

Towards Societal Engagement: Building Human Resilience by Engaging Communication about Flood Prone Areas

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Societal engagement is defined as the direct and indirect interactions of social organisations and stakeholders-at-large, with government, various institutions and business establishments, with the aim of affecting decision making, or the achievement of a common goal. Economic development projects have brought about innumerable advantages, as well as many unfavourable effects upon vulnerable people, plus harm to natural resources. Human activities have often negatively impacted social and communal harmony, as well as contributed to the loss of human livelihood, the destruction of renewable resources, and have, at times, resulted in the loss of life itself. Engagement is a two-way relationship in which agencies, authorities, and key figures, seek and receive the views of the stakeholders for the betterment of the community. This paper aims to address how this group might assist the society in meeting the challenges of sustainable development, as well as promoting a readiness to face floods in their respective neighbourhoods. It can be concluded that most of the respondents believe that it is necessary for the utility company of Malaysia, “Tenaga Nasional Berhad” (TNB) to continuously improve their assets in order to reduce the risk of a disaster. However, when it comes to respondents’ actions when facing a disaster, there seems to be no standardised course of action. This, therefore, identifies a need to further educate communities on the most effective course of action that can be taken when facing a disaster. The data obtained from the study contributes to the potential preparedness and preventive steps of the target community when facing potential hazards and can perhaps contribute to the development of a mitigation plan for further research and study.

Key words: *Flood, Metaphor, Media, Discourse, Malaysia, Philosophy.*

Introduction

Societal engagement is defined as the direct and indirect interactions of social organisations and stakeholders-at-large, with government, various institutions and business establishments, designed to affect decision making or the achievement of a common goal. Engagement is a two-way relationship in which agencies, authorities and key figures seek and receive the views of stakeholders for the betterment of the community (Rapeli et al. 2018). Economic development projects have brought about innumerable advantages, as well as many unfavourable effects upon vulnerable people and harm to natural resources. Human activities have often had negative impacts upon social and communal harmony, have resulted in the destruction of renewable resources, have contributed to the loss of human livelihood, and at times, to the loss of lives. These and other consequences can negate the positive benefits of economic development (Rowlands, 2013). Due to the dynamics, new directions and approaches should be taken, to proactively identify societal-engagement issues and applications (Henstra, 2010; Alexander, 2015). To define, “disaster risk reduction and resilience as policy goals geared towards reducing vulnerability and minimizing risk requires a closer examination” (Handayani et al., 2019, p.1). Engagement is a two-way relationship in which agencies, authorities, and key figures seek and receive the views of societies on programs that may affect them directly, or in which they may have a significant interest (Dynes, 2006; Elliot, 2010). Engaging with the society can involve issues that are specific, especially when it comes to issues such as effective evacuation.

“Evacuation is the process between the start of leaving the risky area and the arrival at a safe place. Evacuation is not solely about ordering people to move from one place to another. It is imperative to persuade people to move, which relates to warning procedures, and the actual movement process and its management. A vital element with respect to this effort would be the effective utilisation of time. Careful consideration of the time variable is necessary to ensure that the evacuation of all those at risk can actually be affected” (Norshamirra Hijazzi et al., 2016, p.3). Keys and Opper (2002) asserted that the ability to carry out any evacuation procedures is highly dependent on four key factors: (1) emergency response planning; (2) training of personnel; (3) communications systems and methods; and (4) exercising activation and the delivery of specific response procedures.

Purpose of the study

Effective consultation is needed to bridge the information gap of the shared issues within communities, in order to obtain timely feedback from participants on what has to be done during their time of need, especially with respect to disaster. In addition, consultation serves as a stepping stone towards the development of urban flood resilience (see Moghadas et al., 2019).

