

Assessment of Governance Mechanisms on Flood Disaster Management in Malaysia

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Abstract: The sustainable effectiveness of a national DRM strategy depends on well-coordinated governance mechanisms across sectors and at all levels. Nations that develop policy, legislative and institutional frameworks for DRR and that are able to develop and track their progress through specific evaluations have greater capacity to manage risks and comply with disaster risk reduction measures across all sectors of society. The aim of this study is to assess the effectiveness of current policies and proxies in national DRM in Malaysia, to identify best practices and gaps in their implementation and to explore data and resource availability for continuous flood risk reduction efforts in Malaysia. This study presents a case study of Kelantan flood disaster 2014 using the qualitative research approach which depends on document analysis and interviews with officials from ministries and government agencies. Malaysia needs a framework for an integrated and sustainable disaster risk management system to ensure that the delivery of proactive practices to the various target groups and stakeholders. It is hoped that inputs from this study would be beneficial in formulating a comprehensive, holistic and sustainable disaster management policy and strategy that would be able to cope with future disasters.

Key words: Disaster risk management, assessment, governance, sustainable development, policy

INTRODUCTION

Disaster risk governance refers to the way disaster related risks are managed in a multi-stakeholder situation. It refers to how public authorities, media, civil servants, private sector and civil society coordinate their activities at community, national and regional levels to manage and reduce disaster-related risks. Disaster risk governance is important as it involves structures and institutions that determine the amount and quality of social protection people have in terms of disaster preparedness and opportunities for livelihoods (Nightingale, 2011). Gall *et al.* (2014) highlighted that disaster governance goes beyond governmental settings, powers, processes and tools. It encourages collective actions through the engagement of all stakeholders (e.g., governments, private businesses, non-governmental entities and academia) operating at all scales from local to global. Without good governance, a disaster will increase people's standard of vulnerability and will make disaster risks more powerful and frequent. According to the UNDP report entitled reducing disaster risk; a challenge for development, "appropriate governance" is fundamental to reducing disaster risks (Briceno, 2004).

The Hyogo Framework for Action 2005-2015 (Priority Action 1) highlighted that the countries that develop frameworks for policies, legislations and institutions for disaster risk reduction and that are able to develop and

track their progress through specific and measurable indicators will be better able to manage risks and comply with disaster risk reduction measures across all sectors of society. A national evaluation of the track progress of any frameworks for policies, legislations and institutions for disaster risk reduction is required to ensure that the strategy of disaster risk management is sustainable. This may also help avoid unnecessary constraints that will eventually make this future planning on DRR to remain as a daunting undertaking. Schultz and Mueller (2006) stated that evaluation is a critical component of programme improvement and evaluation results will help inform policy makers to ensure fiscally responsible decision making and accountability. The effectiveness of disaster governance is related to two other central elements of disaster governance, namely accountability and transparency (Ahrens and Rudolph, 2006). However, without the ability to monitor and measure the beneficial (or adverse) effects of disaster governance, it is impossible to assess the system's transparency or accountability.

Monitoring and evaluating the effectiveness of governance systems in reducing disaster risk require data on the state of the society, the environment and human actions. In addition, these activities require the development of benchmarks and measures such as indicators or composite indicators. As for the case of Malaysia, an assessment is crucial to ensure the effectiveness of current policies and proxies in reducing

disaster risks to identify best practices and gaps in its implementation and to explore data and resource availability for continuous risk reduction efforts. In methodological terms, this assessment is important to direct the thinking on the analysis of the disaster risk governance issues such as the main lessons learned from recent experiences with regard to flood disaster governance and the necessary requirements needed to deliver a sustainable development-DRM system.

The specific aim of this case study is to investigate the sectoral and non-sectoral management of flood disaster with a view to assessing their coherence in terms of coverage and implementation of disaster risk management in Malaysia, especially in the floods which affected the Kelantan state at the end of 2014. Besides, this study aims to provide an analysis of the problem of flood risk governance in Malaysia. The study focuses on the nature of the problem and the actions that could or should have been taken to address the flood governance problems. These problems are examined in the wider context of thinking that could strengthen the policy and mechanism on flood disaster and relief management in Malaysia. Three key policy questions are addressed in this study; what are the main lessons learned from the recent experiences with regard to governance of flood risk management in Malaysia? What are the principal changes that have occurred in the characteristics of disaster risk governance at the national and the local levels over the last decade? Is disaster risk governance a separate and autonomous concern/theme or is it a component of sustainable development that spans from local to national scales and how do international governance frameworks influence it?

