

## **Disabilities Surveillance and Preventive System**

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### **Abstract**

This study was aimed to investigate the main causative factors of disabilities, the theoretical and practical or being preventive and surveillance system and its related factors. Furthermore it also suggests the appropriate preventive and surveillance system to tackle the disabilities. Based on a descriptive study approach, the study was greatly implemented on documentary analysis with practical seminar among stakeholders who were key informant persons.

The main causative factors were come from internal factors such as congenital defects, individual improper behaviors and external or disability environmental factors such as hazardous social conditions and pollutants in physical environments. The disabilities could be happened from the only one main factor or from interactions between both of them.

Generally these causative factors of disabilities were explained or analyzed

according to the biomedical model but except for the psychological or behavioral disability and the accidents which were employed by using of the bio-psycho-social model and the epidemiological triad respectively.

The surveillance of disabilities-related diseases was initially manipulated from the central policy process and measures so called top-down policy through its hierarchical line of command under the bureaucratic system. In order to deal with the major diseases, the integration of net-working groups or stakeholders was applied to solve the problems. This was demonstrated to (1) The National Disease Network Surveillance System for twenty-nine inspected diseases (2) The Surveillance System for inspected diseases (3) The Model Development for Collaboration and Network of Occupational Health and Safety Management at Provincial Level. Implications of these were illustrated to some good models for the solution to disability problems.

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The prevention of disabilities was principally associated with life spans, disability types and contexts of accidental environments. According to the life spans and disability types, the preventions were based on family planning, maternal and child health, health promotions during normal living and rehabilitations in case of persons with disabilities. These were focused on health educations and management of suitable environments for healthy livings. To prevent the disabilities from work and transportation accidents it was employed the concept of 3 E (engineering, education and enforcement) to mobilize the programs or activities to create the right knowledge, attitude, understanding and awareness to the principle of safety practices. It was also included to the law enforcement for illegal practices.

### บทคัดย่อ

งานวิจัยครั้งนี้มีวัตถุประสงค์ เพื่อศึกษาสาเหตุของความพิการ ระบบการเฝ้าระวัง และป้องกันความพิการที่เป็นอยู่ ปัจจัยที่มีความสัมพันธ์กับระบบการเฝ้าระวังและป้องกันความพิการ และนำเสนอรูปแบบที่เหมาะสมของระบบการเฝ้าระวังและป้องกันความพิการ ใช้รูปแบบการวิจัยเชิงพรรณนา ใช้วิธีวิเคราะห์เอกสาร (Documentary Analysis) ร่วมกับการจัดประชุมทางวิชาการกับผู้เกี่ยวข้อง แหล่งข้อมูล ได้แก่ ตำรา เอกสารที่เกี่ยวข้องกับงานวิจัย

ผลจากการศึกษา พบว่า สาเหตุของความพิการจะมีที่มาจากปัจจัยภายในบุคคล (Internal Factors) เช่น ความบกพร่องทางกรรมพันธุ์ พฤติกรรมเสี่ยงต่อการเกิดความพิการ และปัจจัยภายนอกบุคคล (External Factors) ด้านสภาพแวดล้อมทางสังคม สิ่งแวดล้อมทางกายภาพ อาทิ สภาพแวดล้อมทางสังคมที่ไม่เหมาะสม มลพิษจากสภาพแวดล้อมทางกายภาพ หรือเกิดจากปัจจัยภายในและภายนอกพร้อมกัน โดยทั่วไปแล้ว การพิจารณาสาเหตุความพิการจะมุ่งเน้นการอธิบายตามรูปแบบชีวการแพทย์ (Biomedical Model) ยกเว้นความพิการทางจิตใจ หรือพฤติกรรม ที่อธิบายตามรูปแบบชีว-จิต-สังคม (Bio-Psycho-Social Model) และความพิการจากอุบัติเหตุที่อธิบายตามแนวคิดปัจจัยสามทางระบาดวิทยา (Epidemiological Triad)

