CHAPTER II

PROJECT DESCRIPTION

2.1 Rationale

Nowadays Ministry of Public Health concentrates on data gathering for using in its own area. The Ministry of Public Health has abolished the policy of reporting to headquarter and has put in a great effort to reduce the information as little as possible. At the same time, Ministry of Public Health needs to decentralize the decision-making authority and the application of information technology to the Provincial Health offices throughout Thailand to improve their information system more effectively and efficiently.

Phayao Province has developed its own information system by analyzing lists of information required by the users, and then making a draft report to conform to the province's needs. After that the lists of information were again analyzed by the District Health Office staff and then the information was given to the Health Centers to select and analyze the information for its own use. It is clearly seen that the information analyzed by both District Health Office and Health Centers were prepared in response to higher level's needs rather than their own needs. Thus, it is the time to change the process of development by starting from the Health Centers in analyzing its own information for its own use, by basing mainly on the minimum service standard of the Health Centers.

Form the analysis of the information system in Dokkamtai District Health centers, it was found that there were two key problems as follows;

1. Problem from internal factor

1.1 Data – collection problem

1.1.1 Too many data to be collected. In a fiscal year 2000, Health Centers in Dokkamtai District, Phayao Province, had to collect and send several kinds of information reports to the headquaters. What was most clearly seen to be problematic was that a number of Health Centers's reports have several different forms of report to be done. It took much time in filling the forms and each form had numbers of things to fill out. Some reports may be sent in every two or three or four or six months or even once a year. This gets the report operators confused or in trouble as shown in Table 1.

Table 1: The categories of reports done by Health Centers in Dokkamtai District in the fiscal year 2000

Categories of reports	Number of reports	Items of records
1. Reports when having cases	12	597
2. Reports every month	8	586
3. Reports every three months	3	88
4. Reports every four months	2	58
5. Reports every six months	5	113
6. Report once a year	7	227
Total	37	1,669

1.1.2 Problems of misunderstanding or getting confused how to make reports, for example, in the report of daily activity (รง 400) of new or old clients, some Health Centers report numbers of clients in accordance with the fiscal year and others in accordance with the calendar year. This situation was frequently found in other reports because of understanding or interoperation of each reporter. In some Health Centers, the report operators who do not receive or know the report instructions make the reports in reverse; and the persons who receive or know the report instructions do not make the reports. In addition, in collecting data, each person in Health Centers will gather it with his/her own job responsibility or background.

1.1.3 High cost of making reports including time consuming and budget. This affects the service as shown in Table 2.

Table 2: The illustration of time consumption and budget for Health Centers in Dokkamtai District in the fiscal year 2000

Activities	Labor cost		Material cost	
	Time consumtion (%)	Sum of money (Baht)	Sum of money (Baht)	percentage
1. General administration	18.86	1,256,908.18	1,227,113.13	20.01
2. All kind of reports	7.40	493,494.04	187,433.20	3.06
3. Medical care	24.55	1,635,834.48	1,918,900.53	31.29
4. Mother and child health care	4.40	293,278.57	67,836.28	1.11
5. Family planning	3.84	255,830.87	422,114.36	6.88
6. EPI	2.30	153,498.52	391,908.03	6.39
7. Dental care	3.02	200,957.00	167,663.00	2.73
8. Health education	7.17	477,550.95	57,309.00	0.93
9. School health care	3.07	204,664.69	224,390.19	3.66
10. Basic Health Service	5.43	361,870.91	813,800.00	13.27
11. Environmental health	2.50	166,846.22	31,486.00	0.51
12. Communicable disease control	4.38	292,166.27	440,051.50	7.18
13. Non-communicable disease control	2.80	186,867.76	155,052.00	2.53
14. Nutrition	1.65	109,747.73	27,000.00	0.44
15. Others	8.63	575,063.30	-	-
TOTAL	100.00	6,664,579.49	6,132,057.22	100.00

Source: A study of cost of Health Centers in Dokkamtai Districe for fiscal year 2000.