Literature review: Beryl (2014) stated that the flood management governance structures vary with geography, population size, infrastructure type, historical district legislation and public policy. The National Disaster Management and Relief Committee (NDMRC) was established by the Malaysian government in 1972 as a taskforce to co-ordinate flood relief operations at every stage from the national level, down to the state and the district levels with the combined aims of reducing flood damage and preventing loss of human lives. Flood disaster management in Malaysia is based on the National Security Council Directive No. 20 (Policy and Mechanism on Disaster and Relief Management on Land) that describes the purpose and responsibilities of various agencies. In addition, it prescribes how the various agencies should be involved in disaster management. Khalid and Shafiai (2015) highlighted that the disaster

management in Malaysia has three levels and every committee in every level has its own responsibility: level 1, the committee ensures co-ordinated actions with sufficient assets and human resources in relation to the media. Level 2, the committee must provide assistance in the form of financial aid, assets and human resources to the districts. Finally, level 3, the committee must determine the national disaster management policy, finance, assets and human resources. The directive prescribes the management mechanism according to the level and complexity of the disaster and determines the roles and responsibilities of various agencies to ensure effective coordination and mobilisation of resources when handling disasters.

The National Safety Council of Malaysia has established emergency preparedness in their Standard Operation Procedure (SOP) such as Directive 20, safety guidelines, early warning system, communication system, public awareness programme and regional-international cooperation. The National Security Council Directive No. 20 (Policy and Mechanism on Disaster and Relief Management on Land) is the main guideline for disaster management in Malaysia. It stipulates three levels of disaster management, namely district, state and federal levels. Activation of the specific executing committees will depend on the characteristics and scale of event as well as coverage of impacted areas. In Malaysia, disaster management uses almost an entirely top-down approach. At the very top is the National Disaster Management Risk Centre (NDMRC) which runs the National Crisis and Disaster Management Mechanism (NCDMM) (Chan, 1995, 2014). According to Chia (2004), this machinery was established with the objective of co-ordinating relief operations at the federal, the state and the district levels so that assistance can be provided to flood victims in an orderly and effective manner. National Disaster Management Strategy (NDMS) of Malaysia is the backbone strategy to co-ordinate and integrate an effective approach in building a preventive, protective and public safety culture in the community.

The flooding that occurred in late December 2014 was an unprecedented act of nature that displaced hundreds of thousands of Malaysians not only in the flood-prone northern states of the peninsula but also in the south and as far as Sarawak. Floods occur annually with varying severities, especially in Kelantan, the east coast state of Peninsular Malaysia. The flood in 1967 was considered significant in Kelantan's history and had a major impact on the Kelantan population. Chan (1995) stated that it was estimated that 70% of the villages (kampongs) in Kelantan or nearly half of the state's population was affected. More

recently at the end of December 2014, the eastern states of peninsular Malaysia, especially Kelantan experienced serious flooding. The flood had a negative impact on several states especially on the economy and to society in general. Aizyl (2015) stated that the National Security Council (NSC) confirmed the massive flood that hit Kelantan was the worst in the history of the state and its secretary Datuk Mohamed Thajudeen Abdul Wahab said that water levels of the recent floods superseded the 1967 flood in Kelantan.

The 2014 flood was the most significant and worst flood recorded in the history of Kelantan. It was considered as a "tsunami-like disaster" in which 202,000 victims were displaced. This flood was called Yellow Flood (Bah Kuning) because of its high mud content (Lyn, 2015; The Rakyat Post, 2015). According to Kelantan Flood Disaster Committee Chairman Mustapa Mohamed, the floods that swept across eight districts in Kelantan have damaged public assets and infrastructures with gross loss estimated at RM200 million (Free Malaysia Today, 2015). Besides, he said Tenaga Nasional Berhad estimated a loss of over RM10 million, Royal Malaysian Police (over RM8 million) and Syarikat Air Kelantan Sdn. Bhd. (over RM3 million) while the Kelantan Health Department estimated a loss of over RM10 million in Kota Bharu alone. Meanwhile, the Public Works Department (PWD) suffered losses of RM100 million while utility providers Tenaga Nasional Berhad (TNB), Air Kelantan Sdn. Bhd. and the police suffered losses of RM10 million, RM3 million and RM8 million, respectively. Meanwhile, the massive floods which crippled the state of Kelantan saw 1,704 farmers suffered losses amounting to RM26.49 million last year, said Agriculture and Agro-based Industries Minister Datuk Seri Ismail Sabri Yaakob.

Malaysia has its governance mechanism under the taskforce of the National Security Council Directive No.20 Together with Hyogo Framework for Action (2005-2015), they have been used in a holistic manner, giving information and assistance pre-disaster, during and post-disaster when flood occurs in flood-prone areas. However, during the Kelantan great flood in December 2014, the existing disaster governance mechanism seemed to be not working effectively and efficiently. Consequently, negative perceptions developed amongst victims and Malaysian citizens regarding the Malaysian disaster management and government authorities. Notably, existing risk governance capacities and arrangements contribute to the gaps and challenges to the current disaster risk management. Gall *et al.* (2014) highlighted that risk governance is mostly viewed

through the lens of disaster or emergency management departments, agencies or organisations which often have little interaction with other governmental, civil society or corporate entities. Gall *et al.* (2014) added what can be seen is that in times of crises, risk governance has been rarely seen as part of everyday public or private functions such as planning, social welfare, investments or fiscal responsibilities. Global Assessment Report UNISDR 2011 concluded that aside from reducing disaster mortality, existing risk governance capacities and arrangements generally fail to achieve their aims. Gall *et al.* (2014) highlighted that this coupled with escalating losses driven by increases in exposure and vulnerability, reveal the shortcomings in current disaster governance-such failures in governance structures point to the need for reflecting on the range of currently available institutional, policy, administrative and regulatory mechanisms for managing risks.