จากการศึกษา ไม่พบระบบการเฝ้าระวังความพิการโดยตรง แต่พบระบบการเฝ้าระวังโรคติดต่อและโรคไม่ติดต่อที่เป็นสาเหตุสำคัญนำไปสู่ความพิการภายหลังรวมทั้งระบบการเฝ้าระวัง การบาดเจ็บจากอุบัติเหตุ การเฝ้าระวังโรคติดต่อและโรคไม่ติดต่อที่เกี่ยวข้องกับความพิการ จะมีการกำหนดเป็นนโยบายและมาตรการดำเนินงานจากส่วนกลางที่เรียกว่า เป็นการกำหนดนโยบายดำเนินงานจาก ข้างบนลงมาข้างล่าง (Top Down Policy) และกรณีที่โรคนั้นเป็นปัญหาสำคัญของประเทศจะใช้รูปแบบการบูรณาการระหว่างหลายหน่วยงานทำงานร่วมกัน ได้แก่ 1) การเฝ้าระวังโรคตามเครือข่ายงานเฝ้าระวังโรคที่ต้องทำการเฝ้าระวัง 2) การดำเนินงานการเฝ้าระวังการบาดเจ็บ 19 สาเหตุ 3) โครงการพัฒนารูปแบบการประสานเครือข่าย

การดำเนินงานอาชีวอนามัยและความปลอดภัยในระดับจังหวัด ที่ถือว่าเป็นรูปแบบที่ดีด้านการแก้ไขหรือป้องกันปัญหาความปลอดภัยในการทำงานระดับพื้นที่

ด้านหลักการป้องกันความพิการ จะมีความสัมพันธ์กับช่วงวัยของชีวิต ประเภทของความพิการ และบริบทของสิ่งแวดล้อมที่เสี่ยงต่อการเกิดอุบัติเหตุ การป้องกันความพิการตามช่วงวัยจะเกี่ยวข้องกับการวางแผนครอบครัว การอนามัยแม่และเด็ก การส่งเสริมสุขภาพ ในภาวะที่ร่างกายปกติและเมื่อเกิดความพิการแล้วจะต้องทำการฟื้นฟูสมรรถภาพมิให้เกิดความพิการซ้ำซ้อนหรือรุนแรง ในการป้องกันความพิการประเภทต่างจะใช้กระบวนการประชาสัมพันธ์ สร้างความรู้ ความเข้าใจทั้งกับกลุ่มเสี่ยงและกลุ่มคนปกติ รวมทั้งการจัดการสภาพแวดล้อมให้เหมาะสม ด้านการป้องกันอุบัติเหตุจากการทำงานและการจราจรจะใช้หลักการ 3 E ได้แก่ 1) การใช้หลักวิศวกรรมออกแบบสิ่งแวดล้อมให้มีความเหมาะสม ปลอดภัยต่อการทำงานและการจราจร 2) การให้การศึกษา การฝึกอบรม แก่ทุกภาคส่วนเพื่อสร้างความรู้ ความเข้าใจที่ถูกต้อง รวมทั้งการตระหนักต่อความปลอดภัย และ 3) การบังคับใช้กฎหมายกับผู้ฝ่าฝืน ไม่ปฏิบัติตามกฎหมาย กฎระเบียบการทำงานและการจราจร

## **Rational and Significance of the Problem**

From reviewing of Thai disability situations, it was found that the proportions of disabled persons were increasing and this came

from many main causes or factors. We could see that the Thai population age structure was changing as shown to the aging group with many mental and physical degradations were increasing statistically. Along with industrialization the manufacturing and tourist industrial sectors were growing and expanding and these were potent contributors affecting various disability-related injury accidents. There were also great changes of Thai society from the ways of agricultural lifestyles to urban competitive lifestyles and intensive industrial works causing to mental disorders and injured workers by machines. On the other hand, under the consumerism ideology of capitalist society and more advances in medical science there was also an epidemiologic changing transition from communicable diseases (CD) to non-communicable diseases (NCD) or chronic diseases that lead to the disabilities. Its reasons are therefore complexities and multifaceted and needed to solve holistically.

As mentioned above, it is necessary to investigate or study the main causative factors that create the disabilities in Thai society and also analyze the disability surveillance and preventive system. These are aimed to reduce incidence or prevalence rates of disability population and its negative impacts. Therefore the Thai government was forced to declare these issues to be the important policy legislation according to the Disabled Persons Rehabilitation

Act of 1991 in section 12(3) and the Disabled Persons Rehabilitation Plan of National Health Development Plan 7<sup>th</sup>-8<sup>th</sup>. Specifically seen from the National Economic and Social Plan in chapter 6, it was proposed to many specific deprivation groups and was clearly identified the one important issue to enrich the capabilities of persons with disabilities namely “ To provide any preventive measures for the disabilities continuously and intensively, in addition, it should have the inspective and surveillance system for the disabilities ranged from pregnancy, during and after birth delivery accompanied with the following, other life spans. It should have any research or study to investigate the main causes of disabilities and its preventive actions based on being disabilities-related organizations. Along with the above the National Development Plan for Quality of Life of Disabled Persons 2001-2006 was set up the one strategic action for enhancing the capabilities of disabled persons through the establishment and development of the disability surveillance and preventive system. This is ensured to contribute the surveillance and preventive system with effective ways. However, it was found that there was no any research studying the disability surveillance and preventive system with systematic approaches therefore this research is aimed to study the disability surveillance and preventive system as followings:

