

Shelter Cluster Typhoon Mangkhut Response Planning

Northern Luzon Rapid Market Assessment Report

1.0 Background

On September 15, 2018, Category 5 super typhoon Mangkhut (local name: Ompong) caused widespread damage in Northern Luzon, severely affecting the Cordillera Administrative Region (CAR), Cagayan Valley (R2), Central Luzon (R3), and the Ilocos Region (R1). Winds damaged vital infrastructure, homes, and crops used for household consumption and for livelihoods. Flooding and multiple landslides also caused severe damage to the affected areas.

According to the Department of Social Welfare and Development (DSWD), at least 3.2 million people were affected by the typhoon. 218,503 homes were damaged or completely destroyed. The Philippine Humanitarian Country Team (HCT) estimated that that at least 20,000 families (or 100,00 people) would need shelter assistance. Specifically, the target areas for shelter include the provinces of Isabela, Cagayan, Apayao, Abra, Kalinga, Mountain Province, Ifugao, Benguet, Ilocos Sur, and Ilocos Norte.

The most severely affected families by the typhoon were identified to be part of the lower socio-economic groups. Strong winds and rain made lightweight houses very vulnerable; many houses made from light house frames and grass roofings were completely destroyed, and many other light framed houses were damaged. Concrete houses were damaged as well, though typically the damage was limited to the roofing and not the structure.

1.1 Rationale for Rapid Market Assessment

The Philippines Shelter Cluster gathered to discuss strategies for implementing more effective Build Back Better shelter recovery and cash assistance programs. Previous experience indicates that cash assistance is underutilized due to a variety of reasons, notably insufficient funds or funds not being used on key structural components of the house. Damage to lightweight roofs of concrete masonry homes requires less construction costs to strengthen and increase the family's resilience to future disasters, whereas timber shelters with damage to the roof and supporting structure need greater construction costs to recover and strengthen the home so that the family is more resilient when the next powerful storm occurs. Technical assistance is needed to support families through the design and construction process, but the first step is to determine what materials are available and at what cost to inform agencies organizing to distribute cash assistance for shelter recovery.

1.2 Assessment Logistics

Representatives from the Philippine Red Cross, IFRC, Build Change, CARE, CRS, Habitat for Humanity, IOM, Samaritan's Purse and World Vision assembled three teams to visit material suppliers in the major affected areas of Northern Luzon. Wholesale and retail material suppliers were surveyed to understand the construction materials available, their available stock, prices, and the suppliers' ability to replenish stocks as needed. Surveys were also conducted in the area to understand labour rates and the available labour force in each area.

While travelling to the areas identified for survey we noticed that there was only minor damages on the houses near the national highway. The surveyed stores/suppliers were typically not located in severely damaged communities. People in the communities were not devastated and were very

participative in answering the survey questionnaire. However, some store owners were hesitant to entertain the survey because they thought we were from government monitoring their prices - some asked for an endorsement letter from the Shelter Cluster. Some pre-selected store owners were not able to complete the survey because they were busy assisting their customers. The assessment team located other stores within the vicinity to survey in this case.

Areas surveyed are as follows: Team 1 surveyed the areas of Isabela, Cagayan, Apayao and Kalinga. Team 2 surveyed the areas of Ilocos Norte, Ilocos Sur and Benguet. Team 3 surveyed the Metro Manila area, a major material supplier for the entire nation, although suppliers were reticent to provide pricing information for non-commercial use.

NOTE: Material prices are expected to increase as funding for construction becomes available and demand for construction supplies rise. Supply chains may also be strained as many suppliers in the north source materials from Manila. This assessment should be conducted again 3-4 weeks after shelter recovery begins in earnest to track how material prices are changing and how this will impact long term recovery efforts.

2.0 Initial Assessment Results - Labour

Material suppliers and residents of each region were interviewed regarding the availability and market rate for skilled carpenters, skilled masons, and unskilled labourers. The assessment team asked general interview questions to understand the background of the labour force, if they are local residents or transient workers, how storms typically impact the availability of labour, etc.