The main objective of the research is to compile, prepare and validate questionnaires (field pilot included) which serve the following purposes:

- i. To measure communities' awareness of potential disasters that might occur within their housing areas;
- ii. To measure communities' perceptions and their readiness to overcome potential risks associated with disasters;
- iii. To measure communities' perceptions of collaborative efforts taken by the Malaysian Utility Company "Tenaga Nasional Berhad" (TNB) and the community to reduce the risk of disaster;
- iv. To gauge communities' views on initiatives taken by TNB to upgrade its assets and the potential impact to the development of the surrounding housing areas.

Literature Review

The current Emergency Response Plan (ERP) resolves only some of the key factors mentioned above. Although proper notification mechanisms to the authorities (relevant district, state and federal agencies) has been clearly outlined in the ERP, members of the community are not included in this notification. Firstly, the concept of Corporate Social Responsibility (CSR) is viewed as a form of treatment for new arising matters (Schrempf-Stirling et al., 2015), relating to environmental and humanitarian associations which require consideration of the social and environmental impacts on business activities (Reinhardt & Stavins, 2010; Carroll, 2015). Azwan Abdullah et al. (2017, p.16) sum up that "CSR refers to the voluntary integration by the company of social, societal, environmental and governance concerns within its strategy, its management and its relations with its partners". Thus, without this notion in mind, this study would not have materialised.

On the other hand, the concept of Social Impact Assessment (SIA) was considered and incorporated into the framework of the study, especially regarding the understanding, the management, and the controlling of change caused by a social impact risk of disaster, as advocated by Burdge and Vanclay (1996). This notion helps in the development and implementation of monitoring programs that classify unforeseen social impacts as a result of social unrest due to post-disaster (risk) (see Burdge & Vanclay, 1996). Lastly, the evaluation process should take place to ensure better implementation of various policy changes, proposed development and projects. This study serves as an introductory holistic contribution to the overall disaster risk prone areas, especially those residential areas surrounding dams. Rustam Khairi Zaharia and Raja Noriza Raja Ariffin (2013, p.493) suggested that "Community Based Organization has a crucial responsibility in managing disasters affecting their communities especially in ensuring community members are ready for any eventualities and reducing their vulnerabilities".

This study incorporates the essence of both CSR and SIA in order to formulate its methodology. This type of study has never been conducted, especially with funding from a utility company, and this is demonstrative of how the company cares for its stakeholders where disaster reduction is concerned. Previously, such studies have not been prioritised within a local context.

Methodology

The data analysis methodology involves Corporate Social Responsibility and a Social Impact Assessment (SIA) approach which should soon be complemented as part of a Community Engagement effort (projection). Based on the definition provided by Burdge and Vanclay (1996, p.59), a “social impact assessment can be defined as the process of assessing or estimating, in advance, the social consequences that are likely to follow from specific policy actions or project development, particularly in the context of appropriate national, state, or provincial environmental policy legislation.” In addition, it includes “all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs, and generally cope as members of society” (Burdge & Vanclay. 1996, p.59). It extends the impacts that include cultural changes to the sociocultural norms, values, and beliefs within their society (Burdge & Vanclay. 1996, p.59)

In general, based on Burdge and Vanclay’s (1996, p.60) theory, the direction provided in SIA includes:

- (1) understanding, managing, and controlling change;
- (2) predicting probable impacts from change strategies or development projects that are to be implemented;
- (3) identifying, developing, and implementing mitigation strategies in order to minimise potential social impacts (that is, identified social impacts that would occur if no mitigation strategies were implemented);
- (4) developing and implementing monitoring programs to identify unanticipated social impacts that may develop as a result of social change;
- (5) developing and implementing mitigation mechanisms to deal with unexpected impacts as they develop; and finally
- (6) evaluating social impacts caused by earlier developments, projects, technological change, specific technologies, and government policies.

The questionnaire was compiled and validated to formulate a survey that could be used in this project. At the completion of this questionnaire, a Focus Group Discussion (FGD), headed by

four experts, was held to review and discuss the questions that had been asked. Each member of the expert panel had their own expertise in the fields of environment, language and literature. After the FGD was completed, team members carried out some corrections towards the questionnaire that been commented upon by the expert panels. This questionnaire is discussed in the results and discussion section.