### **Research Objectives**

1. To explore the main causes of disabilities
2. To study the existing disability preventive and surveillance system in the present.
3. To investigate the main causative factors influencing the preventive and surveillance system
4. To provide some recommendations for developing or establishment of the suitable surveillance system.

### **Research Methodology**

This study was a descriptive research mainly based on documentary analysis and supported from the policy meeting among disabilities-related stakeholders or key informant groups. And these groups would check up or validate the data or the findings, including provide the policy recommendations. The main studied sources were textbooks, journals, research reports, theses, annual reports, seminar or meeting reports and internet data... et al. And these sources were sought out from many libraries of educational institutions and government organizations. Based on the analysis process, it was proposed:-

1. To set up the unit of analysis which is the government and non-profitable public organizations accompanied by the research

documents related to the disabilities and its surveillance and preventive system.

2. To construct instruments for keeping the data.

3. To bring back the collected document data to pass the editing process as to separation, categorization and grouping and after that the edited data was analyzed and written descriptively. It was based on the method of content analysis. The main parts of analyzed data were prepared and arranged to present in the academic meeting for its recommendations and critique. These processes were importantly operated to reply the objectives.

4. To make up the synthesis and conclusion again.

5. To arrange and publicize the completed research report.

### **Results of This Study**

From the results it was found that the main causes of disabilities were divided into 4 categorizations as follows:

1. Consideration of Disability Causes according to Social and Medical Aspects

From the social perspective, its significant areas are focused on social developments and changes in different transitions and its impacts on the disability conditions. It also considers to how many social environments or factors influencing on the disabilities in different social contexts. Rather on

differences from the earlier perspective, the biomedical model will prefer to pay attentions surely in the relationship between physical environments and the disabilities.

2. Consideration of Disability Causes based on Internal and External Factors

From this aspect, the causes of disabilities are analyzed in term of internal and external factors. For examples of the internal and external factors, it could be shown as impairments of personal gene and negative impacts from environmental pollutions respectively.

3. Consideration of Disability Causes under Different Life Spans

Based on this perspective, it will consider the risk factors of disabilities based on different events of life spans. At the time of pregnancy, birth delivery and life after, the risk factors of disabilities at the childhood time were mainly associated to congenital deficiencies, infectious diseases happened to pregnant woman and child in womb including to improper hygienic behaviors of mothers and care givers. During adolescent and adult life, the risk factors were related to accidental injuries in workplaces and transportations.

4. Consideration of Disability Causes according to 5 Types of The Disabled Persons Rehabilitation Act 1991

To consider the causes among the five disabled groups, it was appeared that (1)

Persons with visual disabilities were mainly happened from genetic , infectious diseases and accidental problems (2) the aural disabilities were from the impairment of conducting ear channel (infectious disease , injury toxic & drugs and accidents) or congenital dysfunctions of hearing nerve (3) Persons with psychological or behavioral disability were unsuitable family caring, infectious diseases, malignant tumors, vascular diseases and injuries (4) The physical or movement impairments were diseases of nervous and muscular system, orthopaedic defects and congenital brain impairments (5) The intellectual and learning disability was genetic and mutational changes and biological factors such as infectious disease pathologies at birth. It was also included to the social factors such as poor economic conditions, inappropriate social relationship in family life and shortages of social opportunities.

To summarize the main causes of disabilities it was crucially perceived and interpreted under the biomedical model perspective. But this was except for the explanation of mental disorder because of its causes were analyzed and explained by using of bio-psycho-social model. Similarly the disabilities of accidental injuries were elucidated with the Epidemiological concept named “Epidemiologic triad Factors (agent, host and environments)”.

### **Disability Surveillance**

Based on the theoretical concept the disabilities surveillance was similar to the epidemiological concept. Its processes were comprised of inspection, observation, consideration and analyzing the incidence and prevalence rate of diseases and the related factors. And the step was started from recording, collection, analyzing, interpretation and distribution of analyzed and interpreted data to the users. These processes were manipulated continuously and systematically.