Cagayan

Skilled Carpenter Daily Rate: 400-450 PHP with food allowance

Foreman/Lead Carpenter/Electrician Daily Rate: 400-500 PHP

Unskilled Labourer Daily Rate: 300 PHP (with or without food allowance)

Comments: *Laborers are available in Cagayan Province but no data is available the total workforce. It is safe to assume a small number of permanent skilled labor exists in the area but that more will be needed for large scale recovery.*

Ilocos Norte

Skilled Carpenter Daily Rate: 500-600 PHP

Skilled Mason Daily Rate: 500-600 PHP

Unskilled Labourer Daily Rate: 350-4000 PHP

Comments: *A dozen or more skilled laborers appear to be available in the region and are permanently located there rather than traveling to larger economic centers to work. If skilled laborers work with unskilled helpers, this is not a large labor pool but enough to get work started early in a recovery program. With multiple agencies working in similar regions, additional skilled labor will be needed. **Labor also about 20% higher in Ilocos Norte than in other regions of Northern Luzon.***

Ilocos Sur

Skilled Carpenter Daily Rate: 450-500 PHP

Skilled Mason Daily Rate: 450-500 PHP

Unskilled Labourer Daily Rate: 300-350 PHP

Comments: *A dozen or more skilled laborers appear to be available in the region and are permanently located there, rather than traveling to larger economic centers to work. If skilled*

laborers work with unskilled helpers, this is not a large labor pool but enough to get work started early in a recovery program. With multiple agencies working in similar regions, additional skilled labor will be needed.

2.1 Initial Assessment Results – Construction Tools

The initial assessment indicates the typical tools needed for shelter repair are readily available and well stocked in the affected regions. Prices vary based on equipment specifications and quality.

Provincial Suppliers	Tools - Prices (PHP)				
	Hammer	Shovel	Pails	Saw	Measuring Tape
Apayao	250.00	275.00	75.00	550.00	150.00
Benguet	480.00	480.00	80.00	498.00	250.00
Cagayan	650.00	550.00	250.00	480.00	250.00
Ilocos Norte	250.00	550.00	100.00	350.00	250.00
Ilocos Sur	250.00	380.00	120.00	500.00	150.00
Isabela	210.00	300.00	55.00	165.00	90.00
Kalinga	450.00	550.00	75.00	450.00	150.00

2.2 Initial Assessment Results – Roofing Materials

Excluding paint, typical roofing materials are readily available and well stocked in the regions. Resupply comes from Manila and supply chain disturbances are possible if material demand increases rapidly, but the supply chain seems strong enough to accommodate increased construction activity.

Provincial Suppliers	Roofing Materials - Prices (PHP)							
	CGI Sheets GA#24	CGI Sheets GA#26	Plain GI Sheets	Ridge Roll Asmbl'd	Gutter Asmbl'd	Umbrella Nail	Fishing Line	Paint Metal Strap
Apayao	380.00	480.00	400.00	200.00	224.00	90.00	75.00	660.00
Benguet	550.00	370.00	1,680.00	280.00	280.00	140.00	40.00	408.00
Cagayan	324.00	300.00	375.00	230.00	240.00	100.00	35.00	470.00
Ilocos Norte	450.00	420.00	386.00	320.00	380.00	100.00	100.00	400.00
Ilocos Sur	450.00	400.00	350.00	250.00	350.00	100.00	30.00	250.00

Isabela	440.00	390.00	380.00	200.00	200.00	100.00	90.00	-
Kalinga	36.00	42.00	400.00	250.00	300.00	85.00	40.00	250.00

2.3 Initial Assessment Results – Timber Materials

Quality lumber for structural purposes is available in the region, which is good for increasing the long term structural stability of shelters, although the high quality material comes with a high cost. The 2"x4" sawn lumber that is suitable for roof and wall framing averages approximately 400PHP per 12ft piece. **At this price, an average new roof construction for a 30sqm home would cost approximately 15,000PHP for timber framing and steel roofing materials only (no labour).**

Although quality 2"x2" through 2"x4" lumber is available for beams and wall framing, 4"x4" square lumber for posts and braces are not available. Special orders for square post lumber will need to be made, or custom sections made by joining multiple 2"x4" members will need to be fabricated.

