

Opportunities for corruption across Flood Disaster Management (FDM)

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Abstract. Flood is one of the major disasters in the world. Despite flood resulted in loss of life and damaged properties, it naturally imparts people to assist the victims that affected by the disaster. Malaysia has experienced many serious flooding events and proper flood disaster management need to be developed and adopted occasionally. Flood Disaster Management (FDM) seemed to be not working effectively especially during the Kelantan prodigious flood in December 2014. There were negative perceptions among victims and Malaysian citizens regarding the disaster management and government authorities in relation to corrupt practices. The FDM can be divided into four phases (i.e., prevention, preparedness, response and recovery) which undoubtedly corruption is perceived to exists in every phase. The aim of this study is to identify opportunities of corruption across FDM phases. The study presents a case study of Kelantan using the quantitative research approach which utilises questionnaire with government and private agencies. Further to that, this paper proved that opportunities for corruption may occur at every phase, undoubtedly response and recovery phase especially activities involving fund and donation are riskier. The findings are hoped to assist in developing an improved FDM in term of increased transparency.

1. Introduction

Disaster strikes quality, changes the lives of all it touches and its effects are felt long after the event [1]. Disaster has profound implications for large sector of the economy and political system of the affected region that may leads to political and social stability as well as international security and relations [2]. Despite disaster can be divided into three types such as natural, man-made, and hybrid disaster [1], natural disaster shows significant effects in term of loss of life, damage to property and environment, as well as the disruption of supply chains and markets [3].

Consequently, Malaysia has experienced various magnitudes of disaster with flood contributed to the highest number of occurrence. Looking at Malaysia's disaster and risk profile, Internationally Reported Losses of Disaster (1990-2014) by Centre for Research and Epidemiology of Disaster [4] states that flood is the most frequent disaster occurred (62.5%) compared to other disaster. Moreover, in term of mortality, flood contributed second place after storm with 24.1 % mortality and in term of economic issues, flood is ranked first place with 60% compared to earthquake, wildfire and storm. In addition, the 2014 year-end downpour and flood was the worst ever in Malaysian history, affecting more than half a million people with damages to public infrastructure alone was estimated at RM 2.851 billion [5].



Due to the fact that Malaysia has experienced many serious flooding events, the disaster management and relief have to be adopted and developed from time to time [6]. Building up an efficient and transparent disaster management is one of government agenda as primary approach to promote openness and reduce corruption problem [7]. In relation to corruption, Mahmud & Prowse [8] suggest that disaster management and relief sector has suffered from lower levels of corruption with 91% of individuals allegedly involved in corruption were elected representative with 54% is due to abuse of power whilst 37% of bribery. They further added that negligence to provide services and nepotism were most common within the pre-disaster intervention, whilst wage or asset stripping, bribery and the misuse of the resources were most prevalent in post-disaster intervention. Therefore, it is inevitable to determine the opportunities for corruption across FDM

In order to ensure an improved disaster management, transparency in decision making is important through preparing guidelines in advance so that they can be drawn upon at the time of a disaster without further delay [9]. Moreover, transparency and accountability initiatives seeks to improve the process through which actors and institution can affectively bring government to account and to effectively contribute for better development outcomes and socio-economic condition [10]. In relation to the latest scandal of misappropriation of state funds for flood victims, the Kelantan Menteri Besar has put forward that the state government is serious in curbing corruption in the distribution of flood relief funds for victim who were hit by the floods in 2014 [11]. Besides, China has been continuously marching toward transparency and openness in disaster management on the policy agenda since 2003 [12].

2. Perceived corruption activities in disaster management process

According to Islam et al. [13], the strategic framework on integrated flood disaster management includes four cyclic steps namely: (1) Preparedness before flood impact such as flood forecasting and warning; (2) readiness upon flood arrival; (3) emergency responses during flood impact and; (4) recovery and rehabilitation after flood impact. As for Malaysia, during the current 11th Malaysia Plan, the phases of disaster prevention, mitigation, preparedness response and recovery will be given emphasis to tackle problem of floods and other emerging hazards in a holistic manner through the explicit focus on strengthening disaster risk management, covering structural and non- structural measures [5].