From reviewing of literatures, it did not have any direct disability surveillance. At being the research time, many reviewed researches and studies were only cross-sectional study employed to survey general health and social welfare service conditions among the disabled population. When looking at its more details, it was found that under the national network of disease surveillance there were many surveyed and inspected diseases that can cause impairments or disability pathologies as to Japanese Encephalitis, Measles, Poliomyelitis, Occupational diseases (insecticide, lead, Manganese, and Mercury poisonings, Pneumoconiosis). Physical hazards from works such as noise induced hearing loss and muscular-skeletal disorder in addition to accidental work injuries. The severities of accidental work and transportation injuries have to induce or have much influencing on the

government to set up the national injury surveillance. Then we can say that some of the diseases being surveyed and inspected nationally was just the one activity of disability surveillance.

### **Factors Related to the Disability Preventive and Surveillance System**

To consider the factors related to the system, it was categorized into macro social, community, organizational and personnel factors as follow:

**Macro Social Factors:** There were many macro factors influencing on the system as shown to:

1. Changing of social, economic and cultures in industrialized society giving effects to the disability pathology and its surveillance and prevention.

2. Changing of politic climates among different government periods.

3. Civic engagements both in internal and external country especially to the movements of international organization related to the disabled persons and net working of disabled persons.

4. Responsiveness of Thai governments to the surveillance and prevention

**Community Factors:** The community factors related to the achievement of the system were to:

1. Community involvements from many local leaders, community organization, non profitable organization and especially to the supporting from Village Health Volunteers (VHVs).

2. The performances of VHVs were manipulated from three factors as to the predisposing factors (knowledge, attitude, value of VHVs to the surveillance and preventive tasks), the enabling factors and the reinforcing factors(the social and information supports from government personnel and community organizations particularly to the changing roles of the personnel from dictator to supporter and enabler.)

### **Recommendation for Disability Solutions**

1. To drive the disability surveillance and preventive system with efficiency and effective ways it should has the national net working of computer data base system so called "Service Link" to link any activity of disabilities through the computer online system ranged from community, districts, provincial and to national level.

2. The disability surveillance and preventive system must be conducted by the government organizations. The government organizations must play their leadership or crucial roles on the surveillance and preventive system with their active and integrative

approaches. To launch the system, Ministry of Public Health should co-work or link with Ministry of Social Development and Human Security to set up the net working system.

3. It should promote and support local administrative organizations to participate on the intensive investigation and registration process. Under the process, all of local administrative organizations should establish their service link center so called “One Stop Service” to provide all of disability rehabilitation activities and services comprehensively.

4. The government and other disability-related organizations should strengthen the community organizations to set up their data base of disabilities in community and it must be linked to the data base of national disease surveillance and preventive system. Based on their self-reliance this will help them to run the disability surveillance and preventive system within efficiency and effectiveness practical ways.

### **Recommendation for Mobilizing Healthy Public Policy**

Based on its macro-social structures, the problems of disabilities are complexities and difficult to solve. Only the government organizations and their vertical line of command under the bureaucratic system, they can not solve the problems efficiently. To solve the problems it therefore needs many involvements or inter-sectoral collaborations from many

sectors (government organizations, profitable and non-profitable private organizations in addition to civic groups or engagements of disabled groups) to deal with the activities continuously and under the horizontal line of social relationship. And these groups would co-work together and are mobilized under the processing of healthy public policy.

Following this it is the process of how to empower the community dwellers (Village Health Volunteers and CBR workers) to drive the surveillance and preventive system in community articulate or net link to the government system started from the levels of community, district, province to nation. Along with the hierarchical line of National Disease Net Work Surveillance as shown in figure 1

From mention above this research wants propose the national disabilities surveillance and preventive system which is appropriate for the Thai society as follows:

### **National Disabilities Surveillance System (NDSS)**

To solve the problems happened from no have disabilities surveillance and preventive system in Thailand, this research want to present the one appropriate system so called National Disabilities Surveillance System which is created and linked on National Network Connection of computer online system. Based on this it should have the process of data base



arrangement through Management Information System-MIS on the network connection among 8 Ministries as Ministry of Public Health (MOPH), Ministry of Social Security and Humanity, Ministry of Interior, Ministry of Technology and Information, Ministry of Transportation, Ministry of Education, Ministry of Labor, and Ministry of Industry. And these organizations together should play their roles to mobilize the system.

