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EMERGENCY PREPAREDNESS IN HUMANITARIAN ORGANIZATIONS

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EXECUTIVE SUMMARY

In humanitarian relief operations, emergency preparedness is an important topic for both theory and practice. As a result of not knowing the exact time and location of a large-scale incoming disaster, large international humanitarian relief organizations (HROs) have to prepare well for any potential demand surge. This study investigates the overall preparation strategies of international HROs in Southeast Asia from the ground up, and hopes to offer a better understanding of the HROs' emergency preparations. We may then draw lessons for other HROs as well as commercial firms in the development of an improved response to potential supply chain disruptions.

Based on field research on six large international HROs in Indonesia, the largest country in Southeast Asia, this study investigates the preparation strategies they are using and their ramp-up processes during an emergency. Because of the relatively stable political environment and a vibrant private sector in ASEAN in comparison to the other disaster-prone regions in developing countries, the HROs in Southeast Asia normally conduct both development programs and emergency relief operations. Due to the unpredictability of the timing, location, and magnitude of a future disaster event, HROs use both their internal and external resources for emergency preparations. Internal resources such as development funding and manpower are leveraged to provide emergency relief when the need arises. Leveraging on time, framework agreements are signed with suppliers to fix supply prices that will be charged during an emergency. External resources such as local partners are trained in normal times to prepare for emergency operations.

Our findings may be applicable to similar international HROs in Southeast Asia and, potentially, even more broadly. For most HROs running both emergency and development programs, they should leverage their resources for emergency preparations. Instead of focusing on development programs per se, HROs could plan ahead to use their resources for potential emergency needs. They should train their own staff as well as local HRO partners with the necessary knowledge and skills for emergency operations. Knowledge such as HRO policies and procedures for relief operations, and skills such as demand estimation after a disaster would be valuable when emergency relief activities start. Rather than specialization, ambidexterity in both relief and development operations could be the direction of an HRO's human resource development. Besides the limited pre-positioned relief goods due to funding constraint, HROs could leverage on their commercial partners for goods storage to increase their prepositioning capacity and save their daily warehousing costs.

In addition, the idea of leverage can be applied to the horizontal partnership between the international HROs with similar development programs. They could form consortia to coordinate their operations in a large disaster-prone country to ensure coverage while reducing effort duplication. Rather than expanding individually in the whole country, the coordination can ensure each area is covered by at least one HRO with sufficient investment in the local community and network. Thus in any location following the onset of a disaster, the consortium members can participate in relief operations either by themselves or through their HRO partners.

1. INTRODUCTION

In the past two decades, we have witnessed an increasing number of natural disasters and increasing number of people affected by such events in Asia. In 2010 alone, 251 disasters out of the 640 disasters across the world were reported to have taken place in Asia, and 84% of the people affected by disasters in the world were Asians [1]. As most disasters are characterized by a surge in demand for supplies and other resources such as manpower, relief efforts are geared to procuring and delivering goods in a timely manner, and this, in turn, demands sophisticated preparation before the emergency. However, the preparedness in relief operations is complicated by the demand uncertainty and various operational constraints. For example, humanitarian relief organizations (HROs) are often short of funding for their emergency preparations as most of their emergency funding only arrives after the disaster has struck. This limits their capability to store supplies “just in case” as well as their investment in human resources [2].

One strategy used by the HROs for emergency preparedness is proactive contingency planning [3]. Based on their plan, HROs invest in a small range of selected inventory and storage facilities, and work in collaboration with suppliers and service providers to prepare for an expected demand surge [3]. Part of such a contingency plan is to invest in prepositioned supplies where the HROs store critical items in a number of strategic locations in order to reduce both the cost of responding and the associated lead time when a disaster strikes [4].

