* larvae control. The factors for the research that shown in Figure 1, page 53.

Conceptual Framework

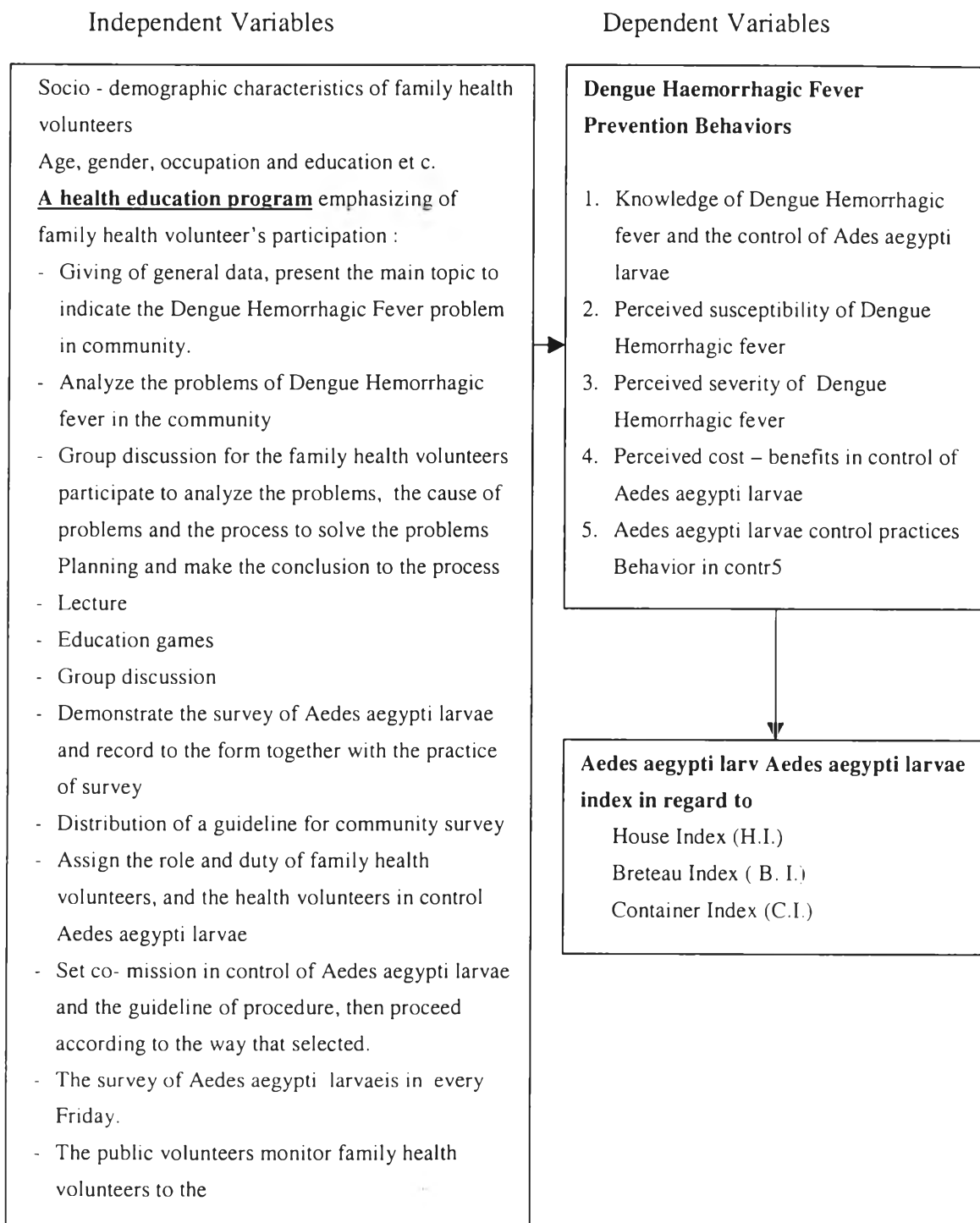


Figure 1: Conceptual Framework