Based on its nation network diseases surveillance and preventive system, Ministry of Public must declare the policy of disabilities reporting and this should be one component of the system. After that the ministry must perform its actions matched with the policy as follows:

- 1) For the definition of disabilities and its causes, they should be broadly defined more than the medical definition and covered to other social, cultural and economic dimensions. And the government personnel, community leaders should be informed and understood about this.

- 2) The surveillance report of disabilities should be added into the surveillance reporting of accidental causes and 19 injury causes which must be reported monthly to Bureau of Epidemiology, Ministry of Public Health.

- 3) The disabilities surveillance reporting system should be added into the network system of disabilities surveillance started and linked from community, sub-district,

district, provincial to national level. Under the network system, each of the organizations in hierarchical level must built up its epidemiological database of disabilities surveillance. They are also reported the disabilities epidemiological reports to the superior commanding organizations of each hierarchical line of command. Principally the lines of reporting are divided into the line of medical epidemiology and public health reporting system and the line of social epidemiology system. Under the former line, it will be operated under the epidemiological reporting system of Ministry of Public Health and the another line will be under the social surveillance system of Ministry of Social Security and Humanity and the network system of Tambon Administrative Organization. These details could be shown in figure 1.

Furthermore the organizations at each area and different strata-level can directly analyze the data by itself. The process of epidemiological data analysis could be presented as follows:

- 1) The one operational team for disabilities surveillance must be firstly established to survey and inspect the disabilities conditions in communities with actives approaches. This team is shaped to work under inter-setoral collaboration between many alliances and integrated approaches. After that the operational planning and its management are

formulated under the participatory processes and by using of the community service link center as working place.

2) The processed of planning and management of disabilities surveillance as

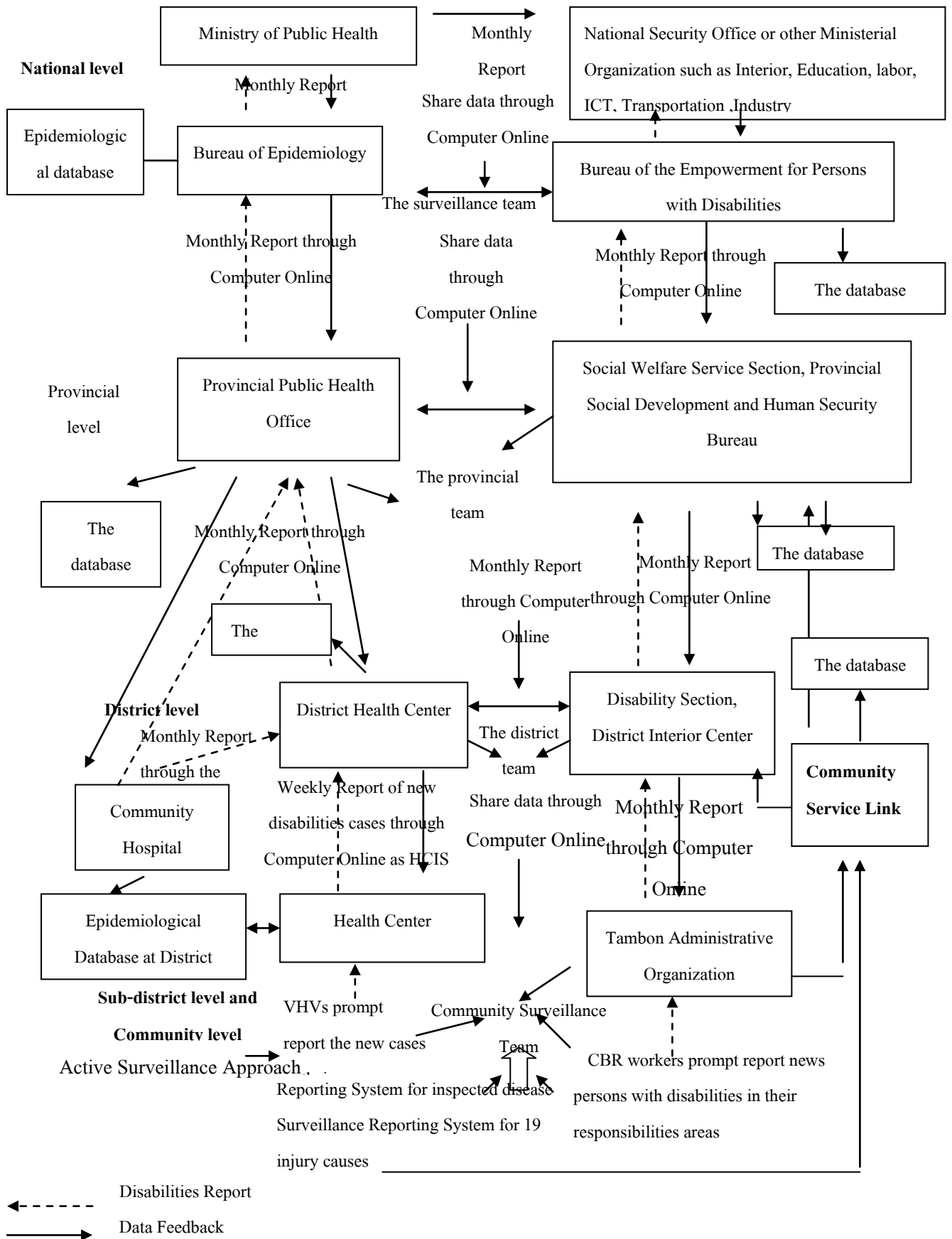
- The management of disabilities surveillance report