Table 1 addresses the opportunities for corruption in disaster management process, particularly in flood disaster. During prevention phase, the perceived corruption activity was identified in organisational and community preparedness activity such as lack of transparency, lack accountability and corruption in sector related to organisation's core work that will negatively influence the beneficiaries' vulnerability to natural hazard/ disaster [14].

Table 1: Perceived corruption activities in disaster management process

Disaster Management Process	Prevention	Preparedness	Response	Recovery
Opportunities for corruption	<ul style="list-style-type: none"> Organisational and Community Prevention Activity 	<ul style="list-style-type: none"> Improvisation central foundation of emergency management 	<ul style="list-style-type: none"> Donation Temporary Supply Sheltering and volunteers Emergency Response Plan 	<ul style="list-style-type: none"> Transitioning and return to normal Dealing with donation Government welfare and emergency assistance

As for preparedness phase, improvisation of central foundation for emergency management is one of activity that allow non-transparency situation especially in the injection of large amounts of resources into poor economies, where institutions may have been damaged and destroyed, and can exaggerate power imbalance that leads to increase opportunities for corruption [15]. Moreover, donation, temporary supply, sheltering and volunteers, and Emergency Response Plan were found to

create opportunities for corruption during response phase. Due to the fact that corruption is often not transparently reported, this situation gives problem to approvals for the donation [16]. Besides, the breakdown of accountability provides unscrupulous public official with a golden opportunity to siphon off money and supplies from government funds and donations [17]. According to Paterno [17], there are important people that put in charged for coordination of the distribution of relief good who will distribute relief pack in the basis of their favouritism and political patronage. Finally, during recovery phase, transitioning and return to normal and Government welfare and emergency assistance were detected with corruption occurrence. Recovery and reconstruction project rarely possess systematic consideration of whether such project will actually achieve the goals for which they implement [14]. Usually, a lot of money gets spent but one does not always know the reason. Extreme weather triggers an infusion of reconstruction cash of federal, state and local government, which corrupt official can misappropriate on the situation [18]. Furthermore, public officials are given a heightened opportunity to exploit victim desperation in order to advance their private interests [19].

3. Research Methodology

The research utilises quantitative data collection method by means of questionnaire survey. The questionnaire intended to identify the possible opportunities for corruption across disaster management phase. The questionnaire was designed to have 5 sections with a total of 22 questions. A 5-points Likert scale were utilised for the respondents to indicate their opinions. The target respondents were selected based on non-probability of judgement purposive sampling due to their expertise in the subject matters. There are five (5) departments (i.e., Department of Irrigation and Drainage (DID), Public Works Department (JKR), Fire & Rescue Department (BOMBA), Royal Malaysia Police (POLIS), Malaysia Civil Defence of Kelantan (APM KELANTAN), National Disaster Management Agency (NaDMA) and Malaysian Medical Relief Society (MERCY)) identified to be involved in flood management especially in Kelantan (as shown in Table 2) and the list of departments were obtained from official website of eBanjir Negeri Kelantan. The target respondents were based on the number of the workforces in the various departments inclusive of senior officers, executives and supporting staffs.

Table 2: Target respondents and response rate

Name of Department	Target respondents	Responses
Agensi Pengurusan Bencana Negara (NADMA)	50	5
Jabatan Pengairan dan Saliran Negeri Kelantan (JPS)	35	11
Jabatan Kerja Raya Negeri Kelantan (JKR)	30	13
Jabatan Bomba dan Penyelamat Negeri Kelantan	35	13
Ibu Pejabat Polis Negeri Kelantan	25	15
Jabatan Pertahanan Awam Kelantan (APM)	30	14
MERCY	27	15
TOTAL	232	86

The research focused with Kelantan since it is considered as the most severe state experienced flood disaster in Malaysia. In example, during 1967 flood, it is estimated that 84% of the villages in Kelantan

was affected with estimated damage of RM 30,000,000.00 [20]. Adding to that, in 2004, the water level of Sungai Kelantan at Tambatan DiRaja, which has a danger level of 25m raised to 29.70m [21] that caused 5,000 individuals sheltering in government reception centres [22]. Whereby, in 2014 flood, the Malaysia National Security Council confirmed that it was the worst in history with 202,000 victims were displaced [23].

