Strengthening the Capacity of Flood-Affected Rural Communities in Padang Terap, Kedah, Malaysia

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Presentation Outline

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Abstract

The communities in the district of Padang Terap, Kedah, were not used to flood events even though they had been living in the area for generations. Since 2000, flooding in this area had become a common occurrence as a result of the increased intensity and frequency of rain due to global warming and climate change. Recognizing the need to address the vulnerability and adaptation of the communities and relevant agencies, the Centre for Global Sustainability Studies (CGSS), Universiti Sains Malaysia (USM), carried out a project based on university community engagement and education for sustainable development (ESD) in this area. The stakeholders involved in this project were from different entities, consisting of experts from USM, residents, local officials, and selected schools in the district. The project identified that the communities of Padang Terap needed counselling for trauma victims, training in handling and maintaining flood-related equipment, accredited flood rescue training, and the establishment of a formal community flood disaster committee consisting of village leaders and the local authorities. In addition, CGSS also addressed public awareness of the dangers of flooding via ESD.
Introduction

- Flooding is a natural disaster caused by climatological factors such as temperature, rainfall distribution, evaporation, wind movements, and the natural terrain (Balek, 1983).

- River flooding is caused by heavy and/or continuous rainfall over a period of a few days or weeks in a large area.

- An important characteristic of this type of flooding is the soil, which becomes saturated, exceeding its capacity to absorb water, and thereby increasing overland flow and water retention (Kron 2002; Berz et al. 2001).
Climate change is seen as a global phenomenon; however, its impacts are localized and long-term. The effects of climate change are evident in the increased occurrence of flooding in the coastal areas of Kedah, Kelantan, Terengganu, Pahang, and Johor.

Continuation of this scenario will have a significant impact on the society’s culture and economically sensitive sectors as well as on the well-being of those affected.
Introduction......

- Among the impacts of floods are pollution; erosion; damage to building structures; loss of property; loss of life; damage to the drainage system; contamination of food and water; disruption of socio-economic activities, including the transportation, telecommunications, and services network; and loss of environmental services resulting from effects such as the degradation of agricultural soil
Introduction...

- Flood occurrences in 2006 and 2007 amounted to RM 1.1 billion and RM 776 million in losses, respectively.
- This amount reflects only the losses incurred by the Malaysian government, and does not take into consideration losses sustained by flood victims and by the local economy.
In Malaysia, the flood disasters that occur are due to flash floods, tropical storms, and monsoon storms.

On the east coast of peninsular Malaysia, particularly in the states of Terengganu, Kelantan, and Pahang, flooding normally occurs in the rainy season and the frequency of these floods is affected by changes in the monsoon seasons (Chan 1996; Jamaluddin and Sham 1987; Rose and Peter 2001).
The Padang Terap, Kedah Project involves the efforts of the USM team in developing a database that identifies the vulnerability of rural villagers with regard to flood-security, and to understand the dynamics in the transformational process from flood-vulnerability to flood security for each group.
Theoretical Framework


- Vulnerability is defined as the conditions determined by physical, social, economic, and environmental factors or processes that increase the susceptibility of a community to the impact of hazards (United Nations International Strategy for Disaster Reduction (UNISDR) 2004a).
Looking at the equation below, it is logical to say that by increasing capacity and reducing vulnerability, risk can be minimized.

\[ \text{Risk} = \text{Hazards} \times \frac{\text{Vulnerability}}{\text{Capacity}} \]

The Hyogo Framework for Action (United Nations International Strategy for Disaster Reduction (UNISDR) 2007) listed five priorities for action:

- Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation
- Identify, assess and monitor disaster risks and enhance early warning
- Use knowledge, innovation and education to build a culture of safety and resilience at all levels
- Reduce the underlying risk factors
- Strengthen disaster preparedness for effective response at all levels.

Using this and the above equation as a basis, capacity building initiatives should be at the forefront of disaster risk management activities.
Fig. 1 Case Study – Padang Terap, Kedah
Fig. 2  Flooded areas in the Padang Terap District
District of Padang Terap is the second largest district in the state of Kedah.

Padang Terap district was the area most affected during flood disasters from 2000 until 2010.

Area covers 135,684.41 ha, Population size is 72,318.

Consisting of Malay and Malay-Thai.

Padang Terap district has 12 *mukims* (sub-districts).
- The main economic activities are rubber tapping and farming, and the principal crop grown is paddy and are highly dependent on the river and rain water for irrigation.

- They are very much exposed to the threat of losing their crops and livelihoods if and when a flood occurs in the area.

- Flooding occurrences have increased in Padang Terap, happening at least once and sometimes up to eight times in a year.

- The duration of the floods averages about three days, but can last up to fourteen days consecutively.
Needs Analysis

- In order to curb losses and utilize resources in a more efficient manner, this study focuses on identifying community needs during floods in the district of Padang Terap, Kedah

- A survey of the entire population of flood-affected areas was conducted to gain an insight into population demographics and flood related losses

- Focus group discussions with village heads were held to identify common issues and needs
Survey

A survey was conducted to assess the flood victims’ needs during flood disasters (683 respondents), as well as to develop a valid and verified set of baseline data.

The sampling method chosen for this study was purposive sampling, whereby the respondents selected were those directly involved in paddy farming, vegetable farming, and other types of agricultural activity.
Survey

- Based on the existing data from the district office, 62 *kampungs* (villages) under 11 mukims were identified as flood-affected areas in the Padang Terap district.