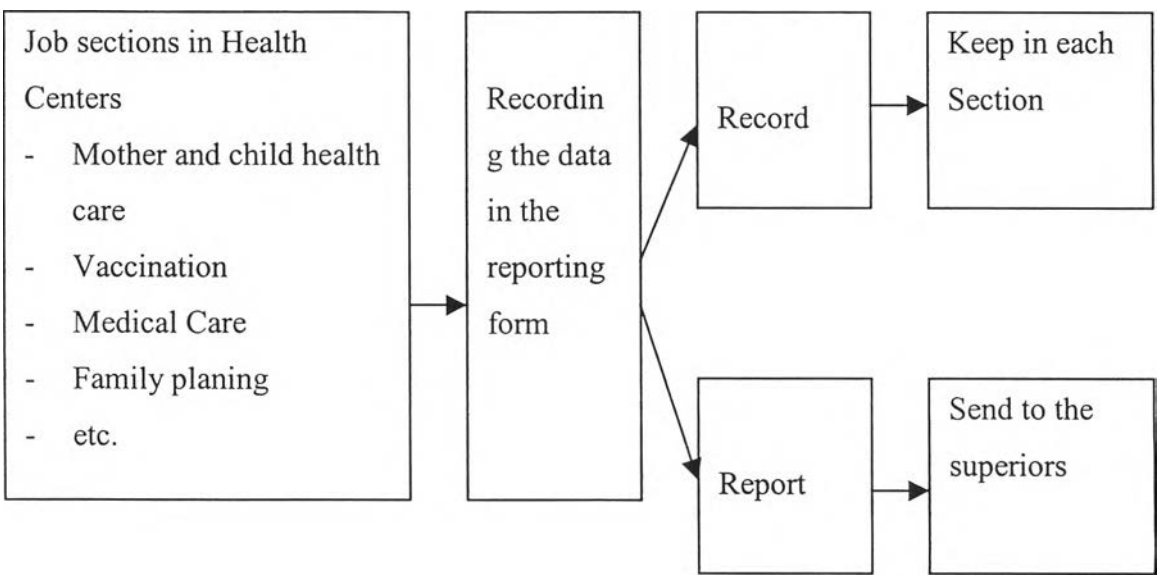
From Table 2 it is clearly seen that in 2000 staff spent 7.4% of whole time on making reports and calculated into labor cost for 493,494.04 baht and also the material cost in making report was about 3.06% (187,433.20 baht) of the whole office

matherials for the Health Centers in Dokkamtai District. Thus, it was evident for the high cost of investment.

1.1.4 When the Health Centers send all reports to the superiors, few receive feedbacks except epidemiological surveillance report. However, the reply to epidemiological surveillance report came after the plaque had spread out. As a result, the Health Centers staffs do not pay attention on making reports at all. It is often seen many errors appearing in the report but no one corrects them. Moreover, the health Centers are requested to send the same and repeated information from different sectors and levels.

1.1.5 Information gathering of the Health Centers was done by each official, who was responsible and knowing well his own information, which was an advantage of this type of information collection. But the disadvantage was that we did not know and had another section's information or the information we had was always repeated, for example, in the progress report of nutritional state in children, nutrition section will report the children's weights once in every three months, at the same time immunity-building section will give the vaccine and weigh the children every 2 months. It was a repeated work. It wasted time and man power of the health staff and the children's guardians.

Figure 2: The flow chart indicated the circulation in the information system of the health's in Dokkamtai District, fiscal year 2000



In conclusion, data gathering according to its section and responsibility cause the containing data repeated and separated. It is accepted that data gathering basing on job feature will have a great effect on information both in quantity and quality.

1.2 Problem for information analysis

1.2.1 The Health Centers in Dokkamtai District lack capable and modern computers to calculate and analyze the considerable information in 2000. There were only 6 computer sets provided for 15 Health centers, resulting in the delay of sending information to the superiors or between Health Centers in local area. The other problem to be mentioned was the health staffs lacking of computer knowledge and skill.

