

Paper on Japanese National Governance
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“Capacity Development for Integrated Flood Risk Management in Pakistan”
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1. Integrated approach to flood risk management

A. History of Flood risk management in Japan

In around 2000 years ago, after a long time for hunting-gathering period, Japanese civilization changed on the base of paddy cultivation. Paddy fields were developed along the river. The Irrigation using the weir was started from very early period, even though there was also rain-fed cultivation. After the mobilization of a large numbers of people became possible, the reservoir/pond construction period came. In this period drought was very severe incidents. About 400 years ago, shifting east of Tone River and many river improvements works done by feudal and clan government. According to this, the paddy field, rice products and population were increased. There was also the limit because of depending on human power and the primitive technology. Mt. Fuji (1707, 1770) and Mt. Asama (1783) erupted and rivers were covered by sediment. Drainage condition of alluvial plains was still very bad nation widely not only Mt. Fuji and Mt. Asama’s eruption affected area. There was flood almost every year. In Tone River basin, there were 130 flood disasters during 300 years period between 16c to 18c. Among them, floods in 1742, 1786 and 1846 were big ones. 1846’s flood brought the damage to Edo (former Tokyo)also. Due to this the newly developed paddy fields were not always successful to produce expected products.

Japanese modern flood management works started from inviting Dutch engineers in 1872 (meiji 5) about 140 years ago. In 1896 (m 29); river law, in 1897 (m 30); Sabo (sediment control) law were enacted by Meiji Government. Due to them, administration and financial system were established. In 1910 (m 43), Meiji Gov. constituted Ad hoc River Council and Flood managing special account. This was the starting point of systematic flood management works. From then until World War II (1942), flood management plans were executed three times. During the war, flood management works were stagnant. After that, there were continual Typhoon hazards, such as, Catherine (1947), Ion (1948), Kitty (1949), and Jane (1950). They were pressed with the disaster rehabilitation works, so that the flood management works aiming at the improvement tended to remain backward. Although, effort to form long-term flood management plan were already being made those days. Finally, in 1960, First-long term plan for Mountain & Flood Management was enacted. It was 10 years plan, divided first

half and second half. And also, as the legal and financial background, the law of Mountain & Flood management, and the law of special account for Mountain & Flood management were enacted. Before that, in 1959, Ise Bay Typhoon hit middle of Japan (Nagoya region). It left 5000 death toll mainly by tidal wave.

B. Comprehensive Disaster Management

Japan possesses a comprehensive and strategic disaster management system elaborated in the Disaster Countermeasures Basic Act formulated in 1961, which has been enhanced following lessons learned from different large scale disasters. The system covers all phases of disaster management: prevention, mitigation and preparedness, emergency response, recovery and rehabilitation. Further, it clarifies the roles and responsibilities both of government at national and local levels and relevant stakeholders in the public and private sectors who cooperate in implementing various disaster countermeasures.

Flood risk management in Japan is certainly not based on an immutable system set up once and for all: the government has constantly updated laws and regulations on the basis of past disaster events. The enactment of the River Act in 1964 five years after the deadly Ise-Wan Typhoon (1959) and its various amendments till its current 1997 version, the numerous changes brought to the Disaster Management Act after its elaboration in 1961, the restructuring of the central government in 2001 and the creation of the CDMC to cope with large-scale disasters such as the 1995 the Great Hanshin-Awaji Earthquake, are evidence of the highly adaptive capacity of Japan's strategy against disaster. The Great East Japan Earthquake and Tsunami (GEJET) on March 11th 2011 brought the huge impact for Japanese Society including the strategy of Disaster Management. Municipalities themselves suddenly lost their functions. Japan is making effort for the effective Disaster Management to cope with the expected future large-scale disasters.

C. A cross-sector approach to flood control at the central level

The overall national strategy for flood risk management is defined at the highest level by the combined work of the Cabinet, the Cabinet Office and since 2001 the Central Disaster Management Council. These public bodies collaborate in the development of the national strategy and co-ordination of actions and policies that are implemented on a practical level by various ministries and agencies.

Under the Disaster Counter Measure Act, prefectures and municipalities implement local disaster management plans in line with global strategies of the overall national

strategy for flood risk management under the leadership of the central government. National responsibilities for protection measures against floods mainly fall under the responsibility of the Ministry of Land, Infrastructure and Transport (MLIT). Since the merger of four ministries in January 2001, the MLIT is in charge of construction standards, transport infrastructures (roads, railways, bridges, ports, airports), as well as water and river management facilities such as dams and levees. The main bureaus of the MLIT concerned with flood management are the Water and Disaster Management Bureau (former River Bureau), the Land and Water Bureau, the City and Regional Development Bureau and the Housing Bureau. Each Bureau implements a plan in accordance with a legal framework, including the River Act, the City Planning Act, the Buildings Standards Act, the Land Use Fundamental Act, the Natural Land Use Planning Act, and others not specifically mentioned. These Acts have been supplemented with numerous ordinances and guidelines that provide details for their application.