From the overview of the flood-map, Shah Alam East was identified because it was located near the river flow, and in an area at risk of flooding. The data collection was carried out in the areas nearest to the river. Residential areas that were located near the river and Shah Alam East are:

1. Kampung Kebun Bunga, Shah Alam
2. Pangsapuri Alam Prima, Shah Alam

Out of the residential areas listed, this survey was conducted at Kampung Kebun Bunga and Pangsapuri Alam Prima, due to these two places being at close proximity to the river. The questionnaire survey sample size was calculated using this formula:

$$n = N / (1 + Ne^2)$$

where,

n = total sample size

N = total population

e = error estimation

The formula was cited by Yamane (1967). According to the calculations, the total respondents that needed to complete the survey was 180. The overarching framework of the study determines what outputs are expected as necessary to meet the requirements of the project. Community engagement was sought in order that their feedback might help determine the positioning of TNB in their community as the catalyst to help them.

To protect the assets of TNB, the company must first gain the favour of people living in the vicinity, and hence, the company needs to extend care and effort in order to demonstrate concern for community well-being, especially when it comes to facing calamities. People will not be concerned with how much we know or do unless they know how much we care.

Results and Discussion

The post analysis report is discussed below to illustrate the awareness and preferences of the residents as part of the fulfilment of the proposed framework. The survey was conducted as part of the methods used by consultants to gauge local communities' perceptions, awareness

and readiness regarding their safety in the event of a disaster occurring within their housing areas. Specifically, the questions are designed to gather information from the local communities regarding the following outcomes:

- i. To measure communities' awareness of potential disasters that might occur within their housing areas;
- ii. To measure communities' perceptions and their readiness to overcome potential risks associated with disasters;
- iii. To measure communities' perceptions of collaborative efforts, by TNB and the community, to reduce the risk of disaster;
- iv. To gauge communities' views on initiatives implemented by TNB to upgrade its assets, and potential impacts to the development of the surrounding housing areas.

In order to gauge a more in depth understanding of the respondents' profiles pertaining to disaster management, the respondents were also asked to provide information on their length of stay in a current location, types of housing they were currently residing in, and the number of disasters they had experienced. Most of the respondents were fairly new to the housing areas, with 55% of them having only been there between 1 to 5 years. The lowest are those who have stayed in the housing areas between 16 to 20 years (3%). As for the types of housing involved, 80% of the respondents reported that they were currently staying in apartments, with only 9% residing in single-storey terrace houses. When asked about the number of disasters that respondents had experienced, 52% claimed that they had never faced a disaster, while 12% of respondents had experienced disasters in excess of 7 times.

Perception, Awareness and Readiness on Safety Issues

Awareness of potential disasters surrounding the housing area

	Statements	Average Rating
A1	I'm aware that all residents are at risk of facing disasters such as flood and landslide which will affect the safety of the residents	3.48
A2	I'm aware that disasters such as flood and landslide occur in this housing area	2.91
A3	I know which authoritative agency/department I need to contact if a disaster occurs	3.68
A4	I'm aware that the water quality of Sungai Damansara is deteriorating and that the water level has continuously reduced due to littering	3.97
A5	Water condition of Sungai Damansara near this housing area has little impact on my life due to the water supply provided by SYABAS	3.60
A6	I'm aware that disasters such as landslide and flood will damage TNB's assets such as the Shah Alam East Substation	3.54

Respondents were asked to rate each question between 1 and 5, with 1 denoting either their strong disagreement with the statement, or a strong agreement that the statement is not important. 5, on the other hand, represented their strong agreement to the statement, or a strong feeling that the statement is important. Based on the results above, except for Statement A2, the scores were between 3 and 4. This indicates a general agreement with the five statements. The highest score is for Statement A4 (a score of 3.97) indicating concerns regarding the deteriorating condition (water quality and level) of Sungai Damansara, which is largely due to littering. Note, however, with a score of only 2.91, most of the respondents disagree with the statement that disasters such as flood and landslide always occur in their housing areas. This disagreement could be attributed to the fact that the respondents themselves have not experienced a disaster before, or that they have not resided in the housing area long enough to experience any disaster. Further analysis is likely to provide additional evidence for this.