1.2.2 The Health Centers staff can not manage the containing various information which would be useful for giving service and different kinds of information in its own section.

1.3 Problem of outcome

1.3.1 The information gained could not identify the health status of the target group due to lack of completeness in time, place, and individual information. For annual public health problem analysis, health centers had inadequate health status information of their own area, resulting in precise assessment. Many health centers required information from district or provincial level to assess the health status in their responsible area.

1.3.2 The information gained was vertical and fragmented. For example, information in mother and child health, treatment, nutrition, environment, etc. but there was no integration as a whole. In fact, healthy being resulted from various components.

2. Problem from external factors

2.1 There are 121 villages in Dokkamtai District under the responsibility of Dokkamtai Health Centers. Some Health Centers have to be in charge of 11 villages. Thus, it's quit hard to collect data and have complete data.

2.2 The reporting system on birth certificate and death certificate of Dokkamtai Registration Office is conducted by computers. No

returning of birth certificate and death certificate part 3 to District Health Office since then, but they are sent directly to Department of Policy and Plan, Ministry of Public Health.

2.3 Lack of good co-ordination in all levels; province, district, sub district and village.

2.4 Duty allocation and job assignment in the Health Centers are not proper and clear. As a result, information gathering and checking is defective.

In conclusion, problems of information system of Health Centers in Dokkamtai District were the following;

1. Information was gathered for reporting to higher headquarters instead of using in the health center itself.
2. There were several kinds of data to be collected. This causes the officials spending much time on data gathering. As a result, they did not have enough time to improve their services.
3. Information they gathered lack of quality owing to;
   3.1 Information collection was gathered in vertical line, not horizontal line. So it quite hard to integrate.
   3.2 Information was not reliable.
   3.3 Useful and needed information has not been collected.

When comparing to the ideal information, it should be have got 6 main features;

1. Sensitive

2. Simple
3. Reliability
4. Relevancy
5. Timely
6. Validity

Information system in Dokkamtai Health Centers had several defects when compared to ideal information. All information to be gathered must be used to make decisions for improvement rather than keep it in the drawer. That is why I as the researcher need to develop information system of Dokkamtai Health Centers.

To develop information system, it must be done in the form of integration and continuity. The target groups are mainly emphasized by the Health Centers in Dokkamtai in receiving good services. There are five target groups (0 – 5 year-old group, 5 – 14 year–old group, 15 – 44 year-old group, 45-60 year-old group, and over 60 year-old group) to be developed together. However, with some limitations, this study aims at developing the information system of children under 5 year because of;

1. Children with the age of 0 – 5 year are the starting point of the target groups. It we can develop their information, we will be able to extend their information to other target groups.
2. The service standard in the health centers mostly involves with this group, starting from labor, vaccination, growth development follow-up and nutrition.

However, in developing any system for sustened participation by involving persons is needed. Those persons must be aware of the state of problems, finding ways of resolution, planning, working as planned and evaluating. To develop the system continuously and sustainable, the AIC technique is applied.

Reasons for using AIC technique.

1. AIC is a process which is able to develop working team, leading to create co-operation for resource and idea sharing. Although, there are several techniques to create co-operation; AIC is the most appropriate one because it consumes less time and less resources than other techniques.
2. Some health staff in Dokkamtai District had been trained, and the AIC technique was applied in their own area.

AIC Concept

The concept of AIC is mainly focus on an interactive learning through action, which is helps the working team having intellect to tackle their own problem by brainstorming among their team.

AIC - *Appreciation, Influence and Control*, developed by William E. Smith as part of an action research project while consulting with the World Bank between 1978 - 1985, has evolved to meet such challenges.

- **A - Appreciation** - the power we use in relating to the "whole" system.
- **I - Influence** - the power we use in relating to other parts of the system.

- **C - Control** - the power we use with ourselves as an individual part of the whole system.