Table 2 also presents the target respondents of 232 for the five departments and the response rate of 37.06 percent (86 responses) after one month of direct and postal questionnaire distribution (1st May

2017 until 21st May 2017). The response rate of 37.06 percent is appropriate due to postal questionnaire survey is around 20 to 30 percent [24]; [25]. In addition, a more recent survey done by Ismail [26] and Nordin [27] received 23.6 and 37.5 percent response rates.

4. Data Analysis and Discussion

Table 3 presents the respondent's position held in the departments. The result shows that most of the respondents (70 of 86 respondents or 81.4%) are senior officers and executives which indicates that they have the authority to give their opinion and statement on the issues. While the remaining 18.6% are the supporting staffs. On the other hand, table 4 shows the respondents' working experiences. Based on the results, 67% of the respondents have more than 5 years experience with 26 of them have more than 10 years experiences which can be considered as highly experienced as suggested by Masrum [28]. This implies that the respondents have reasonable knowledge on the issue.

Table 3: Respondents' position

Position	No. of Respondents	Percentages (%)
Senior Assistant Director	2	2.33
Operation officer	28	32.56
Administration officer	27	31.40
Training Officer	3	3.49
Financial	9	10.47
Engineer	1	1.16
Assistant Engineer	3	3.49
Secretary	3	3.49
Technician	2	2.33
Clerk	5	5.81
Volunteer	1	1.16
Intern	2	2.33
TOTAL	86	100

Table 4: Respondents' working experiences

Working Experiences	No. of Respondents	Percentage (%)
Less than 5 years	28	32.6
5 years and 10 years	32	37.1
10 years and above	26	30.2
TOTAL	86	100

Table 5: Implementation effectiveness of FDM

Phases	Mean	Rank
Response	3.67	1
Recovery	3.60	2
Preparedness	3.57	3
Prevention	3.57	4

Table 6: Implementation of FDM in Malaysia

Measures	Mean	Rank
FDM is important for your company	4.16	1
FDM is to manage and reduced the impact of hazard	4.14	2
FDM can help to overcome the economy environment and society in general	4.09	3

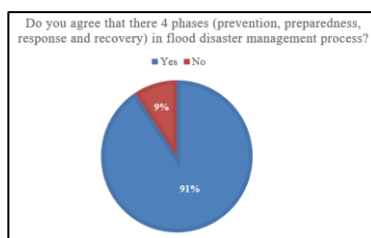


Figure 1: Respondents' agreement on the four phases of FDM process

Figure 1 displays respondents' agreement on the four phases of FDM process with 91% agreed that FDM involve is prevention, preparedness, response and recovery which is in line with Islam et al. (2016) and Yassin [5]. However, based on Table 5, response phase was found to be more effective (M=3.67) compared to other phases. In addition to that, Table 6 shows the perception of respondents in term of implementation of FDM in Malaysia with 'FDM is important for your company' is ranked first (M=4.16), followed by 'FDM is to manage and reduced the impact of hazard' (M=4.14) and 'FDM can help to overcome the economy environment and society in general' (M=4.09). This verify the work of Islam et al. [13] that put forward a key to dealing with the disaster scenario is with a good

planning and framework in disaster management with close collaboration between government and non-government agency. Hence, it can be deduced that the respondents are aware on the issue of FDM phases as well as the implementation of FDM.

Perceived corruption activities in flood disaster management process

Table 7 explains the perceived corruption activities across FDM process in Malaysia. During the prevention phase, ‘individual and household activity’ was found to be the most selected issue (M=3.52) followed by ‘implement structural flood mitigation’ (M=3.50) and ‘implementation of complementary non-structural and non-engineering measure’ (M=3.47). This is in line with Labadie [14] that put forward there is a lack of transparency and accountability that leads to corruption in community and organizational preparedness activities. For the preparedness phase, elements of ‘emergency assessment activity’, ‘give public info media and disaster activity’, ‘improve central foundation of emergency management activity’ and ‘Prepared community of worship of disaster’ were equally agreed by most of the respondents with mean = 3.20 and followed by ‘expedient hazard mitigation’ (M=3.15). This proved the work of Kompanek [15] that highlighted improvisation of central foundation for emergency management is one of activity that transpire corruption and non-transparency.