- The manipulation of planning and management for disabilities surveillance, and this should be started from identification of the objectives for disabilities surveillance, targeting of specific areas, risky groups, important health issues or surveyed issues and in additional the manipulation of characteristics of epidemiological reported data. The reporting time and the developing of database for its connection through computer online, the process of disabilities investigation and analysis for its causes are also set up too. After that the team

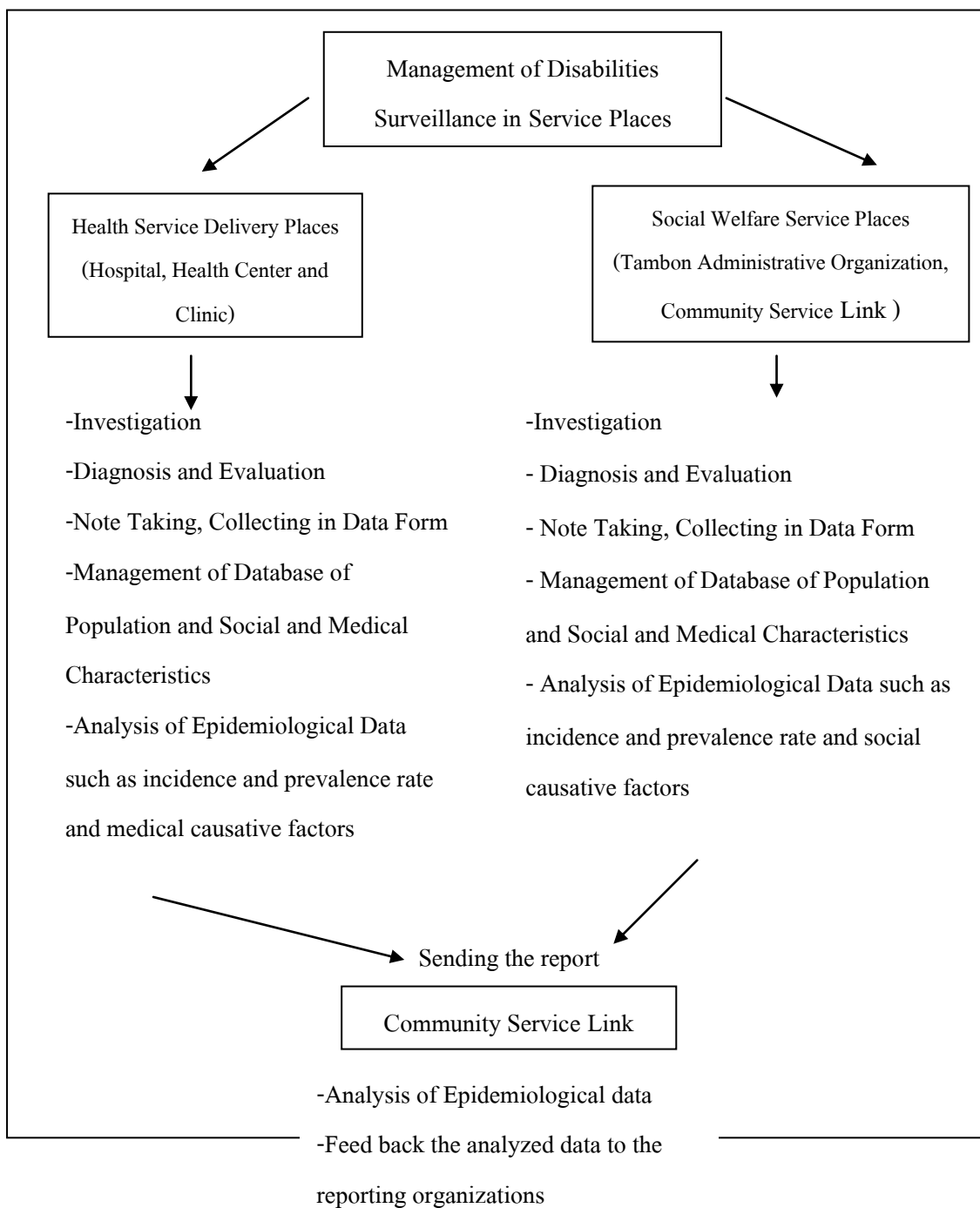
will perform its functions according to the plan such as the collected data is analyzed, noted in the data form and kept in database system. The report is sent to the superior and related organization under the networking line of computer online. The reported data is used for the disabilities preventive actions. All mentioned above are depicted in figure 1.