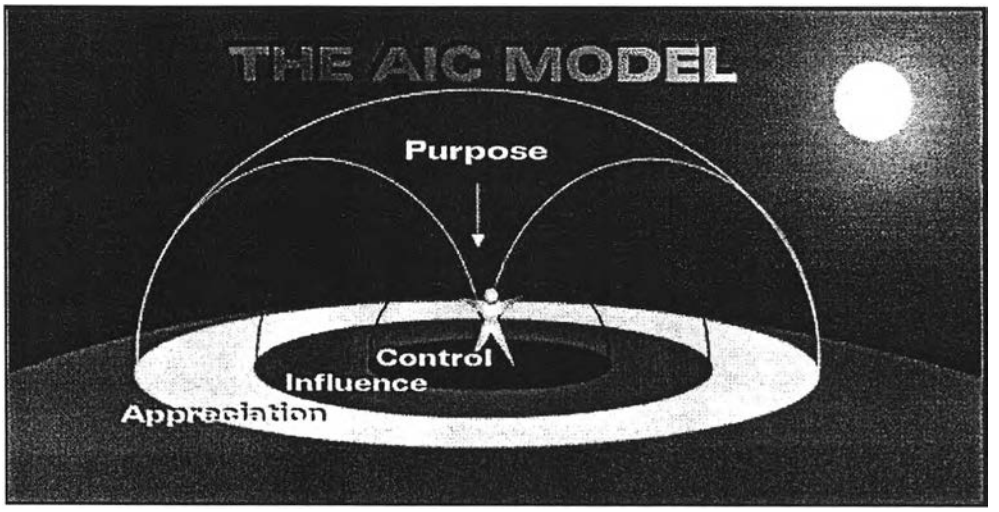
AIC is an organizing process that draws equally from the wisdom of ancient cultural traditions and from modern sciences. It is built on an understanding of the relationship between purpose and power, and ensures that the maximum possible energy is brought to bear on the achievement of any purpose. It is equally applicable at the individual, organizational and community levels. (World Bank, 1999)

The Main Characteristics of AIC

AIC is a philosophy based on an understanding that power relationships are central to the process of organizing. This philosophy states, that purpose, not wealth, authority or knowledge, is the source of power. Identifying the purposes to be served, finding those whose needs are addressed by that purpose, and pursuing that purpose over a whole time cycle provide the potential power underlying successful accomplishment of purpose.

AIC is a model that illustrates the relationship between purpose and power. The model is named after the three fundamental and universal relationships involved in the design of any purposeful system the relationship to the whole (appreciation), the relationship between the parts of the whole system(influence), and the relationship of the individual part to itself (control). Just as the mixing of three primary colors can give millions of different colors, so can the mixing of A, I and C give millions of shadings of power relationships.

Figure 3: The AIC Model



Source : http://www.worldbank.org/html/edi/sourcebook

AIC is an organizing process which consists of:

a) identifying the purpose to be served;

b) framing the power-field around that purpose -- those who have control, influence and appreciation relative to the purpose;

c) selecting those with the most influence relative to the purpose (stakeholders) from the three circles and designing a process of interaction between them; and