D. Co-ordination of actions and strategies between central and local level

In Japan there are three layers in the administrative system: central government and two levels of local government (prefectures and municipalities).

According to the Disaster Relief Act (1947) prefectures are responsible for the provision of relief services on an emergency basis. At that point, the role of national ministries and agencies is essentially to secure the necessary resources, if necessary by requiring the support of other prefectures or private actors. The governor of a prefecture can delegate his mission to heads of municipalities. The costs of relief activities are borne by the prefecture up to a certain amount, and shared between the prefecture and the central government if costs exceed this threshold.

According to the Disaster Countermeasures Basic Act formulated in 1961, to protect life of the people is mandated by municipalities. The nation and prefectures are in the position to support them. Ministerial departments and prefectures are responsible for elaborating their own disaster management plans, provided these are in line with the Basic Disaster Management Plan. Likewise, municipalities develop their plans in line with their corresponding prefecture's plan. Although the Disaster Countermeasures Basic Act provides the legal basis for an integrated disaster management strategy and especially for the definition of responsibility at the response stage, various specific Acts are relevant with regard to flood prevention strategies.

The River Act is at the core of flood control legislation. This Act was enacted in 1964 to reorganize the role of the river administrations and to change the conventional

section-by-section river management into a more integrated approach. It was then amended in 1997 to take into account economic and social changes, to emphasize the need for sound river environments, and to incorporate the opinions of local residents through river improvement planning systems. Whereas the River Act insists more specifically on flood prevention structural measures,

Rivers are divided into Class A, B and C under River Act. Class A rivers are those considered to be of national significance due to the considerable assets and population in their flood plain. Particularly important sections of Class A rivers are administered by the Ministry of Land, Infrastructure and Transport (MLIT) Water and Disaster Management Bureau. Certain sections of Class A rivers designated by the MLIT and Class B rivers are administered by Prefectures. Class C rivers are administered by municipalities. The local river offices of the MLIT are responsible for improvements in flood protection for the 109 Class A rivers—7% of the total river length.

Organized Prefectures and municipalities co-operate to manage the organization of flood warnings and crisis management (flood-fighting, evacuation, and organization of relief and recovery). A Flood-fighting Liaison Committee established for each river meets in April, May, or June of every year before the flood season.

the Flood-fighting Act, first established in 1949 and revised in 2005, focuses on flood-fighting activities at the local level in reaction to flood events. Municipalities that include potential flood areas are required by revised law to prepare and disseminate flood hazard maps on the basis of maps of flood-prone areas created by the MLIT and the prefectures.

E. The budget for River Improvement Projects

Projects led by the MLIT Water and Disaster Management Bureau on flood protection structural measures can be broadly classified as national projects and subsidized projects. National projects are carried out by the MLIT itself in sections of Class A rivers. The major portion of funds for national projects comes from the national budget, and the remainder comes from local budgets. Subsidized projects are projects that receive some funding from the national government, but are carried out by Prefectures in sections of Class A or Class B rivers under their jurisdiction. The Water and Disaster Management Bureau budget, which is spent not only on projects related to rivers, but also on sea coasts, slope preservation measures and disaster rehabilitation, has decreased successively in recent years.

2. Risk assessment and communication

A. Data collection and information technologies for early-warning

Responsibility for collecting and monitoring rainfall and water levels falls to the Japan Meteorological Agency (JMA) and the Water and Disaster Management Bureau. Flood forecasts are provided to sub-levels of flood disaster management both for the implementation of long-term strategies through flood modeling and for the organization of emergency response through real-time early-warning. Special attention is already paid to the likely consequences of climate change through scenario building carried out by the Intergovernmental Panel on Climate Change (IPCC).

B. Combination of hazard, exposure and vulnerability towards an integrated risk assessment and mapping

Hazard assessment is on the right path and has been implemented through hazard maps by many municipalities. On the other hand, vulnerability assessment has been conducted for medium-size events both by local governments and economic stakeholders including public service network companies.

3. Flood prevention and damage mitigation

A. A strong long-term structural flood defense strategy

In view of the country's high exposure to floods, Japan has worked persistently towards the implementation of structural defenses. Attention has been paid particularly to the construction of protective engineering works both for river improvements such as dykes, dams and control basins, and for runoff control to counterbalance increased soil proofing with urbanization. Benefits of these structures have become apparent in many cases and have led to a decrease in damages and recovery costs. Efforts have been promoted recently by the government to integrate flood prevention works in the social and natural environment.

B. Further development of mitigation measures

Non-structural measures to mitigate flood damages should continue to be sought through the implementation of measures in land use, city planning and building requirements. The City Planning Act and local master plans require that flood-prone areas should not, in principle, be considered for new urban development. Regulations on building standards which take into account natural risks are also provided for in the legal framework. In case, the disaster impact situation over the absolvable level by structural works, Non-structural ,measures are very important to save people's lives. This was the serious lesson at March 11, 2011 GTJET

4. Emergency response

A. Co-ordination during flood events

Operational responsibility for emergency response falls mainly to municipalities, which are usually the most relevant for undertaking emergency actions. Inter-municipal agreements exist to enhance wider capacity at the local level when needed.