MATERIALS AND METHODS

This case study is a qualitative study to examine the steps needed to achieve sustainable development in disaster risk management in Malaysia. Its theory construction is guided by the methodology of the case study of Kelantan flood disaster in the end 2014 which involves standard social science methods, namely document analysis and interviews. For document analysis, data and relevant information on governance and various initiatives undertaken by the government and private agencies in their effort to manage the flood disaster risk reduction in Malaysia were gathered.

In-depth interviews were conducted with major stakeholders involved in the disaster risk management on flood disaster in Kelantan, namely Forest Research Institute Malaysia (FRIM), Department of Irrigation and Drainage (JPS), Malaysia Civil Defence Department, Community Development Department (KEMAS), Ministry of Works Malaysia, Ministry of Health Malaysia, the Ministry of Finance Malaysia, Ministry of Agriculture and Agro-based Industry, Ministry of Urban Wellbeing, Housing and Local Government and Department of Wildlife and National Parks Peninsular Malaysia. These interviews intended to examine the existing strategies and action plans, practices, gaps in implementation, resource availability and to explore prospects for strengthening institutions to manage flood disaster and improve socio-economic conditions in Kelantan. Besides, the interviews investigated the effectiveness of current policies and practices when faced with flood disaster with the focus placed on the issue of governance.

RESULTS AND DISCUSSION

Several critical issues, challenges and strategic plans have been identified through the interview surveys conducted among government agencies and departments involved in disaster risk management. Generally, the interview showed that respondents highlighted that the Forestry Department of Malaysia is often blamed whenever flood occurs. However, the fault also lies on state government for allowing forest exploration for farming, which constitutes an anthropogenic factor (man-made factor) that can cause flood occurrence. Other main factors that contribute to flood disaster are climate change and high rainfall.

There is already collaboration between Forest Research Institute Malaysia (FRIM) and Natural Resources and Environment to replant such as the case in Cameron Highlands. However, to achieve the desired results through this collaboration, commitment and responsibility from the state government is very important. FRIM is very active in conducting campaigns on natural environment awareness for the public. It has been organised almost every week at the FRIM compound itself. FRIM's Corporate Communication Unit is also actively organizing Corporate Social Responsibility (CSR) programmes with government-linked companies. Besides that, FRIM's Forestry and Natural Environment Section also organise natural environment awareness campaign such as Environmental Education (EE) Workshops. Apart from the public, politicians and policy makers should also be given education and awareness before making any decisions on policy. Meanwhile, the Forestry Department has successfully gazetted almost one million hectares of forest area as water catchment area. However, when an area is gazetted, the department will not gain any income from it as logging is prohibited. The Forestry Department tried to manage this water catchment area but this investment did not return any profits to the department. On the contrary, the entities that gain the benefits and profits from this initiative are the state water supply company and the state water department. Notably, many policies have long been instituted in relation to the natural environment but still there is a lack of integrated policies. The most glaring weakness is on the implementation of the policies. A particular policy can only function when it has been enacted as a legal bill. The approval process of the legal bill involves a complicated legislative process and consumes a lot of time. After a bill is approved, it must be strictly implemented. At the implementation stage, many restraints and obstacles have to be overcome. Therefore, a holistic approach needs to be considered in the implementation of any policies. After

the flood, the Department of Irrigation and Drainage (JPS) at the district and state levels were mobilized to visit the flood areas and to record the flood levels for the flood mapping. This was done to identify flood areas and the factors that caused the flood. These pieces of information were collected for further use and actions by the DID. From the data observation, high rainfall was identified as the main contributing factor to the unpredictably massive flood that occurred, especially in Kelantan. Research findings through modelling method by the National Hydraulic Research Institute of Malaysia (NAHRIM), on the other hand, found that compared with the Red Flood (Bah Merah) that occurred in 1970, no significant difference in the amount of rainfall were seen in both floods. This means that flood incidents will still occur, regardless of whether land exploration was carried out or not in Kelantan. Local residents ignored early flood warning released by the authorities, thinking that the flood would not be worse off than what they expected or what they have experienced in past floods. This situation mimics the tsunami tragedy in 2004 when locals did not expect such a big wave would hit them after the sea water receded suddenly. However in that case, local residents learn from past experiences and act earlier in case they receive warning signs.