Overall, it can be concluded that since none of the statements achieved an average score of 4, most respondents do not fully agree with the statements. This result could indicate two things:

- i. Lack of awareness among respondents of potential disasters that might occur in surroundings close to their housing areas; and
- ii. Lack of concern of the potential impact of disasters upon their lives, or TNB's assets

In addition to their awareness of potential disasters which might occur in surroundings proximate to their housing areas, respondents were also asked to name specific agencies or departments that they would contact in the case of disaster. As expected, 63% of respondents reported that they would contact the Fire and Rescue Department, followed by the Police Department (18%) and Others (17%). Some referred to other agencies, such as the Shah Alam City Council, or their Housing Committees. Respondents were also asked whether they knew the number to contact in the event of emergency. Only 64 out of 180 respondents (36%) answered that they knew the number. The lack of answers to this question could be attributed to the fact that they were not interested in answering the questions, or that they were not aware of the number to contact in the case of emergency.

Perception and readiness to overcome potential risks associated with disasters

	Statements	Average Rating
B1	I clearly know the potential negative impact associated with disasters such as flood and landslide and as preparation I have sufficiently insured my house and car	4.00
B2	My family and I are fully prepared to face any possibility of disaster by making sure enough food and clean water supply, as well as other daily necessities, are available.	3.15
B3	I always collect information regarding safety and disasters that could occur in my housing area (e.g. how many times the disaster has occurred, when it is expected to occur and where should we go)	3.29
B4	As preparation for a disaster, I keep all relevant numbers of authoritative agencies on hand, such as the Fire and Rescue Department, the Police Department and the hospital	3.32
B5	I'm always alert to the latest news provided by mass media, social media and others	3.88
B6	I always make sure I receive latest information pertaining to the safety of my housing area, or disasters, from the head of my local community or from authoritative agencies	3.57
B7	I always help communicate early information, pertaining to safety and disaster, to my family members and neighbours so that early actions can be taken	3.63
B8	I always make sure all-important documents such as birth certificates, marriage certificate and other documents are kept in a safe place when emergency happens	4.22
B9	If a disaster occurs at my housing area, I know where to go based on the instructions to evacuate given by the authorities	3.29

With a result of 4.00 and 4.22 each, statements B1 and B8 have shown that all respondents agree on the potential negative impact associated with a disaster and always make sure key items such as house, cars and important documents are taken care of. The remaining statements, however, have shown a much lower score (less than 4) indicating a lack of emphasis given by most of the respondents. Four statements particularly B2, B3, B4 and B9 have received scores less than 3.5, indicating either lack of readiness, or that the respondents perceive the measures as less important. Those measures are:

- Making sure enough food and clean water supplies, as well as daily necessities, are available;

- Making sure enough information regarding safety and disasters that could occur surrounding the housing area are collected;
- Making sure numbers of relevant authorities are kept;
- Making sure instructions from the authorities, regarding where to go, are followed.

In addition to the nine statements, the respondents were also asked to estimate the potential losses that would be incurred in the event of a disaster. 40% of the respondents believed the value would be higher than RM30,000, while 22% of respondents preferred not to measure the loss in monetary value. Instead they highlighted that they would lose property, such as house and cars. Based on the answers given, it can be concluded that most of the respondents believed that any disaster would be associated with a loss of resources. The respondents were also asked to provide their own list of risks that they believed would be associated with a disaster. 43% of the respondents believed that a disaster would affect their health and lives, followed by their properties (22%) and general necessities such as roads and power supply (15%). Overall, it can be concluded that the respondents agreed that a disaster would have negative impacts on their lives. However, in terms of their readiness regarding facing potential risks, there are certain measures (for example as listed in B1, B2, B4 and B9) that respondents may not have considered as important.