While most of the existing literature on emergency preparedness focuses on supply prepositioning, it is relevant to note that other preparation issues such as funding and manpower management are seldom discussed. Indeed, there are relatively few studies which cover these aspects of emergency preparation in the HROs. To help fill this research gap, this paper examines the preparation strategies of the HROs from the ground up and, in doing so, hopes to offer a better understanding of the HROs’ emergency preparations. Such a study also enriches our knowledge of the transition process and, in particular, the ramp-up stage where the HROs move from a normal operation to an emergency response. In doing so, it aims to offer new insights into the ramp-up process, and especially its linkage with the preparedness of the HROs for emergencies.

However, rather than examining the preparation strategies of the HROs in general, this study focuses on the HROs in Southeast Asia. In doing so, it will be appreciated that, when compared to the other disaster-prone areas such as Africa and the Middle-East, there are relatively few man-made disasters in the region. Having a relatively stable environment and better infrastructure, the Association of Southeast Asian Nations (ASEAN) member countries are mainly battling against Mother Nature in responding to events such as tsunamis, floods, cyclones, volcanic eruptions, and earthquakes. Furthermore, international HROs in these countries spend most of their effort and resources on development programs and only conduct emergency operations when the need arises. Thus, how they leverage their resources from the development programs and transition into emergency operation preparations is a special focus of this study.

Based on field research on six large international HROs in Indonesia, the largest country in Southeast Asia, this study investigates the preparation strategies they are using and their ramp-up processes during an emergency. It is believed that lessons from this study may well be applicable to the other HROs in similar environments, as well as to commercial companies in their preparation for potential supply chain disruptions.

The rest of the paper is organized as follows. The related literature is reviewed first, followed by the methodology used in the field study. Strategies used by the HROs are then presented and discussed, and the paper concludes with a summary and a discussion of the implications.

2. LITERATURE REVIEW AND RESEARCH GAPS

In a typical emergency humanitarian relief operation, the first activity is that of assessment. In other words, it is the conduct of a quick estimation of goods and services that are needed. This is then followed by an appeal to donors for funding, the mobilization of teams for the supply sourcing and the in-country receipt and distribution, and the coordination with the other HROs [5]. In short, a new supply chain is created, configured, and activated in a very few days in order to respond to the emergency. While the response to every disaster is different in terms of the type of disaster, the number of people affected and the resources needed, the basic components are quite similar [4]. Importantly, however, it is already too late to start to develop new solutions after the disaster has struck and the demand for relief has peaked. To respond effectively to an emergency, the HROs must prepare their existing resources well before the start of the emergency.

To formalize the preparation processes, HROs normally undertake contingency planning to prepare for the coming emergency needs. In particular, they construct and evaluate a contingency relief response that includes both *ex ante* and *ex post* capacity and supply acquisitions, and collaborate with various partners for effective relief operations [3]. Based on the practices in the commercial world, Stecke and Kumar [6] classified risk mitigation strategies for disruptions into three groups: proactive, advance-warning and coping. Proactive strategies are approaches aimed at reducing the vulnerability and probability of disruptions, while the advance-warning ones reflect the forecasting of an emerging event, and coping strategies enable a supply chain to mitigate the effects of a disruption. In the humanitarian context, advance-warning is less relevant as it is generally applicable only to slow-onset disasters. Thus, this study focuses on proactive and coping or reactive strategies.

One common proactive strategy is prepositioning. In other words, positioning locally procured relief items in areas vulnerable to natural disasters before an emergency. For example, Balcik and Beamon [7] developed a model incorporating both inventory and facility location decisions for disaster relief. They considered where an HRO should locate distribution centers in order to respond to a disaster under a set of scenarios, and the probability of each scenario occurring. Similarly, Mete and Zabinsky

[8] discussed the optimal location of emergency medical supplies under stochastic demand. Campbell and Jones [9] further examined the facility location problem for prepositioning supplies in emergency preparation, as well as the quantity of prepositioned supplies. In the model, an HRO needs to balance the closeness of its supplies to a potentially affected area which could lead to a faster delivery of supplies after the disaster, but at the same time may expose its supplies to greater risk if the disaster occurs.