Many structured flood prevention methods can be taken. Examples are building retaining walls, bunds, besides widening and deepening rivers. Besides that, development of particular areas can be controlled. In addition, surface runoffs should be controlled to make it sustainable. This is because the amount of surface runoffs into the river will increase if inappropriate development is left uncontrolled. Hence, the state JPS should advise the state government when new development project is to be carried out; they should find ways for flood mitigation. First of all, JP's strategic plan for flood management all over the country needs factors identification and mitigation acts at flood areas. In addition, they need to have an estimation of allocations based on the federal government's ability in terms of finance. Currently, the post flood scope of responsibilities for Federal JPS revolves only on damage repairs and river cleanups. On the other hand, the Local Authorities (PBT) and the state governments are responsible for maintenance and drainage system cleanups. However, during the recent big flood, a special command was issued to the JPS Post-Flood Unit (Unit Pasca Banjir JPS) to help maintenance works at all affected states.

The role of the Malaysia Civil Defence Department (JPAM) focuses on providing training and preparing the public for public security before, during and after a disaster. Before a disaster, all rescue agencies will hold

meetings all year round at the district, state and national levels. In addition, collaborated trainings are held between JPAM and other rescue agencies to co-ordinate their activities in case a real disaster occurs. Good coordination is most essential because in rescue operations, time is the most crucial factor. In this training, local residents are highly encouraged to participate. From time to time, the JPAM also conduct research on highly risked areas for the possibility of disaster threat occurring in the areas. Besides that, collaboration with other departments involved in structural measurements such as the Meteorological Department and the Department of Drainage and Irrigation are held to facilitate collection of empirical data; through such collaborations, more accurate and objective assessment or prediction can be made. The efficiency of JPAM's members is always tested and improved. In fact, a motivational slot has been included in the training module to include the mental building of the members. During a disaster, tasks will be rotated every two weeks to ensure the performance, the mental health and the motivations of the members are maintained at a high level. This is important to ensure the officers provide a guaranteed security service to the citizens. Furthermore, normally during a disaster some assets of the department are damaged. A support party will assess the damages suffered by the department in terms of infrastructure and human capital. In some cases, department members also become flood victims. Such efforts will at least provide them with moral support. Additionally, after a disaster, JPAM offers services to the public. Matters related to post-disaster recovery work has already been included in the act in relation to JPAM itself. In terms of infrastructure recovery, JPAM are involved directly and indirectly with other responsible agencies or departments.

Restoration of public utilities such as water supply is one of the main issues to be addressed urgently in a disaster. Thus, collaboration with the state government and local authority is crucial. In terms of helping the local residents to recover economically, JPAM provides help depending on request from any responsible departments, for instance, a request from a farming area for technical help in cleanup services. The Department of Agriculture and Agro-based Industries should conduct a meeting with rescue agencies about co-ordinating requests for assistance. In the aspect of natural environment recovery and care, the particular department should also make a request if they need to use the services available at JPAM. JPAM is registered under the international body the International Civil Defence Organization (ICDO). Under this organization, there member countries are required to have at least 10% of their population to possess

knowledge on civil defence. Therefore, various programmes have been carried out to educate people, starting from the kindergartens right up to the universities, including government and private bodies. This programme hopes to change the attitude and the thinking of Malaysians to be more positive.

Another department involved in this programme is the Community Development Department, known by its acronym KEMAS. However, this department is not fully ready in terms of preparedness. In times of situations, most of its programmes are executed ad hoc. It is only recently that KEMAS's Kindergarten (TABIKA, acronym for Taman Bimbingan Kanak-Kanak) has received a Standard Operational Procedure (SOP) with regard to measures to be taken in case of flood. The SOP specifies that kindergartens located at low areas prone to floods must be ready to be evacuated to higher and safer grounds together with their valuable assets. The procedure was developed as a result of lessons learned from previous floods that have forced the department to incur massive losses. Besides that, the SOP regarding their budget has been planned and continuously improved year by year. For the recent flood, an allocation of RM5 million was channelled by the ministry for recovery work. A special team has been formed before the disaster to clean up affected areas. This restoration work is accomplished through members of departments and agencies from unaffected states. At the same time, KEMAS has also collaborated with public institutes of higher education (IPTA) which include students from universities and polytechnics. As a result, help and assistance can be channelled quickly. Other aspects follow the procedure prepared by ICU and the National Security Council (MKN). Before flood occurs, at the end of every year, the department releases a circular on the special preparations that need to be done. However, this time the big flood occurred at unexpected locations.

KEMAS Department's special rule regarding natural disaster is always improved and the main focus given is on the maintenance and protection of TABIKA buildings. During the recent disaster, the existing SOP has been used to apply for allocation and to collect fund. The collected fund was later distributed. Allocation for recovery, on the other hand, takes up a significant amount of time to be channelled to flood victims. Hence, the department has taken up the initiative to provide tents as a temporary building to function as a temporary educational facility while waiting for a permanent building to be built. Hence in future the department must have a special contingency allocation for disaster. However, KEMAS Department is not responsible for recovery of infrastructures (such as roads, water supply, electricity,