- Once the *kampungs and mukims* associated with floods were identified, specific flood areas were located with help from *ketua kampung* (village leaders) for the survey.
Table 1: Respondents’ needs during floods

<table>
<thead>
<tr>
<th>Needs</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistance to move and lift belongings</td>
<td>146</td>
</tr>
<tr>
<td>Food supplies</td>
<td>96</td>
</tr>
<tr>
<td>Access to communication</td>
<td>88</td>
</tr>
<tr>
<td>Rescue assistance</td>
<td>45</td>
</tr>
<tr>
<td>Assistance in moving to a safe place</td>
<td>31</td>
</tr>
<tr>
<td>Access to electricity, water and other utilities</td>
<td>17</td>
</tr>
<tr>
<td>Quicker/faster flood assistance</td>
<td>14</td>
</tr>
<tr>
<td>Assistance with watching over assets</td>
<td>10</td>
</tr>
<tr>
<td>Medical care</td>
<td>7</td>
</tr>
</tbody>
</table>
Table 2: Respondents’ needs after floods

<table>
<thead>
<tr>
<th>Needs</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistance to tidy and clean up</td>
<td>579</td>
</tr>
<tr>
<td>Assistance to replace damage belongings</td>
<td>33</td>
</tr>
<tr>
<td>Medical care</td>
<td>8</td>
</tr>
<tr>
<td>Food supplies</td>
<td>8</td>
</tr>
<tr>
<td>Monetary assistance</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 3: Respondents’ actions before, during and after floods

<table>
<thead>
<tr>
<th>Actions</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before floods:</strong></td>
<td></td>
</tr>
<tr>
<td>Did not save contingency money</td>
<td>626</td>
</tr>
<tr>
<td>Elevated belongings</td>
<td>145</td>
</tr>
<tr>
<td>Safeguarded important documents</td>
<td>101</td>
</tr>
<tr>
<td>Moved vehicles to higher ground</td>
<td>97</td>
</tr>
<tr>
<td>Bought food supplies</td>
<td>94</td>
</tr>
<tr>
<td>Saved contingency money</td>
<td>57</td>
</tr>
<tr>
<td>Moved to a safer place</td>
<td>19</td>
</tr>
<tr>
<td>Built higher/elevated home</td>
<td>3</td>
</tr>
</tbody>
</table>
### Table 3: continue....

<table>
<thead>
<tr>
<th>Actions</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During floods:</strong></td>
<td></td>
</tr>
<tr>
<td>Moved to flood shelter</td>
<td>228</td>
</tr>
<tr>
<td>Moved belongings to a safer place</td>
<td>184</td>
</tr>
<tr>
<td>Contacted relevant authorities</td>
<td>73</td>
</tr>
<tr>
<td><strong>After floods:</strong></td>
<td></td>
</tr>
<tr>
<td>Cleaned mud from house</td>
<td>440</td>
</tr>
<tr>
<td>Attended medical checkup</td>
<td>127</td>
</tr>
<tr>
<td>Disinfected belonging, etc.</td>
<td>104</td>
</tr>
<tr>
<td>Sought counseling</td>
<td>15</td>
</tr>
</tbody>
</table>
Focus Group Discussions

- Since there are two different village-level administrative committees representing the federal government and state government, respectively, two separate FGD groups were convened.
- One catered to the federal government village committee, the other to the state government village committee. A total of 32 representatives from 29 kampungs (villages) attended the FGD sessions.
The FGD primarily focused on the problems faced by both the federal and state representative committees related to flood occurrences.

The purpose of this exercise was to provide a basic understanding of the major issues faced by the authorities in particular before, during, and after a flood occurs.
Major issues raised were:

- Dissemination of information on rising flood water level affected communities was slow and inefficient.
- Victims in flood shelters did not receive food supplies on time due to delays in the supplies reaching the shelters.
- There were insufficient rescue boats available for mobilization during flooding.
- Other equipment, such as high-pressure water jet sprays to clean houses after flooding, tents for constructing emergency shelter, and portable gas-powered to provide electricity were lacking, despite being urgently required to prepare for future flood occurrence.
Capacity Building Activities

Several measures were identified to strengthen capacity within the local community and Padang Terap’s local authority.

Children and the elderly were the most vulnerable, a *Bahaya Ayaq Bah* awareness campaign was conducted in six schools within the Padang Terap district. *Bahaya Ayaq Bah* is a phrase in the local dialect meaning “The Dangers of Flooding”
The 3S concept (Sebelum, Semasa, Selepas) was coined from the local terminology for “before,” “during,” and “after” flood occurrence. Information relating to the three stages was disseminated to the students, advising them to ascertain if their homes were vulnerable to flood, to evacuate their homes once the flood warning was issued by the authorities, and to ensure the whereabouts of each family member during the evacuation process.

To increase the coping capacities of the local community, residents were introduced to the concept of a “flood kit”
CBA.....

- This would consist of basic first aid items and toiletries, a flashlight, a bottle of water, food items such as instant noodles and biscuits, and a plastic folder to hold important documents.

- Training on handling and maintenance of rescue boats. Incorporating rescue measures and procedures, and proper usage of life vests and floatation devices.
Future Research and Recommendations

- This project covered only certain issues identified in the survey and raised during the FGD.

- Other issues such as insufficient communication and long-term adaptation strategies will need to be addressed in future.

- Implementation of an efficient early warning system or a flood alert which have to run without electricity and reach even the most secluded homes.
Conclusion

- Capacity building initiatives should be at the forefront of disaster risk management activities
KEMPEN KESEDARAN 'BAHAYA AYAQ BAH'
Thank You