Table 7: Perceived corruption activities in flood disaster management process

Phases	Activities	Mean	Rank	Mean Score	Rank
Prevention	Individual and household activity	3.52	1	3.09	4
	Implement structural flood mitigation	3.50	2		
	Implementation of complementary non-structural and non-engineering measure	3.47	3		
Preparedness	Emergency assessment	3.20	1	3.19	3
	Give public info media and disaster	3.20	2		
	Improve central foundation of emergency management	3.20	3		
	Prepared community of worship of disaster	3.20	4		
	Expedient hazard mitigation	3.15	5		
Response	Fund and donation	3.52	1	3.48	1
	Hazard detection and Warning consideration	3.50	2		
	Sheltering	3.47	3		
	Temporary Supply	3.44	4		
Recovery	Dealing with donation	3.45	1	3.32	2
	Return to normal in social, economic and environment	3.38	2		
	Disaster recovery center	3.29	3		
	Post disaster policy	3.16	4		

Next, during response phase, ‘fund and donation’ was ranked first (M=3.52) as the perceived corruption issue. This is not surprising due to approvals for donations were not transparently done [16] which also leads to opportunity to siphon off money and supplies from government funds and donations by the officers [17]. The issue of donation also transpires in the recovery phase as ‘dealing with donation’ was also ranked first with mean value of 3.45 by the respondents. All in all, it can be seen from the results that among the four phases, response phase was perceived to be prone with corrupt activities (M=3.48), followed by recovery (M=3.32), preparedness (M=3.19) and lastly prevention (M=3.09). Despite the result proved that opportunities for corruption may occur at every phase, undoubtedly response and recovery phase especially activities involving fund and donation are riskier which has been proved by the scandal mentioned by Reduan [11].

5. Conclusion and recommendation

The study shows that effective FDM is vital in reducing the impact of hazard. As for that matter, Malaysian government have identified phases of flood disaster management as prevention, preparedness, response and recovery. The finding of this study revealed that most of respondent recognise and aware with this four phases in FDM process. However, majority of the respondents believed that response and recovery phase are the most effectively implemented in Malaysia. The study also indicates possible area and activities in FDM in Malaysia that may involve corrupt activities. Based on the findings, majority of the respondents believed that the response and recovery phase are positive toward corrupt activities with fund and donation is the higher possible activity intended toward corrupt activities. There may be risk of double funding and misuse. They also suggested that in recovery area, activity that dealing with donation contributed to corrupt activity. This showed that other than wage or assets stripping, bribery, and the misuse of resource were most prevalent in post-disaster intervention.

As for that matter, high transparency in FDM in Malaysia is believed to improve the disaster management process, particularly in term of sharing information including funding, budget utilization, beneficent, selection criteria, selection vendor and other prevent from the corruption. Moreover, the government should improve their enforcement by conducting more training to the local community in order to increase the public awareness, education and public participation in disaster management. Finally, the disaster management centre should have been positioned in a strong ministry which is perceived as having a low political profile and status. Also, links between the disaster management and local governments should be strengthened as teamwork is needed to produce effective coordination on disaster management.

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References

- [1] Azmi NA, Hashim R and Zamhury N 2012 *IEEE Symposium on Humanities. Flash Floods and People Preparedness in Anticipating Disaster in Malaysia*, Science and Engineering Research Kuala Lumpur pp. 630-633
- [2] Rodriquez JT, Vitoriano B, Montero J and Kecman V 2011 *OR Spectrum. A Disaster- Severity Assessment DSS Comparitive Analysis* pp. 451- 479
- [3] W. E. Forum 2010 A New Private Public Partnership Model for Disaster Response," Engineering & Construction Resource Partnership
- [4] C. f. R. a. E. o. D. (CRED) 2009 EM-DAT: The International Disaster Database (CRED, 2009) [Online]. Available: <http://www.emdat.be/>. [Accessed 10 February 2015].
- [5] Yassin MM 2015 *Official Statement 3rd United Nations World Conference. Disaster Risk Reduction* (Sendai, Japan)
- [6] Shafiai and Khalid 2016 *Management Malaysia International Reviews of Management and Marketing. Examining of issues on Flood Disaster*
- [7] Bertot JC, Jaeger PT, and Grimes JM 2010 *11th Annual International Conference on Digital Government Research. ICTs, Social Media, and Government Transparency Initiative* (Mexico)
- [8] Mahmud T and Prowse M 2012 *Global Environment Change. Corruption in Cyclone Preparedness and Relief Efforts in Coastal Bangladesh. Lessons for Climate Adaption ?* pp. 933-943
- [9] Bayntun C, Rockenschaub G and Murray V 2012 A qualitative analysis of the core Literature to Complement the WHO Toolkit for Assessing Health-system Capacity for crisis Management PLOS Current Disaster. Developing a Health System Approach to Disaster Management.