homes for the poor, etc.) in the rural areas. Nevertheless, this responsibility is held by other departments under the same ministry. The allocation for this purpose is mostly provided in an ad hoc manner KEMAS is no longer involved in special activities or programmes for economic development of the people in the rural areas. However, KEMAS functions to condition their minds. For example, many the people are still reluctant to evacuate their homes even after the department has advised them to change their minds. Research on “mind conditioning” is a field that needs to be highlighted and to be pushed forward because Malaysia lags behind in this area. Suggestion for research on this field has been proposed and National Security Council (MKN) has agreed to co-operate with KEMAS through SMART to produce a suitable module with the objective of changing the mind sets of the people living at the rural areas especially. Research in this field can also be used as an important approach to nurture the spirit of volunteerism among Malaysians. There is no denying that physical development is crucial, yet the effort to develop and change the mind sets of the public to be more positive is most important. The process of changing the people’s way of thinking requires a long and holistic approach. This process demands the involvement of all groups of people including media practitioners.

During the 2014 flood disaster, the Ministry of Works (KKR) has opened a Flood Operation Room (BGB) to supply information regarding main roads as well as alternative roads that are still accessible and those that are closed to road users. The information is channelled to users through the ministry’s portal and hotline of the operation room’s call centre. The working period of this operation room depends on the severity level of the flood. Information was always updated and collected from the district and state JKR, concession companies and users themselves. Besides that, the state and federal JKRs mobilized their work force and logistic assets to provide assistance and support to flood victims at the affected areas. A fund was established under the management of MKN for during the 2014 flood disaster. The fund was especially for repairing infrastructures such as roads in housing areas affected by the flood. Ministries which need to use the fund have to submit their applications formally. In addition, a Post-Flood Committee was also established to cover works such as construction of permanent houses for flood victims and repair damaged infrastructures. The Ministry (KKR) also established a Development and Privatization Division as a responsible division under the ministry with regard to flood. After the flood receded, the Ministry prepared a report regarding the costs required for repairs based on data and records of damages caused by the flood (by location and types of

damages) that has been collected to be submitted to apply for allocations. The KKR is mainly responsible to repair federal roads while state governments are made responsible to repair state roads. During the early phase, the government has channelled RM150 million to KKR for restoring roads, slopes, drains and repairs of bridges and other infrastructures.

For repair works, priority is given to main roads and areas badly damaged by the flood. For repairs of underground utility systems such as electricity and water supplies, companies involved in repair works should obtain permission or special permit from the Public Works Department (JKR). The Ministry of Works (KKR) has appointed a few concession companies for maintenance work and federal road repairs. Advice for commencement of work will be issued directly to these companies. Submission of tenders for quotation is not needed in this process. Hence, bureaucracy is avoided and implementation process would be much faster. However, execution period depends on the level of damage suffered by the infrastructure. Other ministries need to apply for their own allocations to repair their damaged buildings. However, their applications have to be channelled through KKR for approval.

The Ministry of Health Malaysia holds strictly to the Directive 20 of the National Security Council (NSC). In Directive 20, the role of the Ministry of Health before, during and after the floods has been described in detail. Every year before the monsoon occurs, the representatives of the Ministry will be called to a briefing session at NSC with representatives from various government departments and agencies such as the Department of Meteorology, Drainage and Irrigation Department, Royal Malaysia Police, the Malaysian Armed Forces and other departments. The Ministry has clear guidelines of their tasks during flood at the federal, state and district levels. The Health Ministry has also established a Crisis Preparedness Response Centre (CPRC) specifically for handling natural disasters such as floods, haze and others. CPRC was placed under the Infectious Disease Control Division of the Ministry. Every health department at the state and district committees have their own CPRC.

In the Ministry of Agriculture and Agro-based industry, flood prevention measures are still lacking or weak. Nevertheless, the Ministry is in the process of discussing on their efforts to provide an appropriate SOP. There was a proposal that the Ministry to emulate the procedures that have been adopted by the Chukai and Kemaman district in Terengganu. However, they need to adapt and modify those procedures from the highest administrative level, up to the implementation level so that

they are appropriate to the various sectors of the Ministry. This is because the SOP used in the two districts has been characterized as excellent and holistic. The preparation of this SOP requires the cooperation and inputs from various government agencies such as the Department of Meteorology and the Department of Irrigation and Drainage. This cooperation would allow them to know the current trends in the weather changes during the disaster because early warning system is one of the issues that is often raised in meetings. Nevertheless, the improvement of this system should be in line with the changing mindset of the local residents. The reality faced by the authorities is the reluctance of the population to comply with the instructions issued. Indirectly, this situation will interfere with the implementation of the SOP that has been set. Hence, the effort to educate and change the mindset of people must come first. The process of preparing a pre-disaster SOP may take time because this Ministry consists of many departments. Further in terms of the protection of government assets during floods, currently no specific SOP has been prepared under this ministry.