In addition to proactive preparation, the literature also discusses reactive actions such as investing in additive capacity (e.g., ordering emergency supplies or hiring additional staff for relief operations) after the disaster. Chakravarty [3] developed a model which integrated both proactive and reactive responses. It further captured two sources of uncertainties, disaster intensity and relief-need at the disaster site under a decentralized decision structure. While the intensity is known after the disaster has occurred, the need for relief supplies remains uncertain due to disruptions in the information flow. Thus HROs face the challenge of needing to decide on their commitment for additional resources before having a clear overall picture.

While the above studies have clearly improved our understanding of the ways in which an HRO can prepare for the potential onset of a disaster, there are still many gaps in our knowledge about their preparedness for emergencies. For example, it is well known that HROs experience many political constraints in the field. While it is much more cost effective to preposition supplies and other resources beforehand, there are relatively limited financial resources available in advance for a disaster as most resources only flow in after a disaster has taken place [10]. Donor governments and organizations are unwilling to pay for the cost of what is, in effect, an insurance policy against the scenario of an uncertain future event that typifies a natural disaster [11]. Furthermore, there is a time lag between the flow of funding and emergency supplies even after the onset of a disaster.

Another issue not well studied in the literature is the role of collaboration in the emergency preparedness phase [12]. Due to the uncertainty of the location of the incoming disaster, international HROs may not have sufficient local knowledge, and therefore need to collaborate with local government agencies and other local HROs in order to improve the effectiveness of their operations. However, many local HROs are development-focused and may not have much experience in emergency relief operations [13]. Thus the question arises as to how international HROs are able to build up a network with capable partners without compromising their operational effectiveness.

3. RESEARCH METHODOLOGY

As research on the details of the emergency preparedness of HROs is limited, we took a qualitative approach, using a multi-case study to improve our understanding of the emergency preparation

strategies and the ramp-up process, and through this, to develop a grounded theoretical framework. We mainly relied on semi-structured interviews for first-hand information from humanitarian logistics professionals. This allowed the respondents the freedom to share their experiences and opinions but, at the same time, provided the focus and scope for the discussion. Each interview lasted for some 45-60 minutes. In addition to the face-to-face interviews, secondary information such as the HRO's archives was examined to supplement the study.

The locus of the study is Indonesia, a disaster-prone state and the largest country in Southeast Asia. Past decades have witnessed various disasters such as tsunamis (e.g., 2004 Indian Ocean tsunami in Aceh), earthquakes (e.g., 2009 Sumatra earthquake in Padang), floods, volcanic eruptions (e.g., 2010 Merapi eruptions in Southern Java), and man-made disasters like ethnic conflicts in the Maluku Islands between 1999 and 2002. Many large international HROs have country or regional offices in Indonesia to support their extensive operations and development programs. It is, thus, an appropriate location for the study.

Moreover, Indonesia is a democratic country with a vibrant private sector and strong networks of local HROs. Indeed, the country is estimated to have tens of thousands local NGOs, of which 9,000 were officially registered at the Ministry of Home Affairs in 2010 [14]. Many NGOs are heavily involved in humanitarian operations and are HROs as well. Most international HROs operating in Indonesia focus on various development programs rather than emergency relief, and only move to emergency operations for a short period (normally a few months) after the onset of a large-scale disaster. Their operations in Indonesia are thus quite different from activities in some war-torn or famine-struck countries where emergency relief is the main task. Therefore, the ramp-up process is an important issue for HROs in Indonesia.

