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Essential Contents for a Flood Disaster Survival Kit: A Practical Guide for Malaysian Families

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Abstract

Flood disasters in Malaysia often strike with little warning, leaving families vulnerable and unprepared. This paper proposes the contents of a lightweight survival kit bag designed for flood emergencies, focusing on essential items that support immediate survival, safety, and hygiene. The kit is tailored for an average family, considering local needs, affordability, and cultural relevance. By equipping households with this ready-to-use kit, the impact of floods can be mitigated through improved preparedness and response.

Keywords: - Flood disaster, emergency survival kit, disaster preparedness

1. Malaysia's Flood Vulnerability and the Need for Household Preparedness

Malaysia is highly vulnerable to seasonal flooding, particularly during the northeast monsoon, which significantly impacts states such as Kelantan, Terengganu, Pahang, and Johor. These natural disasters frequently lead to forced evacuations, infrastructure damage, and interruptions to critical services such as electricity, clean water supply, and healthcare. In many instances, residents are evacuated with minimal notice and without immediate access to external aid, especially during the first 24 to 72 hours (Abid et al., 2024; METMalaysia, 2025). This reality highlights the urgent need for household-level disaster preparedness, particularly through the availability of practical, portable survival kits tailored to the challenges of flood emergencies.

2. International Best Practices in Emergency Kit Preparedness

Globally, many disaster-prone countries have institutionalized household emergency kits as an integral component of national preparedness strategies. In Japan, a country highly exposed to earthquakes and tsunamis, the "bosai rucksack" or disaster backpack is widely adopted

and culturally embedded. Disaster Risk Reduction (DRR) in Japan follows a three-tiered approach: self-help, mutual help, and public help (Sakurai & Ito, 2022). The bosai kits commonly include food, water, hygiene items, first aid supplies, radios, flashlights, and waterproof containers for essential documents. These kits are ergonomically designed for accessibility by children, the elderly, and people with disabilities. Japanese authorities also recommend having multiple kits at home, workplaces, and in vehicles. A standard bosai bag often contains between 30 and 45 items (Inaka House, 2025; NHK World Japan, 2021).

Similarly, New Zealand promotes a 72-hour survival kit through its Civil Defence guidelines, tailored to regional risks (National Emergency Management Agency, 2024). In the United States, the Federal Emergency Management Agency (FEMA) offers standardized "go-bag" recommendations and supports community preparedness initiatives to ensure households can remain self-sufficient after a disaster (FEMA, 2020). These examples demonstrate the effectiveness of a well-organized, proactive approach to household disaster readiness.

3. Gaps in Malaysia's Household Preparedness

Malaysia has made commendable advancements in flood forecasting systems and evacuation planning. The National Disaster Management Agency (NADMA) provides general preparedness information and has developed a basic model for household survival kits tailored for flood situations (NADMA, 2023). However, the public's awareness and consistent adoption of such kits remain low, particularly in high-risk communities (Mabahwi et al., 2020). Many families still rely on last-minute or improvised preparations, often assuming rapid governmental assistance—an assumption that may falter during large-scale or prolonged flood events (Rosmadi et al., 2023).

Furthermore, most commercially available survival kits in Malaysia are designed for general emergencies or individual use. They often overlook critical needs specific to Malaysia's flood-prone, tropical environment. Common issues include the lack of halal-certified food, inadequate waterproof storage, heat-sensitive medication options, and a failure to accommodate vulnerable populations such as children, the elderly, and those with limited mobility.

4. Toward a Family-Sized, Culturally Appropriate Flood Survival Kit

This paper aims to address these gaps by proposing a family-sized, lightweight flood survival kit specifically designed for Malaysian households. The proposed kit targets an average family size of four to five members and emphasizes only essential, context-appropriate contents. Inspired by international best practices while grounded in Malaysia's socio-cultural and climatic realities, the design will include features such as halal-certified food, compact clothing, portable power sources, and waterproof documentation storage.

Cultural relevance is critical. For Malaysia, a Muslim-majority country, the kit will also integrate items such as a small prayer mat and a qibla compass. The bag design will draw from Japan's school bag concept—ergonomic, durable, reflective for visibility, and capable of offering some body protection during evacuation. Additional safety features include a rope sling and compact organization for quick access.

In line with recommendations from international preparedness authorities, this paper also provides a detailed proposal for the contents and cost estimation of the survival kit, promoting a practical, affordable, and replicable model for community-wide implementation.