½" plywood is available for use in structural walls and available in marine grade which is recommended to prevent material degradation. ¼" plywood is also available but not suitable for use as structural walls, only as formwork.

Provincial Suppliers	Lumber Materials - Prices (PHP)					
	2"x2"x12' Good Lumber	2"x3"x12' Good Lumber	2"x4"x12' Good Lumber	4"x4" Lumber Post	4'x8'x1/4" Plywood	Solignum
Apayao	-	-	-	-	400.00	580.00
Benguet	180.00	270.00	400.00	2,400.00	380.00	610.00
Cagayan	180.00	270.00	360.00	-	300.00	480.00
Ilocos Norte	200.00	330.00	440.00	-	400.00	570.00
Ilocos Sur	180.00	270.00	360.00	-	420.00	500.00
Isabela	200.00	300.00	400.00	-	30.00	350.00
Kalinga	-	-	-	-	460.00	610.00

2.4 Initial Assessment Results – Concrete and Masonry Materials

Cement, quality sand and quality aggregates are widely available in the region. Sand and aggregates must be specially ordered from the material supplier in cubic meter increments. This can be challenging for homeowners building small amounts of concrete, such as small foundations for timber posts on a lightweight shelter. Smaller quantities of sand and aggregate are not readily available and small foundations may not meet the minimum quantity for ordering. Groups of homeowners or communities may consider group orders to alleviate these concerns.

A typical foundation for a timber post would cost approximately 2,500PHP for materials only (no labour) at these rates.

Provincial Suppliers	Concrete and Masonry Materials - Prices (PHP)				
	Cement per 40kg	Sand per Truck	Gravel per Truck	4" CHB	6" CHB
Apayao	265.00	1,300.00	2,000.00	1,050.00	19.00
Benguet	250.00	2,500.00	2,500.00	16.00	21.00
Cagayan	265.00	3,500.00	5,000.00	13.00	16.00
Ilocos Norte	285.00	1,000.00	2,000.00	11.00	18.00
Ilocos Sur	225.00	1,500.00	2,000.00	13.00	20.00
Isabela	223.00	3,000.00	3,000.00	11.00	16.00
Kalinga	235.00	1,000.00	1,600.00	11.00	13.00

2.5 Initial Assessment Results – Steel Materials

Basic steel materials for home construction were widely available in the region. Rebar for use in masonry and reinforced concrete construction are well stocked and rapid to resupply. Nails and sheet metal for timber framing connections we also widely available.

Provincial Suppliers	Steel Materials - Prices (PHP)									
	16mm Rebar	12mm Rebar	10mm Rebar	9mm Rebar	Tie Wire	1.5" Nails	2" Nails	3" Nails	3.5" Nails	4" Nails
Apayao	400.00	240.00	165.00	110.00	1,900.00	80.00	80.00	75.00	70.00	70.00
Benguet	380.00	220.00	146.50	125.00	2,100.00	90.00	90.00	90.00	60.00	90.00
Cagayan	380.00	230.00	152.00	112.00	2,100.00	80.00	80.00	80.00	80.00	80.00
Ilocos Norte	365.00	205.00	145.00	102.00	2,000.00	80.00	80.00	80.00	80.00	80.00
Ilocos Sur	365.00	205.00	145.00	100.00	1,600.00	70.00	70.00	70.00	70.00	70.00
Isabela	365.00	208.00	178.00	116.00	1,500.00	90.00	90.00	90.00	65.00	90.00
Kalinga	380.00	222.00	151.00	-	1,900.00	75.00	75.00	70.00	70.00	70.00