Eight international HROs with offices in Jakarta were approached for the study in June 2013, and researchers visited Jakarta to meet the humanitarian logistics staff personally to conduct the study. Six international HROs were willing to be interviewed, while the other two were not able to participate because the relevant staffs were away for business trips during the period of our field study. Among the six participating HROs, one is a UN-related global humanitarian organization, two are large religious NGOs, and the rest are secular NGOs. All of them are large organizations with recent annual incomes ranging from US\$200 million to US\$3.7 billion, and have operations in many developing countries. All of them are headquartered in the US or Europe, with most of their incomes being international donations from the developed countries. All interviewees were senior logistics staff with

titles such as Director, Senior Officer or Manager, and with many years of field experience in Asia. Table 1 shows the profile of the participating HROs.

Organization	Interviewee title	Affiliation	Revenue (2011)	Headquarters location
A	Logistics Manager	UN	US\$3.7b	Italy
B	Director	Religious NGO	US\$2.8b	US
C	Country Manager	Religious NGO	US\$240m	US
D	Logistics Manager	Secular NGO	US\$1.6b	UK
E	Logistics Specialist	Secular NGO	£640m	UK
F	Senior Officer	Secular NGO	£920m	UK

Table 1: Profile of Responding Organizations

4. RESULTS

The interview results show that HROs have developed several strategies in preparing for potential emergencies. To make the ramp-up fast and effective after an emergency, HROs have comprehensive emergency preparedness strategies, which can be broadly divided into three categories: supply preparation, manpower preparation and partner preparation.

4.1 Supply Preparation

The subject of supply preparation is the one most frequently found in the literature, and especially with regard to prepositioning [e.g., 8, 9]. Interviewees generally agreed on the importance of prepositioning, but they also highlighted several other issues - especially that of funding. Focusing on supplying food to beneficiaries, Organization A has adopted a strategy of significant prepositioning as explained by the Manager:

“We have sufficient prepositioning emergency stocks around the world. Funding is an important constraint for us and we have to plan ahead. As it may take three months for us to complete the processing of the dedicated donation and use the funds, we have to allocate sufficient working capital for our supplies in the first three months after the onset of a disaster.”

Organization A specializes in emergency food supplies and it allocates a large percentage of donations as working capital to preposition stocks for future emergencies. The emergency stock of the other international HROs we interviewed is much less than Organization A as their emergency supplies are

normally non-food items. Their expectation of the time lag between the onset of a disaster and the arrival of emergency supplies is also much shorter. For example, Organization B typically plans its propositioning stock for a week's needs. Its Director said:

“Currently, we have five warehouses in different locations in Indonesia for pre-positioning and emergency. We store family kits, children kits, education kits, and etc. The stock should cover one week's supply during an emergency. For example, we have 2500 units of family packages as well as under-five children packages. After getting funding from donors (normally within one week after a disaster), we would deliver more to beneficiaries. It is difficult for us to store too much due to the cost of the goods as well as warehousing costs.”

Organization E shared a similar concern as Organization B, and according to the Specialist:

“Regarding the ramp-up process, the first issue is the availability of funds. Our organisation and peer HROs such as B and D that are focusing on child-related programs have contingency funding, where part of the annual budget is allocated for emergency responses. We have operations in 14 countries in Asia, and nine of them, including Indonesia, are considered as high-risk. Both the country office and its eight field offices have a certain amount of emergency funds.”

Organization D has a similar funding policy according to the Manager:

“Our emergency funding is from both the country finance budget and the programme budget.”

The Director of Organization B provided more explanation on its source of funding:

“On the funding sources, once an emergency happens, we can use the National Emergency and Preparedness Fund (NEPF) to purchase additional non-food items. Currently the fund is only around US\$1500, quite limited. But it can be used right away without approval from the other offices. The Country Director can approve the usage. In addition, we have a buffet up to 20% of the annual development project budget. Each project can use part of its budget for emergency spending. But one restriction is that it can only be used for emergencies in the project area. For emergencies in the other areas, e.g. the 2009 Padang Earthquake in Western Sumatra, we can only use the NEPF.”