Perception of collaborative efforts taken by TNB and the community to reduce the risk of disaster

	Statements	Average Rating
C1	I'm satisfied with how TNB carries out its role, for the benefit of the surrounding communities, in making sure all its assets are not affected	3.90
C2	In my opinion, there is a need for information pertaining to TNB's assets (their importance and safety) to be communicated to the local community from time to time	4.15
C3	An early warning system needs to be installed at locations at high risk of disaster	4.34
C4	There is a need to consider the opinion of local communities when developing safety guidelines for housing areas	4.25

Results for this section have shown almost all respondents agree with the statements given. Three of the statements have seen scores of more than 4, indicating their agreement on the need for information pertaining to TNB assets being communicated to the public, the need to install an early warning system, and the need to consider local communities' opinions when developing safety guidelines. It is notable, however, that the score on the statement pertaining to their satisfaction of TNB's role in making sure their assets do not affect surrounding

communities is slightly lower than 4. The low value indicates potential room for improvement that might be taken into consideration in the future by TNB.

Perception of initiatives taken by TNB to upgrade its assets and the potential impact to the development of the surrounding housing areas

	Statements	Average Rating
	I feel comfortable and aware of the following changes that will happen when TNB starts the project to improve the condition of their assets:	
D1	Comfortable with the presence of the temporary workers (local or foreign)	3.11
D2	Comfortable with the improvement in the number of customers for businesses surrounding the area	3.36
D3	Comfortable with the existence of new living quarters in the area	3.18
D4	Comfortable with the presence of non-local agencies or communities, particularly over the weekend	3.20
D5	Aware that it will affect property values in the area	3.89
D6	Aware that it will create difficulties for local communities (comfort, harmony etc.)	3.55
D7	Aware that it will create the perception that a development can impose a risk to matters of health, environment, social life and security	3.82

Generally, most of the respondents only slightly agreed with all the statements above. Statement D7 indicates respondents' slight agreement on the potential impacts a development has on aspects such as health, environment, social life and security. The low rating could indicate a level of discomfort among local communities when facing development projects, such as the improvement of TNB assets. The highest score goes to Statement D5, where respondents are aware of the potential impacts that the improvement will have on property values in the surrounding area. This also indicates that respondents consider property values important, if changes occur with respect to TNB assets.

The low result of several statements such as D1, D2, D3, D4 and D6 indicate that local communities do experience a slight discomfort with having more non-local people in their areas. Despite that, the presence of local or foreign workers might create more business opportunities for local industries, however having new people join local communities could potentially create a risk that may usher in a range of health, environmental, social or security issues.



Limitations of the Study

This study is limited to areas where flood is seen more prominently, especially those nearer to rivers or lakes. A flood map was produced solely to identify the target area. The questionnaires were produced, and analysis was carried out according to a more localised approach in which generalisations should not occur. In addition, this paper does not claim to produce a comprehensive theory or current literature on this project; rather it is intended to address how the responses of this group of participants might assist the society in disaster risk reduction.

Conclusion

Overall, it can be concluded that most of the respondents believe that it is necessary for TNB to continuously improve their assets to reduce the risk of a disaster. However, when it comes to respondents' actions when facing a disaster, there seems to be no standardised course of action. This indicates a need to further educate communities on the most effective action that might be taken when facing a disaster. These findings also indicate that electronic media is the most effective and preferred form of communication in the event of a disaster.