In the event of large-scale floods, the central authorities are responsible for providing situation awareness and decision support. The central government authorities become involved to provide general support and guidance to the local governments, to ensure necessary co-operation and co-ordination and to provide the additional resources required to manage the disaster. An emergency team at the national government level gathers immediately at the Crisis Management Centre to take stock of and analyses the disaster situation. The Cabinet Office ensures the overall co-ordination of disaster reduction activities. Meanwhile, the Cabinet Secretariat provides situation awareness and incident information to the Cabinet, based on the data collected 24 hours a day by the Cabinet Information Collection Centre.

The Red Cross deploys its aid force at its discretion or upon request from the prefecture. The MLIT may launch immediate repairs on protective works through the assistance of private companies or volunteers as needed. Critical public infrastructure providers and essential service utilities have undertaken business continuity planning. Response organizations, including volunteer groups, participate in joint exercises or drills on a regular basis. Strategies are also developed ahead of time to facilitate emergency response, such as issuing guidelines for business continuity planning, or drills and exercises for volunteer citizens.

B. Sheltering and evacuation for large-scale floods

In the event of a flood, information is communicated to citizens on how to evacuate and where to find shelter through the dissemination of hazard maps for each municipality and the use of real-time information techniques at the early warning stage. A low evacuation rate has been observed. What kind of necessary information river administrator can create for municipalities to encourage evacuation is future challenge

C. Emergency response regarding the most vulnerable groups of population

Physical, economic and cultural vulnerability may impact on people's ability to react to disasters such as floods. In addition to increased urbanization in flood-prone areas, social factors such as aging of the population and an increasing number of dependent

people, change the conditions of emergency response. 2005 revised Flood fighting act stipulate the attention to those vulnerable people.

D. The particular flood risks related to hazardous activities

Floods are likely to spread pollutants and harmful substances. In Japan, the location and activities of hazardous industries are carefully regulated by the ordinance of Dangerous Objects Regulation which includes security measures and risk assessment considerations mainly in earthquake not flood.

5. Recovery

A. The implementation of optimal reconstruction schemes

MLIT has a scheme of urgent restoration for big breakdown, and appraisal of disaster to support public infrastructure restoration works. The enactment of the Act on Support for Livelihood Recovery and Disaster Victims in 1998, and the issuing of Business Continuity Guidelines, the Central Government Japan has already made an important step towards the definition and implementation of national strategies for recovery measures.

B. The collection and communication of experiences

Strategies to counteract floods mitigate damages, organize protection and relief actions have continuously been updated in Japan based on past disasters. Information sharing events have been organized in order to collect lessons learned both at the central and local levels. In the MLIT subcommittee on rivers, a discussion group involving academic experts, governors, and people with knowledge of the localities and their culture discusses measures on policies for river equipment, based also on past experiences. The government and various administrations are thus already very well aware of the need to collect past experiences and learn lessons for policy improvement.

C. The recovery costs and insurance

Recovery costs of public facilities are borne by municipalities and prefectures for the most part, although such costs may also be borne by the central government when the extent of damages exceeds local financial resources.

Transfers of public funds to flood victims are relatively small in Japan. That part of recovery costs are borne by individuals, which highlights the discussion of an efficient insurance or direct saving scheme for people.

Reference: OECD REVIEWS OF RISK MANAGEMENT POLICIES Japan 2009
Minoru Kamoto, Chief Researcher
International Centre for Water Hazard and Risk Management (ICHARM)
under the auspices of UNESCO, Public Works Research Institute (PWRI), JAPAN
Email: kamoto@pwri.go.jp, Tel: +81-29-879- 6815, Fax: +81-29-879-6709

Annex:

Climate in Japan

Japan lies in the northeast tip of the Asian Monsoon Zone that encompasses India, China, Korea, and the Southeast Asian countries. The weather is generally mild and humid with considerable variation from north to south, and between the Pacific Ocean side to the east of the central mountain ranges and the Japan Sea side to the west.

The country's four distinct seasons feature three periods of heavy precipitation: Heavy winter snowfalls blanket the Japan Sea side in deep layers of snow, Particularly in the north (although the Pacific Ocean side normally remains clear and dry); tsuyu (the rainy season) brings continuous heavy rains to most of the archipelago during the second annual wet period in June and July; and typhoons that originate in the southern Pacific, assault the country - especially the southern portions - during the third wet period in September and October. These three wet periods shove the nation's average annual precipitation which is almost double of the world average.

Generally, precipitation occurs mostly during the tsuyu and typhoon seasons on the Pacific Ocean side, and during the typhoon season and in winter (in the form of heavy snow) on the Japan Sea side.