ABSTRACT

The study of the direction of national policy and a master plan for integrated water resources management, as well as reduction of the impact of natural disasters, is undertaken by exploring documentation and analysing the relevant water demands and problems in the entire country. The patterns and forms of governmental management and the format of the data related to water issues are analysed to determine the problems of using these methods effectively in emergency situations. The development of the organisational structures and organisational networks are examined, including the laws that support the management of water resources in both normal and emergency situations. The proper insurance and compensation for disaster victims is calculated by using mathematical models to assess the damage and justify insurance premiums. The socio-economic problems and infrastructure of communities affected by water-related disaster are also studied. The cases of floods, droughts, landslides, and water pollution are covered. In addition, drought index is investigated by using a framework that should be used as a reference and a standard for tracking drought in the entire country. The results obtained from the five sub-research projects have been reviewed by senior executives, academics, and scholars from various sectors. The appropriate policy and key plans are developed and adjusted by analysing the advantages, disadvantages, opportunities, and barriers, which can be summarised as follows:

To determine the unit direction of water resources management by allowing all sectors that might be affected by the management of water resources to share their ideas and agree on policy and practice at all levels. In particular, those people who live in the affected areas should be encouraged to adapt to the possible impacts of economic and social development, as well as natural disaster. Furthermore, the efficiency of both quantity and quality of water usage is promoted in all sectors on the basis of the physical environment and hydrology, besides the lifestyle of the communities.

To set up the national water data archive and to speed up the development of water data integration, which consists of 1) content of data, 2) linkage, 3) data analysis system, and 4) information dissemination. In order to manage accurate information for decision-making, the following should be considered: 1) development of long-term weather forecasting, 2) improvement of the measurement processes and collection of field data for accuracy and reliability, 3) development of knowledge and appropriate technology, and 4) development of reporting in the form of maps for decisions of executives and people in the risk areas.

To improve related laws and acts for efficient water resources management and to develop major organisation structures by setting up a Ministry of Water Resources and

organisation networks. The major organisation should be in the form of a committee with representatives from all parties. The establishment of the National Board of Policy and Management of Watershed is suggested to determine national policy and strategic plans for water resources management both in normal and crisis situations covering floods, droughts, water shortage, flash floods, landslides, and wastewater. The Office of the National Board of Policy and Management of Watershed is structured within the Ministry of Water Resources and serves as a host and coordinator between the agencies involved and determines the system of the national water data archive.

To promote and strengthen the organisation networks for disaster management, supporting the capacity action plans for water resources management, protection, and disaster relief. It is advised to determine the structure of protection and water-related disaster relief organisations that enable the coordination between the watershed committee, districts, and provinces located in that watershed. This should be staffed by the Department of Water-Related Disaster Prevention and Mitigation, experts and researchers from research organisations and networks who contribute as consultants. It is also necessary to establish a Joint Information Center, which is a center of information at all levels, including the communication technology plan. The funds may be supported by the Water Resources Fund to ensure that the watershed committee works effectively. In addition, this offers support for proper water resources management for all situations.

Build the awareness of people eager to learn and to become involved in disaster management by motivating communities to participate and to receive economic benefit from the funds of water resources management through the watershed committee system. This further involves promoting the strength of organisation networks of the public sector, and encouraging people to become self-reliant and to progress to water network groups. Moreover, local scholars and indigenous knowledge can help in the conservation of water resources; the structure of the watershed committee strengthened in order to serve as the link organisation between the national state agency and public sector; and an up-to-date community database related to the management of water in the community. Lessons can be learned from the past to find solutions that determine the possible impact of disasters on communities, and education promoted by adding water and disaster management content to the curricula of primary and secondary schools. The creation of local programmes in disaster management can also help the community become aware of the mapping, urban planning, water resources, and water-related disaster.

To promote continuous researches that supports the adaptation of impacts of change, both natural and socio-economic developments including disaster situations at the community, watershed, and international levels. Examples of research, which can be

applied effectively in practice should be presented publicly and used to determine policy and strategy at both the community and national levels. Some examples of interesting research include the development of mathematical models for insurance that cover water-related disasters and are appropriate to the type of geometry, plant, and level of disaster, the development of weekly composite drought index that covers all drought levels and is linked to a database of agencies involved, etc.

To provide an insurance and compensation system that has a reasonable rate and is justified. The premium of water-related disaster is dependent on risk levels, which differ from conditions of farmland. The predicting of disaster risk must be reliable. The five provinces most at risk are Suphanburi, Ayutthaya, Ang Thong, Sra Kaeo, and Chachoengsao. Preparation of disaster public policy for sustainability is needed, and it is advised to study the feasibility of establishing a national fund to help victims of water-related disasters using the insurance principle that is appropriate to damages, and which is not an equal insurance. Furthermore, an insurance system should be promoted in agriculture and other sectors taking into account the risk levels of the areas, as well as a system of organisation established that allows private involvement to support agricultural insurance due to disaster. Both local organisations and Bank of Agriculture and Agricultural Cooperatives advise farmers on the creation of living conditions, encouraging them to take compulsory insurance to reduce the government's burden of compensation.

Key words: Policy / Water resources management / National archives / Water-related disaster / Institutional structures / Sustainability / Damage assessment / Mathematical model / Damage compensation / Experience and guidance / Self-reliance / Drought index