Besides it is found that the passive approach can be also performed under the service places of Tambon Administrative Organization and Community Service Link Center too. Differently these organizations will focus and follow up to study, analyze more the social causative factors more than the medical causes of disabilities. The details can be shown as figure 2.

**Figure 1:** Demonstration of National Disabilities Surveillance System, NDSS)



**Figure 2:** Demonstration of Passive Disabilities Integrated Surveillance Model in Service Places



## **National Disabilities Preventive System (NDPS)**

When considering to the appropriate disabilities preventive system, it must be linked with the surveillance system and the preventive system (as important users) must use the surveyed data to make decision planning for solving the problems of disabilities in different strata-levels. Similar to the surveillance system, the preventive system must employ the mechanism of bureaucratic system integrated with the people participation for mobilizing the preventive programs. The steps of actions are proposed as follows:

1) Construction of Public Policy for Disabilities Prevention: Firstly the policy must be constructed to awake the knowledge, understanding and awareness of all sectors to the problems of disabilities, the importance of disabilities surveillance and prevention programs. If the sectors have their consents about this issues, it will create social movements to construct the public policy for solving the problems of disabilities through the prevention programs. The programs must be modified to solve the problems with integrated approaches and holistic ways. To do like this it will be mobilize under the arranged public seminar, meetings, special occasional events of sharing knowledge and opinions about the issues. The health personnel or community leaders can play prominent roles to be a facilitator of the public

meetings and dialogue. Besides the public media such as television, printed materials can be also employed to mobilize the policy too.

2) Creating of Operational Team for Disabilities Prevention at Community Level: Following the above and based on the participation of many alliances, the team is created and organized to plan and manage the plan with integrated approaches. All are provoked to analyze the epidemiological data especially in the main causative factors of disabilities, the seeking of alternative ways for its solution, the strategic management and measures. After that the team will perform its functions to tackle the problems according to the operational plan. The results are evaluated, conclude and its conclusions are used to set up the future plans and measures. All the processes are practiced under the supporting and supervision of the directing team. In case of the success program, the technological knowledge or innovative knowledge will be transferred through academic meeting, public meeting or computer online for the application of other communities.

3) Arrangement of Directing Team: The directing team is constructed from many administrators of ministerial organizations, community leaders and the representatives of disabilities. The team is organized and managed to formulate the policy and strategies to direct and supervise the operational teams.

Besides the team also provide the innovative technologies and knowledge picked up from the success communities and including to other resources for supporting the disabilities preventive actions of operational teams at

### **Recommendation from this study**

1. To implement the preventive and surveillance programs with its efficiency and effectiveness ways, we must establish its networking organization based on computer data online so called "Service Link". And this should be endorsed to be the national disabilities surveillance which links all the surveyed and inspected data along the networking line ranged from local communities, districts, provinces to central government organizations.

2. All of Ministries and other organizations related to the disabilities such as Ministry of Public Health, Ministry of Social Development and Human Security, Ministry of Interior, Ministry of Education, Ministry of Information Communication Technology-ICT, Ministry of Transportation, Ministry of Labor, Ministry of Industry should co-work together and play its prominent leadership roles to approve and strengthen the system within active integrated approaches under the service linkage.