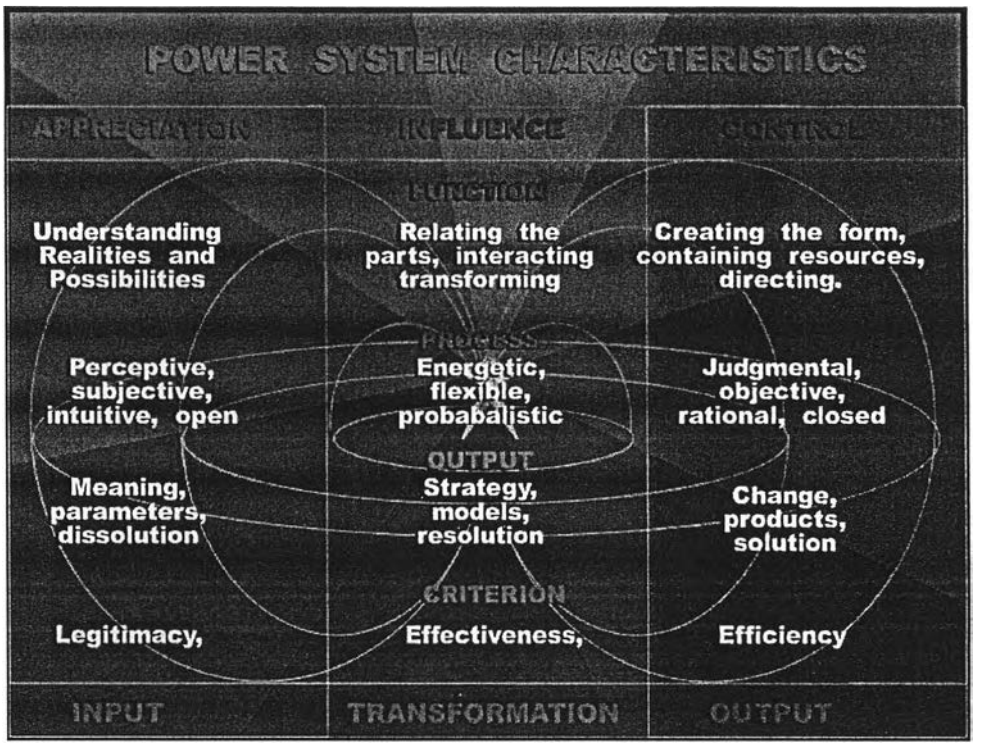
d) facilitating a self-organizing process which ensures that the stakeholders:

1) step back from the current problems to fully appreciate the realities and possibilities inherent in the whole situation;

2) examine the logical and strategic options as well as the subjective feelings and values involved in selecting strategies; and

3) allow for free and informed choice of action by those responsible for implementing decisions.

Figure 4: Power system characteristics



Source : http://www.worldbank.org/html/edi/sourcebook/

AIC is the problem-solving process by following the concept of working together for future. That is why this process needs only the persons with voluntary work.

AIC involves the working process in which workmen, who work together from one system, get trained in three steps;

Step 1 : Appreciation is the first step to make everyone appreciate the others without any conflict or protest.

In this step, everyone can show his feeling or idea by writing or spreading on how he wants to see the future success. This makes everyone express himself freely

reasonably and acceptably. As a result, everyone is feeling happy, warm and optimistic leading to "co-power" among the participants.

In expressing his point of view on how each person wishes to see the success in the future through his imagination with unlimited factors and present situations. This causes him looking forward, looking wider and thinking creative. Thus, seeing things through his own imagination is better than seeing through the real problems or the current hindrance is accepted that using imagination creates the vision easier. Share ideals from all will be their extreme wishes.

Appreciation → imagination → Vision

Step 2 : Influence is a step of using creative thinking, of which each person holds to designate strategy to fulfil their shared vision or shared ideal.

At this step, every one has an equal opportunity to express his own idea to find the key strategy, which is able to achieve their shared ideal.

When all the strategies suggested by everyone in the meeting have been corrected, they will then be grouped, categorized and considered until the important strategy, which every one thinks will meet with their group fulfillment, is selected.

During their consideration on strategy selection, the group will have high interaction; and although they may have some arguments, they will uphold their shared ideal or shared vision. This makes the group likely to save their esprit de corps.

Influence = interaction

Step 3 : Control is a step for making action plan which involves rational, goals, budget, incomes, people in charge of and more details as identified by the group

At this step, each group member will voluntarily select what work to be individually responsible, what work should be given the co-operation, and what work to think and share working plan. All those mentioned would make someone commit himself to control what he is going to do for the achievement of the group's shared ideal.

