



Logistics and Resource Mobilisation Department

Case Study Summary

“The effect of IFRC regional logistics concept on the efficiency of relief item delivery for the population affected by the Yogyakarta Earthquake in May 2006”

Objective of this paper

IFRC Logistics Department has recently concluded an 8 month projectⁱ designed to produce a better, faster and cheaper logistics service for IFRC disaster response. The method chosen was to re-engineer the supply chain from a centralized entity, to regional logistics units (RLUs). The Project was completed on time.

In July 2006 we commissioned a 4 week independent studyⁱⁱ to determine the effect of the regional logistics concept on IFRC disaster response, and the extent to which the aim had been achieved. The recent Yogyakarta earthquake response has been compared to that of the earthquake in Pakistan in October 2005 and the tsunami that affected Indonesia in December 2004. This paper summarizes the findings of the case study and provides further analysis and conclusions

Prepared by: Logistics and Resource Mobilization Department
International Federation of Red Cross and Red Crescent Societies

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1. Overview

Kuala Lumpur RLU, was established in May 2006. During the final training sessions of implementation, there was an earthquake in Yogyakarta, a part of the region served by the RLU. The logistics services response was coordinated from KL and surplus relief items donated by National Society (NS) from the 2004 Tsunami in Indonesia were operated as pre-positioned stock. This meant the logistics response was conducted in the same way an RLU was designed to operate. This situation gave the opportunity to evaluate the effectiveness of the change in IFRC supply chains shown in figures 1 and 2 below.

Figure 1: Original Centralized Supply Chain

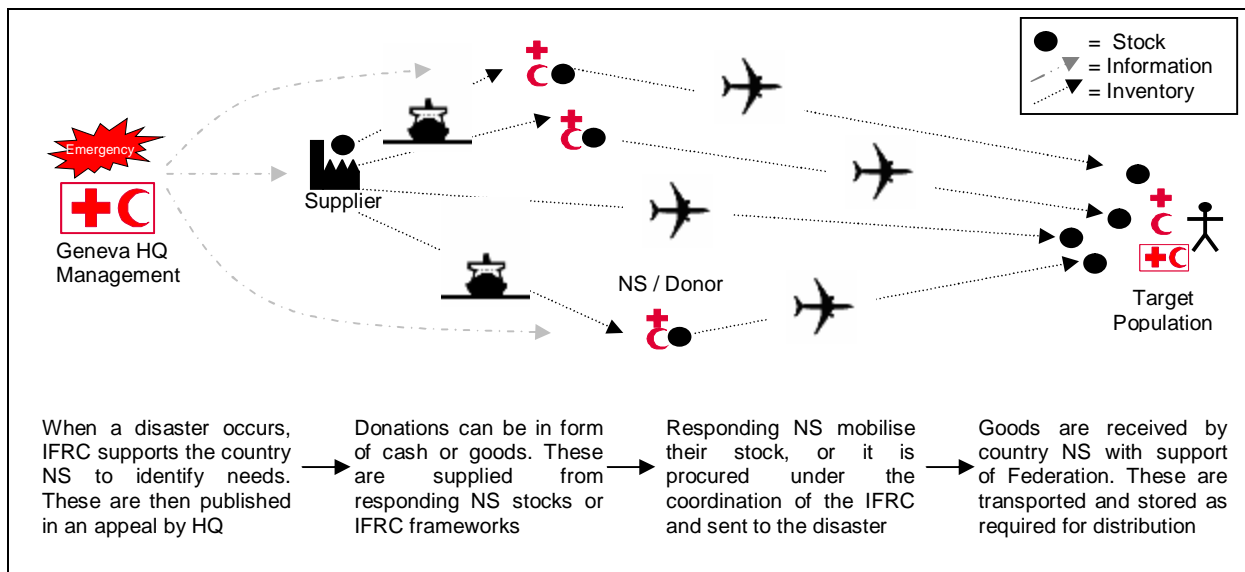
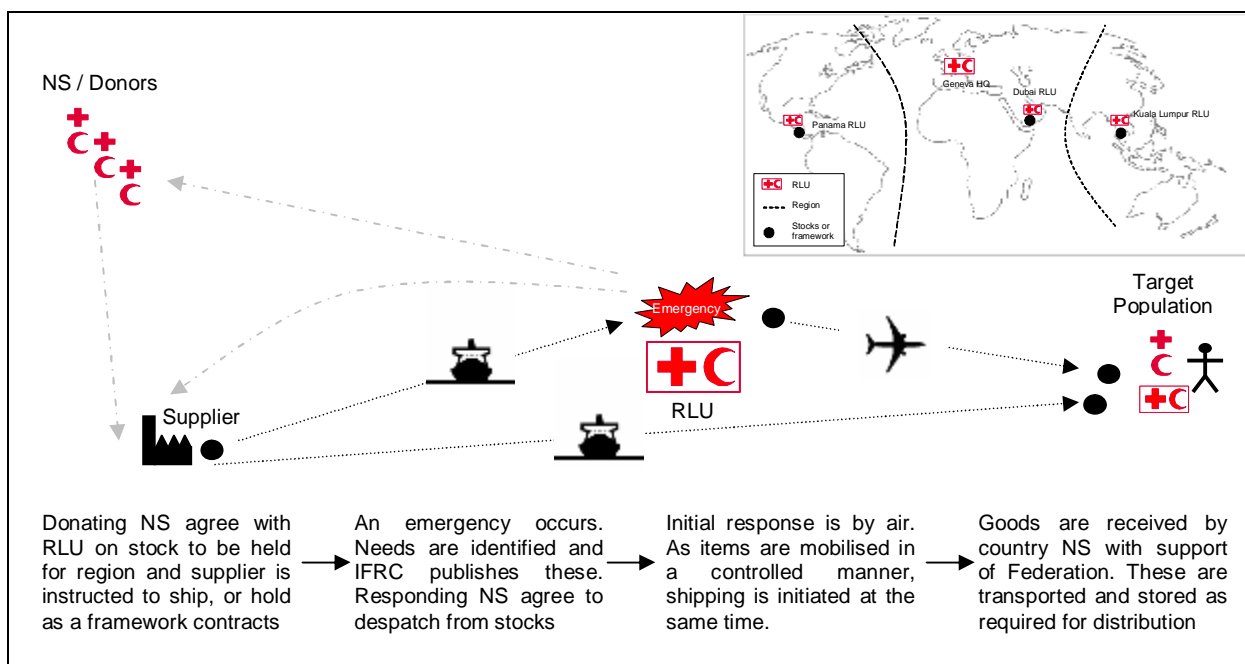