Except for Organization A, which specializes in emergency relief, the other organizations are mainly running development programs, and most of funding is, therefore, allocated to these programs. Thus in the organizations other than A, the level of emergency funding is quite limited as the case of Organization B demonstrates. The Manager in Organization D also commented that their propositioning stock is only 10% of the expected amount due to the lack of funds. To overcome such funding constraints, they typically tap into their development program funds for emergency needs. Such leverage increases the emergency responding capability of the HROs significantly.

In addition to the funding, a supplier agreement is crucial to preparing for the emergency as, due to the shortage of funding for prepositioning, many HROs rely on suppliers to meet their emergency

needs. To speed up the process of supply ordering when the need arises, HROs often sign framework agreements with their key suppliers. The Specialist of Organization E explained:

“To speed up the ordering in an emergency, we have a pre-bid process in normal times. We invite all suppliers to our office and explain to these commercial people what kinds of emergency response we are doing after the onset of a natural disaster. We explain to them why we can’t fix the quantity of our order, and sign pre-agreed contracts with them. The contracts would fix the price but not the order quantity. The trade-off of the demand flexibility is the short duration of the agreements. Suppliers are only willing to fix the price for six months, and the extension of these agreements would depend on the market condition then.”

Other HROs also mentioned the framework agreement in the interviews. The Officer of Organization F said:

“On framework agreements, we try to approach the big companies whose prices are better than the resellers, but they normally set a minimum purchasing quantity for a certain price. This year so far is a quiet year without large emergencies, and we are still clearing our leftover stocks from previous years. So what is the point of signing the agreement if we are not buying? So we haven’t signed many. However, one large producer of sarongs, the traditional Indonesia clothing, has a good relationship with us, and we can order as many as we can. We also have one large supplier for hygiene kits in Surabaya, East Java. We sometimes ask them to stock a certain amount of stock for us for a certain period. We had a good relationship with them previously from 2005 to 2010. We then had purchased a lot from them and were viewed us as a large customer. But recently we seldom purchased from them and they are not interested in signing the agreement with us.”

The Manager of Organization D shared the same problem in the interview:

“We are going to sign framework agreements with several big vendors this year. The agreements would include the specification of the goods we are going to buy as well as the price, but we are not committed to buying. It fully depends on our needs, and we can just give a call to buy. However, the recent fuel price hike in Indonesia made us difficult to finalize the prices at this moment.”

However, Organization B takes a slightly different approach to such agreements. Its Director observed that:

“We have agreements with several tenders. They promise us additional supplies if we are in need, and set the prices within a range. We are not able to fix the prices due to inflation. We would renew these agreements yearly to reflect the price fluctuation.”

Thus, we note a balance between the use of framework agreements and spot market purchasing. HROs are clearly investing their time and effort in normal times for a fast response in the aftermath of an emergency. On the other hand, while signing the framework agreements can speed up the procurement process in the emergency response phase, the time and effort spent on these agreements can be wasted if no large-scale emergency takes place during the duration of the agreement. HROs thus tend to focus on identifying a number of critical items with sufficient volumes to make the effort of framework agreement negotiation worthwhile.

4.2 Manpower preparation

Manpower is one critical resource in humanitarian operations but there is often a shortage due to funding constraints [2]. Many interviewees agreed that it is the more difficult task in the ramp-up process, and HROs basically use a leveraging strategy to meet their manpower needs.

Firstly, they look to their existing staff, many of which are assigned to the development programs. For example, Organization B uses a specialized team to do the initial assessment:

“On manpower needs, we have a National Disaster Management Team (NDMT) with around 40 members in Indonesia. Most of them are based on projects and others are here doing admin work in normal times. If a disaster happens, they would be sent to the area for assessment within two days. Some NDMT members would take the logistics responsibilities and make decisions such as demand estimation.”