Generally, this project has highlighted the need and significance of the CSR and its SIA efforts. To ensure sustainability, a move towards a long-term educational programme and the building of awareness should occur, in order to alleviate doubt and ensure better disaster risk reduction efforts. Clearly, people welcome modernisation and improvement and hope that we might show a greater concern for their everyday lives. The feedback received here has shown that people are concerned about their well-being, and the well-being of others, and that they look towards TNB for assistance in the case of any upgrades that might occur in their residential areas. Perhaps, in the future, more utility companies could show an increased accountability towards its stakeholders where disaster risk reduction is concerned – in matters relating to issues of vulnerability, mitigation, preventive measures, and sustainability policies.

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REFERENCES

- Alexander, D.E. (2015). Evaluation of civil protection programmes, with a case study from Mexico. *Disaster Prev. Manag.* 24 (2), 263–283, <http://dx.doi.org/10.1108/DPM-12-2014-0268>.
- Azwan Abdullah , Siti Amaliya Mohd Radyi , Mohd Rafi Yaacob , Mohammad Ismail , Mohd Nazri Zakaria & Zulhamri Abdullah, (2017). A holistic approach to CSR engagement in palm oil industry. *International Journal of Advanced and Applied Sciences*, Vol.4, No.12, pp.16-20.
- Burdge, R, J, & Vanclay, F, (1996). Social impact assessment: a contribution to the state of the art series', *Impact Assessment*, Vol.14, No.1, pp. 59-86.
- Carroll, A,B, (2015). Corporate social responsibility: The centerpiece of competing and complementary frameworks. *Organizational Dynamics*, Vol. 44, No. 2, pp. 87-96
- Dynes, R.R. (2006). Social capital: dealing with community emergencies. *Homel. Secur. A.* 2 (2), 1–26
- Elliott, D. (2010). A social development model for infusing disaster planning management and response in the social work curriculum, in: D. Gillespie, D. Kofi (Eds.), *Disaster Concepts and issues. A Guide for Social Work Education and Practise, CSWE, Alexandria*, pp. 89–110.
- Handayani, W. et al. (2019). Operationalizing resilience: A content analysis of flood disaster planning in two coastal cities in Central Java, Indonesia. *International Journal of Disaster Risk Reduction*, 35, 101073
- Henstra, D. (2010). Evaluating local government emergency management programs: what framework should public managers adopt? *Public Adm. Rev.* 70 (2), 236–246, <http://dx.doi.org/10.1111/j.1540-6210.2010.02130.x>.
- Moghadas, M. et al. (2019). A multi-criteria approach for assessing urban flood resilience in Tehran, Iran. *International Journal of Disaster Risk Reduction*, 35, 101069
- Norshamirra Hijazzi et al. (2016). *IOP Conf. Ser.: Earth Environ. Sci.* 32 012032
- Keys, C, & Opper, S, (2002). On the Proper Conceptualisation of the Warning, Evacuation and Community Education tasks in the Context of Planning for Dam Failure, in the *ANCOLD 2002 Conference on Dams, Glenelg*, http://www.ses.nsw.gov.au/content/documents/pdf/research-papers/42907/On_the_proper_conceptualisation_of_the_warning.pdf
- Rapeli, M., Cuadra, C... Salonen, T. (2018). Local social services in disaster management: Is there a Nordic model? *International Journal of Disaster Risk Reduction* 27, 618–624



Reinhardt, F,L, & Stavins, R,N. (2010). Corporate social responsibility, business strategy, and the environment, *Oxford Review of Economic Policy*, Vol. 26, No.2, pp.164-181.

Rowlands,A. (2013) Disaster recovery management in Australia and the contribution of social work. *J. Social. Work Disabil. Rehabil.* 12 (1–2), 19–38, <http://dx.doi.org/10.1080/1536710X.2013.784173>.

Rustam Khairi Zaharia & Raja Noriza Raja Ariffin, (2013). Community-based disaster management in Kuala Lumpur. *Procedia - Social and Behavioral Sciences*, Vol. 85,pp. 493 – 501.

Schrempf-Stirling, J, Palazzo, G, & Phillips, R, (2015). Historic corporate social responsibility. *Academy of Management Review*, <<http://amr.aom.org/content/41/4/700.abstract>>