CONTROL = COMMITMENT > ACTION

AIC would be creative as many sectors participate in the activity with love and compassion. The "A" (APPRECIATION) is love and compassion to others, listening with patience. When participants appreciate each other, it induces "interactive learning through action". Success comes because such development brings "learning". And development requires a lot of learning of all sectors, that is "I" (INFLUENCE), mutual learning generating power. And "C" (CONTROL) is the management through "action plan" directing who do what and how, at what cost from where and what if insufficient.

2.2 Goals & Objectives

Goals

To develop public health information system of population aged 0 – 5 years at health center level in Dokkamtai to more quality, flexibility and utility for the concerning units efficiently.

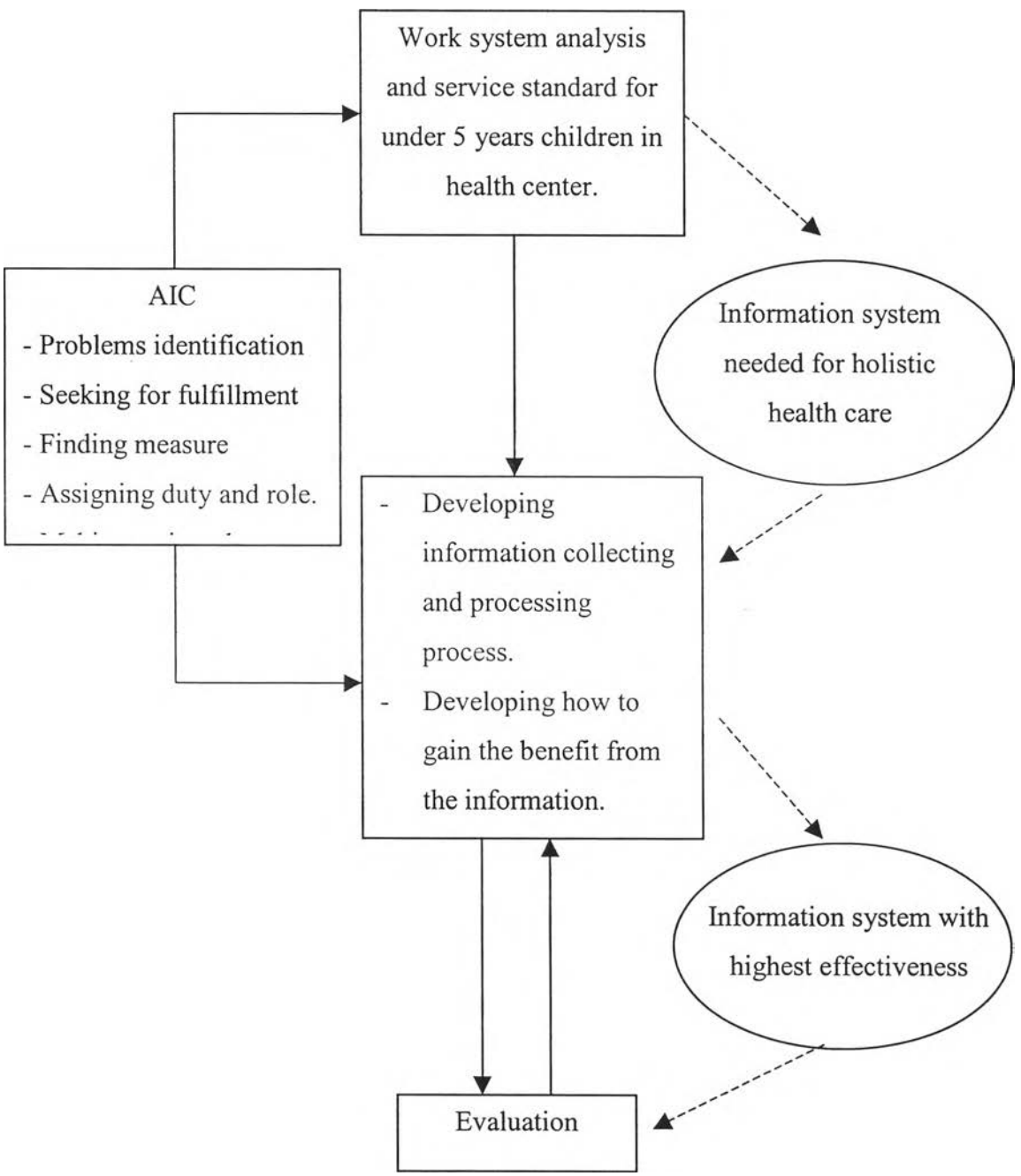
Specific Objectives

1. To develop information system that serves comprehensive and continuum public health service in 0 – 5 years old subject
2. To obtain essential information of target group for a complete, timely, and precise reporting to superior
3. To reduce work load of information by applying minimal work load but high efficiency information technology

2.3 Approaches, Methods, and/or Technique

Conceptual Framework

Figure 5: Under 5 years children health information system development for holistic health care in health center.



AIC technique application for information system development