Organization D and E have similar practices. The Manager of Organization D said:

“On the human resources for an emergency, we have a specialised team, called the Emergency Response Team (ERT). In normal times, they are assigned to other jobs but they are all trained for emergency operations. We would send some ERT members to the locations for assessment. They will link up with the beneficiaries, and make decisions at the ground such as sending prepositioned goods, ordering more supplies, and engaging trucking companies if needed.”

The Specialist in Organization E gave more details:

“On manpower, we have an emergency response team, whose members are based on programmes but are trained for emergencies. They would do the initial assessment and connect with our networks in the field. Each team would stay in the field for a certain period. If the needs are still there, we may send another team there to rotate the original one. The size of our team is at least three, often with different backgrounds. For large scale emergencies, sometimes we send one team of five members or three teams, each with three members to cover more locations.”

Besides using the internal manpower resources, the HROs also leverage their external resources for manpower needs during an emergency operation. As most of the additional needs are on the ground for the last mile delivery, HROs rely on their local partners for manpower. In addition, they often hire their former staff as this can reduce their screening and job training costs significantly, i.e., leveraging their past resources. The Manager of Organization D said:

“Our HR department has a network of potential workers. It is something related to talent management. When a disaster strikes, HR would identify our former staff with the experience in a certain area, and call them for help. After the end of the operation, they would leave again. We have a talent database on the talents of former workers, and can assign them quickly for suitable

positions. During the emergency response, HR has a huge job to recruit many people within a short period.”

Organizations E and F have similar practices. In Organization E, they try to hire locally for additional manpower needs, using resources from the local HROs, their own organization, and their commercial partners. In Organization F, they also roster current staff for emergency operations as explained by the interviewee who said:

“On manpower for an emergency operation, we have a roster for staff during an emergency so that they would not be over-stretched. We also simplify the recruitment process during an emergency since the contract is only for three to six months. We have a database of staff and ex-staff and may approach them accordingly. Local partners are also an important source of manpower.”

In summary, HROs leverage heavily on their current, past, and external resources for manpower needs. This process requires a careful management of talent pools by keeping track of former employees, and systematic training of current staff for multiple tasks as they may be posted to emergency posts in the future. Personal diversification rather than specialization is the key in the human resource development in the HROs.

4.3 Partner preparation

In the above subsection, we have noted the importance of the local partners. In addition to being a source of manpower, such partners are also important for the HROs in the task assessment and last mile delivery. However, it may be difficult to find suitable ones. As the Manager of Organization A noted that:

“It can be a problem to search for capable partners in some remote areas. Local partners are normally weak on capabilities, and we have to invest and train them. Right partners are difficult to find, we need someone with good scale-up capabilities who have the local knowledge for last mile delivery. Local governments are important in this aspect as well.”

HROs are aware of this problem and take various approaches. For example, Organization B has a local subsidiary which manages its development programs. Its Director explained:

“Regarding the relationship with the other HROs, we are different from many HROs as we have one affiliated local HRO. It is local-based and implements most of our projects. It can be seen as our local branch, but it still needs to collaborate with the local government for projects.”

Organization C, an HRO specializing in children programs, uses exclusive local partners for the ground work. Its Manager explained the rationale:

“To reach children in many remote areas, we have sixteen dedicated local HROs to support children under our programmes. These are long-term partnerships and they are not allowed to work with the other international HROs. With generous funding, the local HROs are willing to have such partnerships, and we would train them for capacity improvement. While we normally do not participate in emergency responses, we will get involved if children we supported are affected by the disaster. We would then contact these children and provide necessary aid to them through our local partners.”

Other HROs are less exclusive in their local partnerships, as the Manager of Organization D explained:

“Most of our programmes need cooperation from partners, governments, and local communities at the village level. They are not implemented alone as we need partners to continue the programme after our exit in a few years.”