5. Proposed Contents of Lightweight Flood Survival Kit

The proposed survival kit bag is designed with ergonomic consideration to ensure it is practical during flood evacuation. Designed with double slings, the total wights, including contents, should not exceed 7 kilograms, aligning with the guideline that recommend carrying loads no heavier than 10% to 15% of an adult's body weight (Kasim et al., 2021). To achieve this, lightweight and durable materials such as ripstop nylon with TPU coating are suggested. The material possesses water resistance characteristics without unnecessary bulk.

Table 1 outlines the proposed contents of a lightweight survival kit specifically tailored for Malaysian households affected by flood disasters. The selection emphasizes affordability, practicality, cultural appropriateness, and ease of transport. Each item is chosen to meet basic survival needs during the first 24 to 72 hours after displacement, a period during which external aid may be delayed.

The kit is designed to support a typical family unit of four to five members. It includes essential resources such as clean drinking water (1.5L x 4 bottles) and ready-to-eat halal food packs (6–8 packs), ensuring immediate sustenance without the need for cooking or preparation. The inclusion of halal-certified food respects the religious dietary practices of the majority Muslim population in Malaysia.

Health and hygiene are also prioritized. A basic first aid kit supports minor medical needs, while face masks, hand sanitizer, and personal medication address hygiene and chronic health conditions. Emergency blankets, rain ponchos, and a change of clothing provide protection against cold, damp conditions, and support general well-being. A microfiber towel is included for personal hygiene due to its compact, quick-drying nature.

Communication and visibility are addressed through a torchlight, whistles, and extra batteries. These tools are vital during nighttime evacuations or rescue operations, especially in low-visibility conditions. A portable power bank ensures that mobile phones and other small electronic devices can remain charged for communication and access to emergency updates.

For documentation security, a waterproof pouch is included to protect critical personal documents such as identity cards, birth certificates, and insurance records. This ensures continuity of services post-disaster. Additionally, the kit provides baby items where applicable, ensuring inclusivity for households with infants or toddlers.

All items are housed in a lightweight, waterproof backpack designed for quick mobility and resilience in wet conditions. The estimated total cost of the kit ranges between RM 280 to RM 300, making it a relatively affordable solution for many households. This cost-effective, compact, and culturally sensitive design supports the goal of increasing household-level disaster resilience in Malaysia.

Table 1: Proposed contents of lightweight survival kit bag for flood disaster and estimation cost

No.	Item	Quantity (per family)	Purpose/Use	Estimated Cost (RM)
1	Bottled Water (1.5L)	4 bottles	Drinking water for 1–2 days	8.00
2	Ready-to-eat Halal Food Packs	6–8 packs	Sustenance during evacuation	30.00
3	First Aid Kit	1 set	Basic medical treatment	25.00
4	Torchlight (battery or crank)	1	Emergency lighting	15.00
5	Batteries (AA/AAA)	4–6 pcs	Power supply for torchlight or devices	5.00
6	Rain Poncho	4	Personal rain protection	12.00
7	Whistle	1–2	For signaling during rescue	2.00
8	Emergency Blanket /Sajadah (Foil Type)	4	Retain body heat	16.00
9	Power Bank (Portable Charger)	1	Charging mobile phones	30.00
10	Face Masks	10 pcs	Hygiene and health safety	5.00
11	Hand Sanitizer (100ml)	1–2 bottles	Hygiene	4.00
12	Important Document Folder	1 waterproof pouch	Store IC, birth certificate, insurance, etc.	8.00
13	Clothing Set (light, compact)	1 set/person	Dry change of clothes	40.00
14	Towel (microfiber/compact)	2	Personal hygiene	10.00
15	Baby Items (if needed)	As required	Diapers, milk, etc.	20.00
16	Personal Medication	As needed	Chronic illness or emergency meds	20.00
17	Lightweight Waterproof Bag	1	Carry and protect items from water	50.00
	Total			300.00

6. Conclusion

Floods remain a recurring threat in Malaysia, often displacing families with little warning. This paper proposes a practical and affordable survival kit tailored to local needs, cultural considerations, and typical family structures. By preparing such a kit in advance, households can significantly increase their resilience and safety during the critical first hours of a flood disaster. The proposed contents aim to support basic survival, health, and communication, offering a compact solution that is both accessible and effective.

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