1. **System analysis** in health center according to the standard, emphasizing 0 –5 years old group

Brain storming of health workers including chief and staff of health center to adjust working system to standard. It gives core activities for 0 – 5 years old children, required resources and management relevant to standard

2. **Objective set up of information use**

Further analysis of what essential information is needed, in detail, for service activity

3. **Apply AIC technique** to formulate information system development plan

Step 1 Compassion power: APPRECIATION consists of 2 sub steps

- Present situation

A meeting of health center staff together with district public health officer to get to know and learn the problem together. Everyone reflects existing situation of information system at health center level. Everyone thinks freely with no analysis, attitude, objection, comparison, etc. with respect to others' difference, to others' values. Then make a whole picture of existing information system.

- Anticipated situation

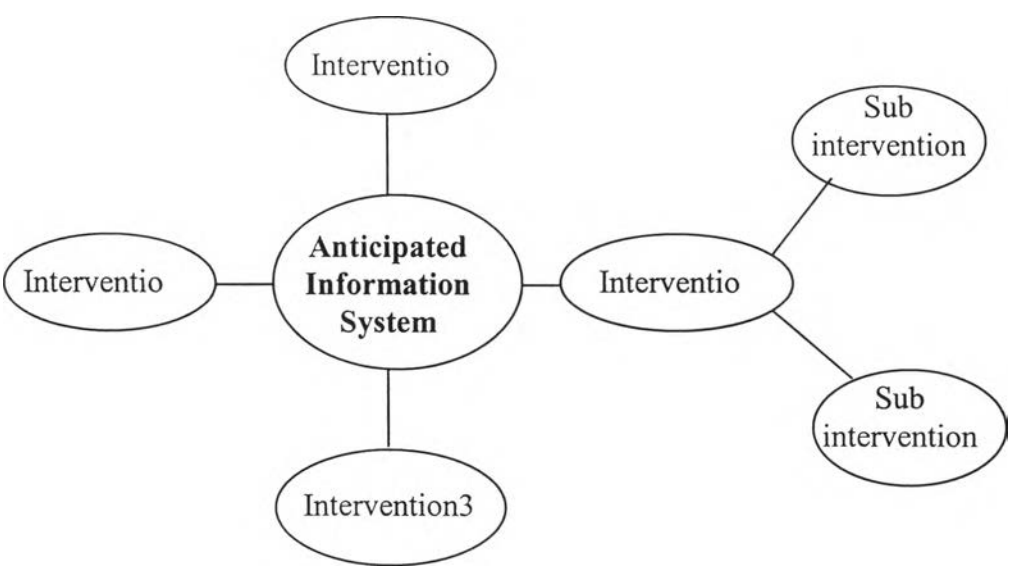
To think together to achieve goal of idealistic information system for a holistic health care for the target group, the 0 – 5 years old. The expectation should be realistic or possible. However, someone's possible could be someone else's impossible depending on circumstance. It could be regarded as imagination. Method or means proposed in this section would be excluded before making a conclusion.