Clearly the existence of a good relationship with the local HROs and government agencies in the implementation of development programs is likely to lead to a smoother collaboration in emergency operations. Here we have another case of leveraging, not in respect of internal manpower, but in relation to external networks. Organization E gave further insight into this process of the partnership building and, according to the Specialist:

“It is hard to find good partners, but we have to do the work before the disaster. Just like the suppliers, you have to identify local HROs in high-risk areas as potential partners for emergency operations whose local knowledge and contacts are of great value to us. Before the disaster, we have training and workshops for the local HROs as our contribution to the partnership. We regularly conduct programmes such as Disaster Reduction Programmes at the village level with the local HROs and community organisations, for both training and socialisation purposes. Our partners have to be educated on our value and policies and so we can work smoothly during an emergency. They are normally short of funding for such programmes, and thus are interested in the partnership as well. We don’t want to spend time on such things during an emergency when they can be done at the preparation stage.”

Organization F went further by allowing local partners to manage its inventories. The Officer explained:

“Currently we have eight local partners to take care of our emergency stocks, which are the leftover goods from previous disasters. They will update us on the stock every three months, and are able to respond to small-scale emergencies with our stock.

We also have some staff training, as well as training for local partners. Recently, we had an internship programme to train one person from our partners for one month in Jakarta for all logistics operations. Last time we even had some financial support to our local partners as a benefit of managing our stock, but now we no longer provide that funding.”

In addition to the vertical partnership with the local HROs, a number of international HROs also use their horizontal partnerships with the other international HROs to support their emergency responses. The Director of Organization B explained:

“When a disaster happens in areas without our presence, we need to collaborate with the other international HROs. For example, during the Maluku flood last year, as we don’t have any projects there but decided to respond to the emergency, we sent non-food items to victims through our partners such as Organization D to help indirectly.”

5. CONCLUSION

This study explores the preparedness strategies of large HROs in Southeast Asia, and highlights the leveraging of their resources that are available in normal times for emergency response. Because of the relatively stable political environment and a vibrant private sector in ASEAN (in comparison to the other disaster-prone regions in developing countries), the HROs in Southeast Asia normally conduct both development programs and emergency relief operations. Due to the unpredictability of the timing, location, and magnitude of a future disaster event, HROs use both their internal and external resources for emergency preparations. Internal resources such as development funding and manpower are leveraged to provide emergency relief when the need arises. Leveraging on time, framework agreements are signed with suppliers to fix supply prices that will be charged during an emergency. External resources such as local partners are trained in normal times to prepare for emergency operations.

Our findings may be applicable to similar international HROs in Southeast Asia and, potentially, even more broadly. For most HROs running both emergency and development programs, they should leverage their resources for emergency preparations. Instead of focusing on development programs per se, HROs could plan ahead to use their resources for potential emergency needs. They should train their own staff as well as local HRO partners with the necessary knowledge and skills for emergency operations. Knowledge such as HRO policies and procedures for relief operations, and skills such as demand estimation after a disaster would be valuable when emergency relief activities start. Rather than specialization, ambidexterity in both relief and development operations could be the direction of an HRO’s human resource development. Besides the limited pre-positioned relief goods due to funding constraint, HROs could leverage on their commercial partners for goods storage to increase their prepositioning capacity and save their daily warehousing costs.

In addition, the idea of leverage can be applied to the horizontal partnership between the international HROs with similar development programs. They could form consortia to coordinate their operations in a large disaster-prone country to ensure coverage while reducing effort duplication. Rather than expanding individually in the whole country, the coordination can ensure each area is

covered by at least one HRO with sufficient investment in the local community and network. Thus in any location following the onset of a disaster, the consortium members can participate in relief operations either by themselves or through their HRO partners, as the case of Organization B in Maluku.

Beyond the Southeast Asia region, the findings of this study may not be applicable in view of the potentially differing geopolitical environment. For example, in the absence of an active private sector in some of the disaster-prone countries, HROs may have to ship more supplies internationally rather than purchasing according to the framework agreements with the local vendors. That said, HROs may still be able to leverage on their manpower and network resources for more effective emergency preparation.

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