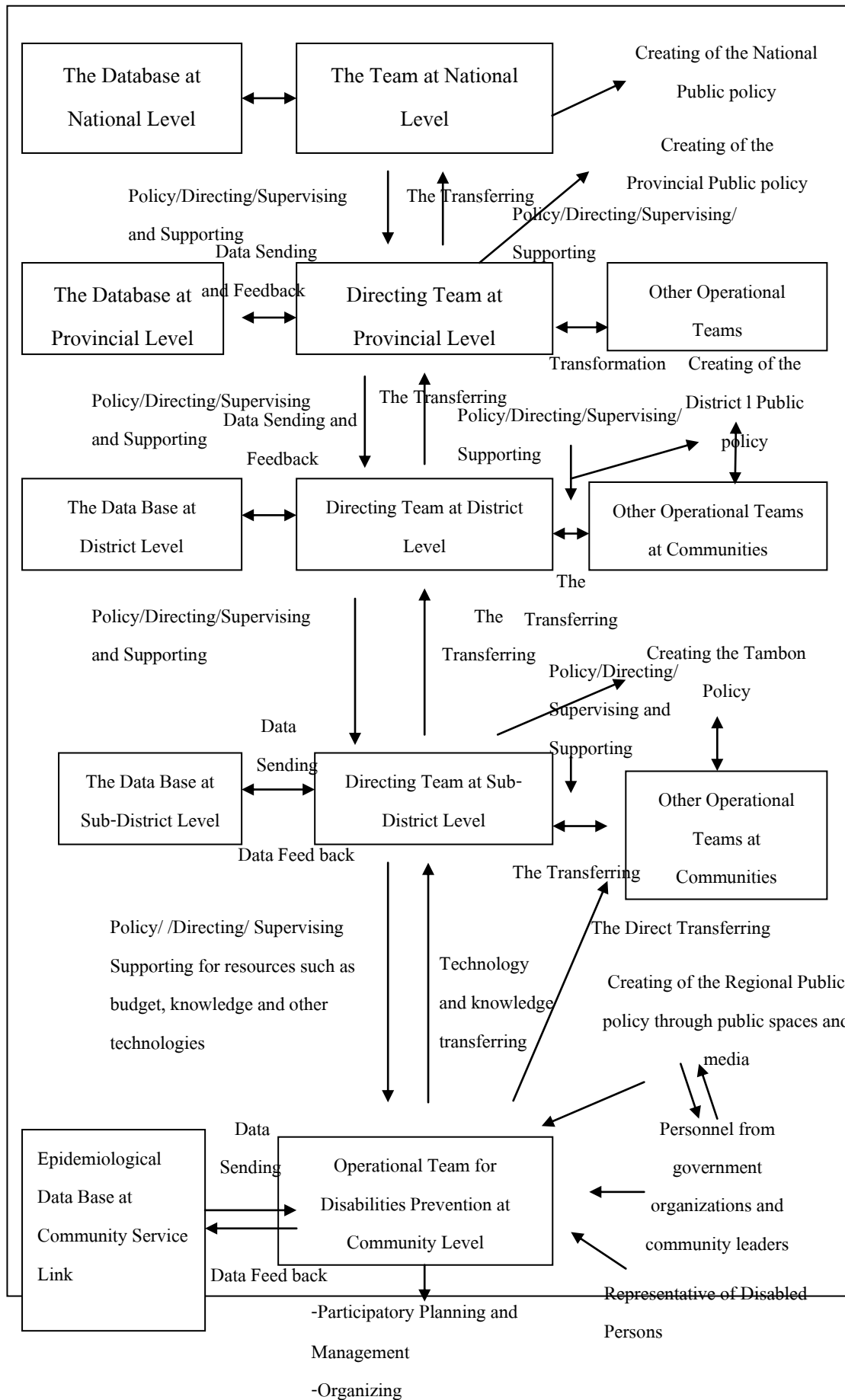
3. It should have local administrative organizations to participate and foster on the processing of investigation and registration for

different strata-levels. The technologies can be transferred through academic meetings, computer online and seminar. All are demonstrated in figure 3.

the disabled persons. All of them must build up their service link center (One Stop Service) in order to provide all the services to improve the disability activities. Moreover the service link center could develop its data base system from the being data base system of Bureau of the Empowerment for Persons with Disability, Ministry of Social Development and Human Security. To do like this, it will empower the community dwellers to mobilize the disabilities preventive and surveillance system at the community level which could be linked with the district, provincial and national system respectively.

4. The government and other disability-related organizations should strengthen the community organizations to set up their data base of disabilities in community and it must be linked to the data base of national disease surveillance and preventive system. Based on their self-reliance this will help them to run the disabilities preventive and surveillance system within its efficiency and effectiveness practical ways.

**Figure 3: Demonstration of National Disabilities Preventive System**



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