To ensure public safety during a disaster, relations with farmers, livestock breeders and fishermen in the affected areas are supervised by the NSC through its hotline. With regard to this issue, registered associations or organizations in those specific areas should play a role in ensuring the safety of their members. The ministry of Agriculture (MOA) is indeed the main ministry that responds proactively when floods occur. Actions taken by the ministry after natural disasters (floods) are based on SOP directive issued by the NSC. The ministry's initial action was to establish a disaster operations room for collecting latest information and data related to the damages and losses faced by the breeders, farmers and fishermen under the Ministry's departments and agencies for assessment. This will enable the MOA to plan for compensations using the allocated grant to those departments affected. Financial incentives and specific rehabilitation schemes are methods used to provide early assistance for those affected based on the specific eligibility criteria. Incentives and the rehabilitations schemes are still in the process of implementation and need to be dealt with comprehensively. Departments and agencies under the MOA also provide consulting services throughout the restoration process. However, these privileges are not given to medium- and large-scale companies affected by the flood. Discussions have been held with the AgroBank to consider giving aid to affected companies affected, based on discretion. Nevertheless, these discussions were not meant to be used as a policy of the MOA. The process of allocating funds for

restoration works will take a long time because of government bureaucracy. Meanwhile, the MOA distributed daily necessities and school supplies to the affected families. The MOA also has deployed Special Forces to help post-flood cleaning missions. This is important in ensuring that flood victims can cope with their normal everyday routine. Support activities were conducted in collaboration with other ministries. In addition, the MOA also held a special farmer's market to sell daily necessities below their market prices to ease the burden on the victim.

Following the recent flood disaster, still there was no proposal to relocate the affected agricultural areas to less risky areas. Even if there is such a proposal, the challenge is too huge, especially when it involves agricultural areas of private land ownership (inheritance) and state land. However, the proposal could be examined from the point of practicality. The MOA has opened four granary areas in Pekan, Rompin, Batang Lupar and Kota Belud to increase the level of self-sufficiency and to ensure the continuity of the country's food supply. To achieve that goal, various aspects such as the suitability of the land, the introduction of new agricultural technologies and climate change need to be considered. The development of infrastructures in the new agricultural areas will also involve high investment which may cost hundreds of million ringgit.

The Ministry of Housing and Local Government (KPKT) has implemented an Entrepreneurial Skills Training Programme (PLKK) that targets the hard-core poor. The goal of the PLKK is to improve the skills of the participants in the target groups in a particular economic sector to enable them to generate income and to improve the quality of life. Following the recent flood disaster, some PLKK participants suffered losses and needed help. However, applications for this assistance must meet the guidelines for the Second Chance Program (PPK). Only PLKK chosen participants who have undergone course training are eligible to receive the assistance if they have been affected by disasters such as flood, fires and so forth. The programme is a one week course covering topics such as development of the mind, skills training, using equipment and financial literacy. In this PLKK programme, some Non-Governmental Organizations (NGOs) have also been appointed through rigorous vetting by a committee at the ministry level. In PPK, the Ministry (KPKT) has given responsibilities to NGOs to retrain participants through a one day retraining as a form of motivation to overcome the trauma after a disaster rather than to sharpen their skills in their respective fields. Various skills are offered to the participants such as landscaping, home laundry, food and beverage

entrepreneurship, assistants at kindergartens, nurseries, spa and saloon activities. Participants for each skill area will be trained by a qualified NGO. In addition, the ministry gives the NGOs the responsibility to personally monitor and assess the participants, who experience partial damages or losses of equipment after the disaster. It is important to verify the records after the ministry has paid compensations to them. Next, the NGOs have to continue to monitor the participants for 6 months after the compensation payment to ensure the participants can generate income to enhance their family economy.

In general, the Ministry of Finance (MOF) will play their roles after a natural disaster has occurred. The role of the Ministry is more geared towards a macro perspective; they emphasize on the effects of natural disasters to the economic and environmental restoration measures (green economy). As with the economic effects, pre-emptive measures such as prevention and maintenance of drainage infrastructure are vital and can be viewed as insurance. These measures can reduce the losses due to floods. Usually, a special contingency budget for disasters is allocated on an annual basis. However, the flood of 2014 was huge and unexpected. As an allocation was urgently needed, the Prime Minister announced a supplementary budget to be allocated for the natural disaster in his speech later in January. This supplementary budget was to be dispersed to the relevant executing ministries. The budget was estimated based on the assessment of the officers of the disaster committee of the budget (BRO) which was represented by every department and agency. The Ministry of Finance will review the budget allocation from the standpoint of economic and financial position of the government. Obviously to reduce the nation's budget deficit, provisions that can be approved are limited. Therefore, the Ministry of Finance should give priority to urgent issues such as environmental care which involve damage to property and cause fatality. These priorities could be the allocation for installing an early warning system for disasters like Tsunami, floods and earthquakes. In Malaysia, government procurement is limited to natural resources and assessment payments. Since infrastructure is the responsibility of the federal government, the allocation for infrastructure repairs is distributed through grants. Another allocation of RM800 million was approved for the rehabilitation and reconstruction of houses that are damaged or destroyed. Nevertheless, the disaster victims complained that the process of compensation was too slow. This could occur due to a weakness in the structure and system of aid distribution between departments of the federal and state governments, non-governmental organizations and

certain companies that wished to extend their help. In addition, social issues such as attitudes of the people and land tenure issues are likely to contribute to this problem. Therefore, a good coordination system is very important.