- [10] Acosta AM 2013 *Development Policy Review. The Impact and Effectiveness of Accountability and Transparency Initiatives: The Governance of Natural Resources* **31** 89
- [11] Reduan, 2017 Mb Vows Report Errant Agencies," New Straits Times: Prime News, Kota Bharu, 2016, March 17.
- [12] Kang Y, Disaster Management in China in a Changing Era, Springer, 2015.
- [13] Islam R, Kamaruddin R, Ahmad SA, Jan SJ and Anuar AR 2016 International Review of Management and Marketing. A Review on Mechanism of Flood Disaster Management in Asia **6** 29
- [14] Labadie JR 2008 Disaster Prevention and Management. Auditing of post-disaster recovery and reconstruction activities 575
- [15] Kompanek A 2017 Tackling Corruption in Disaster Relief Efforts," Center for International Private Enterprise (CIPE), 9 December 2013. [Online]. Available: <http://www.cipe.org/>. [Accessed 22 August 2017].
- [16] Hees R, Ahlendorf ML and Debere S 2010 *Transparency International. Preventing Corruption in Humanitarian Operation, Berlin*
- [17] Paterno B 2014 Learning From Disaster. Corruption and Environment Catastrophe, 7 November 2014.
- [18] Sorensen J 2014 Why are Natural Disaster Breeding Ground for Corruption ? Northwestern Now, 03 March 2014.
- [19] Chan N 2012 Impacts of Disasters and Disasters Risk Management in Malaysia The Case of Floods pp. 508-509
- [20] Davies R Malaysia Floods – Kelantan Flooding Worst Recorded as Costs Rise to RM1 Billion Floodlist, 5 January 2015. [Online]. Available: <http://floodlist.com/asia/malaysia-floods-kelantan-worst-recorded-costs>. [Accessed 22 August 2017].
- [21] Kent 2017 Flooding hits eastern Malaysia," BBC News, 13 December 2004. [Online]. Available: <http://news.bbc.co.uk/2/hi/asia-pacific/4091169.stm>. [Accessed 22 August 2017].
- [22] Su-Lyn B 2017 Kelantan floods like Japan's 2011 tsunami, says NSC," Malay Mail Online, 15 January 2015. [Online]. Available: <http://www.themalaymailonline.com/malaysia/article/kelantan-floods-like-japans-2011-tsunami-says-nsc#F2wJf5ozdT7BKZp.97>. [Accessed 22 August 2017].
- [23] Akintoye A 2000 *Construction Management and Economics. Analysis of Factors Influencing Project Cost Estimating Practice*, pp. 77-89
- [24] Black C, Akintoye A and Fitzgerald E 2012 *International Journal of Project Management. An Analysis of Success Factors and Benefits of Partnering in Construction* 423
- [25] Ismail K 2012 A Value for Money (VFM) Assessment Framework for Public Private Partnership (PPP) Approach (Universiti Teknologi MARA Malaysia, Shah Alam)
- [26] Nordin RM 2015 A Framework of Transparency Initiative (TI) to Fight Corruption for Public Construction Projects. Unpublished PhD Thesis. (Universiti Teknologi MARA, Malaysia)
- [27] Masrum MAN 2012 Developing a Predictive Contractor Satisfaction Model (CoSMo) for Construction Projects. PhD Thesis (Queensland University of Technology, Queensland, Australia)