2.6 Initial Assessment Results – Material Supply Chain

The assessment teams visited the major cities in each region to survey material prices and stocks. Each region was relatively well stocked with materials and did not indicate concern in resupplying. Current material purchasing has not changed significantly following the impact of Typhoon Ompong, which store owners opined was due to the fact that many people in the affected regions do not have money to spend on building supplies because their crops were destroyed. Although suppliers referenced a price freeze in the area as indication that their prices have not increased, prices are likely to go up when demand increases, for instance during medium to large scale recovery efforts. The supply stores appear to have a strong supply chain, however, which would indicate that available supply should meet demand, resulting in only a slight increase in prices. **Note that only large suppliers were surveyed, and additional hauling charges will need to be accommodated on a region by region bases for smaller supply stores and smaller villages.**

3.0 Recommendations for Shelter Recovery Programs

Labour

Although discussions with suppliers and community members seems to indicate a pool of skilled laborers exists within each region, the current labour force is likely insufficient to support medium to large scale recovery efforts. The affected regions outside of more developed cities will have fewer skilled labourers due to the lack of consistent employment opportunities in the region (skilled labourers travel to larger cities for better work opportunities). Therefore, construction quality is likely to be a challenge. Funded recovery efforts will draw additional labourers to the area once construction begins; **it will be critical to ensure labourers are properly trained in disaster-resistant construction principles to ensure sustainability and proper adoption of build back safer (BBS) principles.**

Materials

Quality construction materials are available with a strong supply chain in the affected regions, which is positive for supporting sustainable, permanent home recovery. However, quality materials are more expensive, for instance structural grade lumber is more expensive than coco lumber, which is only appropriate for formworks and shoring. Some items, such as timber posts, are not widely available and will need to be specifically ordered, preferably in bulk, to accommodate framing needs for timber homes. **Note that technical training and assistance is critical to ensuring the high quality materials are used correctly and that the money invested in recovery is long term.**

Conditional Cash Assistance Recommendations

To maximize the number of supported beneficiaires possible, recovery programs utilizing conditional cash assistance should determine cash values dependent upon the scale of recovery needed, rather than a blanket amount for all impacted persons. Concrete and masonry homes with damaged roofs will require less construction costs to properly repair than a heavily damaged timber shelter. Three preliminary tiers of construction cost amounts are listed below based on the results of the rapid market assessment, although more tiers are recommended pending a more comprehensive assessment of the damaged homes and their structural needs. Please note that the recommendations are based on prices from the major suppliers and should be adjusted for individual regions as necessary. **Assessments by qualified engineers are strongly recommended as they can provide more accurate cost needs on a house by house basis, ensuring the most effective use of funding.**



Image courtesy of IFRC

Collapsed or partially collapsed timber shelters should receive the maximum cash amount possible. **Timber homes typically lack all of the critical components (foundations, walls/bracing, vertical framing, roofing, connections) needed for a disaster-resistant home and will be able to fully utilize amounts of 50,000PHP or more.**



Image courtesy of IFRC

Mixed material homes (typical half height masonry walls with timber upper walls and timber roofs) may have existing foundation elements and existing bracings elements due to the presence of the masonry wall construction. **Preliminary minimum cash assistance recommendation for mixed material homes is 35,000PHP.**



Image courtesy of IFRC

Concrete and masonry homes with damaged roofs typically will require repair or reconstruction of the roof, which will require less funding than a full home repair depending on the size and square meter area of the roof. Particular attention needs to be made to the connections of the roof members to the concrete support structure below. If proper connections are not constructed, any new roofs constructed will be at risk of damage in future events, resulting in a poor investment of funding. **Preliminary minimum cash assistance recommendation for concrete and masonry homes with damaged roofs is 21,000PHP, and it is recommended to allocate more funding for larger houses.**

Technical Assistance for Beneficiaries

It is strongly recommend to require beneficiaries participation in technical training programs as a condition of the cash assistance. Teaching families the basic materials, building components, and construction quality needed to achieve a disaster-resistant home is an excellent way to ensure the money distributed is effectively invested. With education, families are more likely to prioritize spending of the initial cash grant and future family income on sustainable, long-term improvements for their home. In addition to educational materials and discussions, access to technical assistance from building professionals (engineers, architects, and contractors) can ensure families are able to plan and prioritize for improvement of their homes in the far future as well as the immediate needs.