Figure 2: New Regional Supply Chainⁱⁱⁱ



2. Results

The supply chains were evaluated in the areas of service, speed of response and cost.

| Table 1 – Service | Indonesia Tsunami 100,000 families | Pakistan EQ 95,000 families | Yogyakarta EQ 65,000 families |
|--|--|---------------------------------------|---|
| Families receiving partial package by 2 months | 28,021 | 29,229 | 53,112 |
| Families receiving full package by 2 months | 0 | 0 | 42,911 |
| Average number of families served per day | 445 | 555 | 613 |
| % goods delivered from the region | 13% | 68% | 100% |

| Table 2 – Speed | Indonesia Tsunami | Pakistan EQ | Yogyakarta EQ |
|---|--------------------------|--------------------|----------------------|
| Days to activate end to end supply chain | 18 | 10 | 3 |
| Order lead time (requisition to delivery) in days | 30 | 23 | 16 |
| % of appeal items mobilized & delivered at 2 months | 55% | 38% | 74% |
| Average distance of relief items (km) to families | 11,805 | 2,962 | 1,617 |

| Table 3 - Cost | Indonesia Tsunami | Pakistan EQ | Yogyakarta EQ |
|---|--------------------------|--------------------|----------------------|
| Operations total costs at 8 months | Not available | 55,944,027 | 10,505,962 |
| % logistics cost (items + transport + storage value) | - | 86% | 87% |
| Cost to deliver relief package per family at 2 months | - | 824 | 142 |
| Cost to deliver relief package per family at 8 months | - | 450 | 142 |

* Yogyakarta 8 month cost total estimated to be as at 4 months as emergency and recovery phase are near completion