Step 2 Wisdom power: INFLUENCE consists of 2 sub steps

- Important intervention or the key to success

Interaction period or influential period among one another by anticipating who would do what, how and when to achieve the mentioned expectation. This is practical action, not imaginary factor. While brain storming together, intervention would be formulated.

Figure 6: Intervention and sub intervention for Anticipated information



When interventions are obtained, make grouping and comparison, and weigh them to get some most important interventions, 6 – 8 interventions of the meeting for such expectation.

- Form up working group

Self-assignment of who take action of which intervention. New working groups then are formed up voluntarily. Invitation is possible. Then it comes to implementation.

Step 3 Development power: CONTROL

Due to the intervention, the group (even a single member) makes action plan with clearly identified activities, goal, a person in charge and budget (if required). Then present to the meeting. With no objection, it is to be implemented later.

4. Implementation

Implementation as planned is more important than meeting. Participants know what are their own duties designated in the meeting. These are to be processed in order for action.

5. Evaluation

Revise implementation bases on indicator and goal, adjust tactics, and support to diminish obstacle. What succeeded must be further improved. New problem comes up after a success.

2.4 Activity Plan with Timetable

Table 3: Activity plan with timetable

Activities	Duration						Responsible by
	Nov 00	Dec 00	Jan 01	Feb 01	Mar 01	Apr 01	
1. System analysis in health center according to the standard, emphasizing 0 –5 years old group							Health Technician
2. Objective set up of information use							Health Technician
3. AIC workshop Step 1 Compassion power - Present situation - Anticipated situation							Health worker
4. Step 2 Wisdom power - Important intervention - Form up working group							Health worker
5. Step 3 Development power: - Action plan formulation							Health worker
6. Implementation							Staff
7. Monitoring							Health Technician
8. Evaluate							Head of health center
9. Summarized							Health Technician
10.Report writing							Health Technician

2.5 Problems, Conflicts, and Means for Resolution

Table 4: Problem, conflicts, and means for resolution

Problems/Conflicts	Means for resolution
1. Health staff are accustomed to the old way of managing information system. Thus, it is quite hard to change their working habits.	1. All health staff must be aware of their current problems and they must get involved at the beginning.
2. Health staff lack a knowledge of information technology. When computers are introduced to process all information, they may have some problems of using them.	2. Staff must be trained in the use of computer including the use of report/record form.
3. There must be computer software provided for collecting and processing the information system.	3. Asking for the cooperation from the computer experts to develop and improve the recording program and the information processing.
4. Higher cost is paid on new form of recording information.	4. Asking for more budget form Provincial Public Health Office and the fund from each district.
5. In a concept of AIC techniques, frequent sessions conferences are needed and provided for the staff. This will result in time-consuming on working.	5. Making action plan before hand in order to have manpower plan for suiting job appropriateness.
6. Because of member of health staff are limited, not enough for developing the information system at the beginning. They may get more working burden.	6. Adjusting the administration system of health staff to be consistent with their work load and working close together among the health centers in the nearby area.

2.6 Expected Outcome

1. Reliable, accurate and efficient information of target group (0 – 5 years old) at health center
2. The information supports a target group centered public health service
3. The information is useful for decision making for administration and routine service
4. Availability of core information for reporting to district and provincial level
5. Reduction of information work load, then spend more time to improve services

2.7 Budget

Table 5: Budget (by Dokkamtai Health District Fund)

Activity	Budget
1.AIC workshop, 3 times, 20 person each	Material 500 B. each, 3 times, makes 1,500 B.
2.Record form design for target group (0-5 year old)	Material 10,000 B.
3.Comprehensive data collection in initial period	Allowance 5,000 B.
4.Follow up meeting, 4 times	Share budget with regular meetings
5.Final meeting	Material and handouts 500 B.
6.Documentation of outcome, 50 copies	Material 5,000 B.

Total cost 22,000 Baht