In the Eleventh Malaysia Plan (RMK11), the "green economy" strategy has been introduced. The green economy strategy focuses on the issue of costs involving the natural environment. This shows that the Malaysian government emphasizes and appreciates the intrinsic value of the environment which has long been underestimated. If the environment is totally destroyed, the costs of restoration and repair will be extremely high the process will take a long time. Since, the nation is moving towards achieving a developed nation status, awareness on sustainability of natural resources is important. Policy makers in the federal and state governments must work together to examine issues concerning sustainability. In addition, it is also important to create public awareness regarding the value of natural resources. In short, to achieve this goal, everyone should be involved. Cooperation with the international community is also essential in addressing the environmental issues that has a direct impact on the nation's economy.

In general, the economic development in the flood-affected areas is still moving slowly. The overall economic recovery will take time. The increase in unemployment is a basic indicator to evaluate the progress of the local economy. Sentiments and attitudes of local communities remain unchanged even after the disaster. Thus, how the various state government departments and play their roles to address such social issues needs to be studied. Representatives of various ministries and non-governmental organizations have taken immediate steps to do clean-up work post-disaster, especially in flood-affected schools. They also distribute donations to the victims. However, still some victims were neglected due to poor coordination between agencies and organizations involved. Therefore, it is essential to have a delivery system based on accurate information.

CONCLUSION

From the experience of the Kelantan's worst flood in 2014, the Malaysia government has made improvements to its disaster management system. Lessons learned from the problems faced in managing this flood have caused the government to plan short and long-term measures to handle future flood situations. Discussions were held among all relevant stakeholders. In these discussions, a number of urgent issues were identified and solved, especially those needing urgent attention. The aim was to

strengthen Disaster Risk Management in Malaysia, particularly in Kelantan. Thus, the government should needs to learn from the situation. For the future, the government should prepare a proper plan parallel to the global sustainability plans and disaster framework actions. Clear guidelines are already specified in the Malaysian National Security Council (MKN)'s Directive No. 20. A disaster control centre has to be established based on the criteria and assessment made by the responsible officers in the disaster committee. In terms of planning and logistics, every rescue agency relies on the directive from Malaysian National Security Council. During a disaster, all directives are to be given by MKN. In discussions before the occurrence of a disaster, delimitation of areas of responsibility has been determined by MKN and district or state disaster committees. These responsibilities were determined after considering the ability from rescue agencies in terms of logistics and workforce as well as the density of the local population involved. Planning in the aspect of logistics and work force strength needs to be consistently updated because the available supply of logistics and work force every year depends on the department's budget. It is hoped that the findings of this study will provide significant ideas and contributions for the Malaysian government in the following contexts: substantial reduction of disaster losses in terms of lives and in terms social, economic and environmental assets of persons and communities; progressive creation of disaster risk prevention and the reduction of the existing disaster risk through economic, social, cultural, environmental legislative measures which address exposure and vulnerability and thus strengthen resilience; regulatory and financial empowerment of local action and leadership in disaster prone areas by local authorities, institutions, volunteer groups, communities and indigenous people and active engagement in the global and regional platforms for DRR and effective multi-stakeholder mechanisms to forge partnerships.

RECOMMENDATIONS

Now the international community has acknowledgement that efforts to reduce disaster risks must be systematically integrated into governance policies, plans and programmes for sustainable development and poverty reduction. In addition, it must be supported through partnerships at all levels. Sustainable development, poverty reduction, good governance and disaster risk reduction are mutually supportive objectives. Therefore, to meet the challenges ahead, accelerated efforts must be made to build the necessary capacities to manage and reduce risk at the

community and national levels. Such an approach will be recognized as an important element to achieve internationally and nationally agreed development goals. These goals would include those contained in the Sustainable Development Goal (SDG) and the Sendai Framework for Disaster Risk Reduction 2015-2030. Meanwhile, at the national level, it should include the 11th Malaysia Plan (2016-2020) and their implementation mechanisms, including Directive 20 of the National Security Council. According to Koshy *et al.* (2013), governance is an integral part of disaster reduction and sustainability promotion. Thus, democratic and participatory governance that is sensitive to national sustainable development priorities and cultural practices is seen to be the best practical form of good governance. Therefore, Malaysia needs a sustainable integrated governance of disaster risk management framework that will provide proactive practices at the target group level while lending support for a comprehensive process of disaster risk reduction that leads to sustainable development at the local and national level. The Sustainable Development Goals (SDGs)-Transforming our world: the 2030 Agenda for Sustainable Development are an intergovernmental set of aspiration Goals with 169 targets (Yin, 1998). The Resolution is a broader intergovernmental agreement that while acting as the Post 2015 Development Agenda (successor to the Millennium Development Goals), builds on the Principles agreed upon under Resolution A/RES/66/288 (The Future We Want). This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom and to revitalise the global and collaborative partnerships. The 17 Goals are as follows; Goal 1 end poverty in all its forms everywhere; Goal 2 end hunger, achieve food security and improved nutrition and promote sustainable agriculture; Goal 3 ensure healthy lives and promote well-being for all at all ages; Goal 4 ensure inclusive and equitable quality education and promote lifelong learning opportunities for all; Goal 5 achieve gender equality and empower all women and girls; Goal 6 ensure availability and sustainable management of water and sanitation for all; Goal 7 ensure access to affordable, reliable, sustainable and modern energy for all; Goal 8 promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all; Goal 9 build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation; Goal 10 Reduce inequality within and among countries; Goal 11 Make cities and human settlements inclusive, safe, resilient and sustainable; Goal 12 ensure sustainable consumption and production patterns; Goal 13 take urgent action to combat climate