3. Analysis

- The logistics response to the Yogyakarta Earthquake delivered aid to a larger number of people in the initial two months in comparison to the other operations. Perhaps the most important finding is that the full relief package was delivered to most of the target population which had not been achieved previously in this timeframe.
- The supply chain was fully operational in Yogyakarta 3 times faster than in Pakistan and almost 6 times faster than for the tsunami response. Coupled with a drastic improvement in order lead time and use of pre-positioned stock, nearly 75% of ALL required items were available for distribution within the first 8 weeks. It is noteworthy that in the response phase, kilometers that relief items were transported for Yogyakarta was reduced by 46% in comparison with the Pakistan response and 87% from the tsunami operation.
- Tsunami costs were not readily available, so cost comparison was carried out between Pakistan and Yogyakarta only. The first point of interest is that procurement and transport of goods was responsible for nearly 90% of total operations costs in both operations. In this context the crucial figure is the cost to deliver the relief package for a family. This was calculated at the 2 and 8 month point. At 2 months the cost of package delivery was 83% less expensive in Yogyakarta than in Pakistan. This decreased to a reduction of 69% of cost in Pakistan when calculated at the 8 month point.



Before summarizing this analysis there are a few points to consider^{iv}. First of all the in-country transport was easier and cheaper in the Yogyakarta operation than for Pakistan or Tsunami responses. This part of the cost component is, however, a small percentage of the overall spend. Secondly the packages were similar in all instances except for tents. Those used in Pakistan, were greater in volume, weight and cost to buy and transport than in other operations. The tent component has therefore been removed from the cost calculations to improve the equity of the comparison. Finally due to the way we currently book “in-kind” donations, transport and relief item value has been treated as a lump sum. The breakdown of cost reduction indicated in the supply chain requires some further analysis to pinpoint.

4. Conclusion

With due consideration to creating direct comparison between operations reviewed in the case study, these results are eye opening. The regional logistics structure and response facilitated a much **better** and a more appropriate service for those who needed it, relief was delivered **faster** than ever before and it was much **cheaper**, greatly increasing cost effectiveness.

It is also worth mentioning that as the items were so readily available there was more time for a better assessment at the start of the operation. Allied to this, first time fulfillment of beneficiary requirements distributions rather than many revisits meant that early recovery activity started sooner and faster than seen before. The first prefabricated shelter was completed and available 316 days after the Tsunami event. In Yogyakarta the first pilot shelter was complete in less than 60 days.

Considering the project as a whole simply in cost terms, it is estimated that the new global logistics structures will increase logistics costs by an extra 1 to 1.5 million CHF per year. The changeover cost for the project was in the region of 6 million CHF.

If we had used the Pakistan supply chain set up to respond to Yogyakarta Earthquake it would have cost around 18 million CHF rather than 9 million CHF – and we would have only been able to assist less than half the families than was actually achieved. It is estimated that IFRC logistics spend will reach around 100 million CHF in a normal year. Up to 70% of this will be spent in emergencies. The study findings indicate that using the new logistics structure we will be able to meet the needs of the people we serve as before, but potentially at a cost of 35 to 65 million CHF. This is massive saving and great return on investment, but clearly just part of the other benefits in service improvement.

There is a strong indication that this set up is the most effective way IFRC can meet affected population needs. It is planned that the logistics service will create its sustainability by moving to cost recovery. This will only work if IFRC operations, NS and donors are prepared to play a part of in the whole of IFRC logistics resources and services. With the results of the case study it is hoped that decision makers in NS and donor organizations will consider investigating this option in the future.

ⁱ For further details see “IFRC Logistics Development Action Plan and Budget” December 2005



ⁱⁱ Full study details in “The effect of IFRC regional logistics concept on the efficiency of relief item delivery for the population affected by the Yogyakarta Earthquake” August 2006

ⁱⁱⁱ Increase in service levels and cost reduction is achieved by focusing on 3 core concepts. First the reduction in delivery lead time happens by utilising key tools such as standard items catalogues, logistics standards processes and regionally knowledgeable logisticians, asking all donors to hold stock in vanilla format and consolidating and moving stock closer to point of use. In an environment that requires a fast and flexible response, inventory is replaced with information and the length of uncertainty in the supply chain is minimised. Secondly this reduction in lead time gives relief responders more time carry out an accurate assessment of requirements in the first instance. Improved accuracy means there is more chance to deliver the right amount of required goods first time, reducing the chance to mobilise the wrong stock or have to carry out several rounds of distributions to the same recipients. Finally as the distribution is quicker and more accurate the length of time we need to stay in the emergency phase is reduced, and normalised cost effective logistics channels can be used to meet secondary and tertiary needs.

^{iv} A full set of considerations, constraints and assumptions, as well as methodology are supplied in “The effect of IFRC regional logistics concept on the efficiency of relief item delivery for the population affected by the Yogyakarta Earthquake” August 2006