change and its impacts; Goal 14 conserve and sustainably use the oceans, seas and marine, resources for sustainable development; Goal 15 protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss Goal 16 promote peaceful and inclusive societies for sustainable, development, provide access to justice for all and build, effective, accountable and inclusive institutions at all levels; Goal 17 Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.

The current global DRR framework, Sendai Framework for Disaster Risk Reduction 2015-2030 (SFA)-the predecessor of the HFA-provides the guiding principles suggesting that each state can ensure the primary responsibility of preventing and reducing disaster risks in four priorities for action. One of the Sendai Framework priorities of action is mentioned as follows: strengthening disaster risk governance to manage disaster risk, among others by integrating DRR in various sectors, from agriculture to infrastructure at different levels, entailing the empowerment of local authorities, coordination with civil societies and addressing root causes of disaster risks. Sustainability governance of disaster risk management encourages the best practices involvement of multiple stakeholders at different levels of policy making and implementation. The involvement of multiple public and private actors in flood risk governance fosters multi-actor collaborative approaches (Buuren *et al.*, 2012). This involvement is often materialized in the form of policy networks and other types of governance arrangements that cross the public-private divide (Mees *et al.*, 2014). Notably, SFA addressing the cross-cutting issue that incorporating disaster risk reduction measures across various sectors, including those relating to environment, natural resource management, poverty reduction, adaptation to climate change and urban development. SFA also is built on the facts that continuity and strengthening in risk reduction cannot be adequately implemented by the member states, because other stakeholders such as academia, private sectors and NGOs, are needed to play active roles. Thus, the SFA's priorities for action should be clearly mainstreamed within the national disaster risk reduction plan and national sustainable development plans as well as integrated and implemented in preparing a comprehensive Disaster Risk Management (DRM) framework for every state members (Mohamed, 2011).

At the national level, the 11th Malaysia Plan (11MP) represents Malaysia's keen interest in stepping up its pledge to the environment and long-term sustainability

and it is a part of National Sustainable Development Strategies for Malaysia heading towards being a developed nation by year 2020. As a way forward, pursuing green growth for sustainability and resilience become a fundamental element in the latest National Sustainable Development Strategies for Malaysia. As Malaysia develops socio-economically with long-term sustainability, it is important to ensure its development gains are not reversed by natural disasters. In this context, strengthening resilience against climate change and natural disasters strategy is crucially important to ensure the increase in standards of living relished by its citizens. The following strategies will be undertaken to reach the objective of 11MP-'Pursuing green growth for sustainability' (Focus area D-'Strengthening resilience against climate change and natural disaster's); Strategy D1: Strengthening disaster risk management by establishing DRM policy and institutional framework, improving disaster detection and response capacity, incorporating DRM into development plans and creating community awareness; Strategy D2: Improving flood mitigation by generating new investments from flood mitigation projects, enhancing long-term planning and strengthening flood forecasting and warning systems; Strategy D3: Enhancing climate change adaptation by developing a national adaptation plan and strengthening resilience of infrastructure, natural buffers including water and agriculture sector as well as creating awareness on health impact.

The Sustainable Development Goals (SDGs) and Sendai Framework for Disaster Risk Reduction 2015-2030 (SFA) provides indispensable inputs for Malaysia to formulate an effective, efficient and sustainable disaster management policy and strategy that can cope with future disasters and integrate in with the 11th Malaysia Plan. Future plan of comprehensive Disaster Risk Management (DRM) framework development must include measures and efforts to cover policy and governance; post-disaster and risk assessment; mitigation and adaptation projects; emergency response plan; research and development (R and D); education, outreach, communication and capacity building to tackle any emerging hazards in a holistic manner. An integrated disaster risk management framework will be able to provide proactive practices at the target group level while lending support for a comprehensive process of reducing disaster risks. This can achieve sustainable development at the local and national level. Therefore, the nation's policy and mechanism on disaster and relief management have to manifest its commitment to the implementation of the current Sendai Framework and Sustainable Development Goal and mainstream sustainable disaster risk management in policy governance.

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