Agricultural Livelihoods in Typhoon Bopha-Affected Provinces of Mindanao:
Assessment of Impact and Recovery Opportunities

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EXECUTIVE SUMMARY

On the morning of Tuesday, December 4, 2012, Typhoon Bopha (locally named Typhoon “Pablo”) made landfall with winds up to 260 km/h (160 mph). The category five super typhoon traveled from southeastern Mindanao across central Mindanao, through Davao Oriental, Surigao del Sur, Compostela, Bukidnon, and Misamis Oriental and finally through the western Visayas. It was the strongest storm to hit Mindanao since records began. Making landfall three times, Bopha caused significant wind damage, extensive flooding and triggered landslides. Over 6.2 million people have been affected in 18 provinces of Mindanao and the Visayas and more than 230,000 houses were damaged or destroyed. As of February 12, 2013, the death toll stood at 1,146 with 834 people reported missing. There were 8,925 people still living in evacuation centers and another 925,412 displaced people seeking shelter elsewhere.¹

Typhoon Bopha destroyed farms and plantations, livestock, agricultural equipment, fishing boats, processing facilities and other productive assets that formed the backbone of the area’s livelihood and economy. This is a significant blow to an area where small-scale farming has been the primary source of income for some 80% of the affected population, producing coconut, vegetables, bananas, rice, coffee and cacao among other products.² Davao Oriental, the leading coconut producing province in the Philippines prior to the storm, lost an estimated 60% of its coconut trees.³ Most coconut production is located on small farms owned, leased or sharecropped by farmers. The age of productive coconut trees in Davao Oriental ranges from 8 to 80 years old.

Contributing two thirds of the exported bananas grown in the Philippines every year, Compostela Valley Province has been a major player in the banana industry, supporting 150,000 people in this sector alone, many on plantations.⁴ According to the Philippine Banana Growers and Exporters Association, Typhoon Bopha destroyed 10,000 hectares of the country’s 42,000 hectares of banana farms and will cost the industry at least USD 318 million.⁵

Two months after Typhoon Bopha made landfall, emergency aid in the form of food, shelter and Cash for Work (CfW) is saving the lives of tens of thousands of affected families. Without livelihood recovery support, however, it will be difficult to avoid another wave of disaster when emergency relief ends in the very near future. In order to support the broader effort to avoid this possibility and to identify opportunities for livelihood recovery, Catholic Relief Services (CRS) carried out an agricultural livelihoods rapid assessment in collaboration with local and national Philippine partners.

The purpose of the assessment was to 1) identify and characterize the most significant impacts of the typhoon on agricultural livelihoods in affected areas and 2) identify potential entry points for post-typhoon agricultural livelihood recovery. The assessment was conducted in six municipalities in the two provinces of Compostela Valley and Davao Oriental from the end of January to early February 2013, two months after the typhoon made landfall. CRS focused on highly typhoon-affected areas, targeting farmers who are landowners, leasers and sharecroppers, agricultural laborers and fisherfolk. The national Department of Agrarian Reform (DAR), as well as provincial, municipal and barangay departments participated in the assessment. Local government units (LGUs)⁶, micro-finance institutions (MFIs) and other institutions also partnered with CRS and participated in assessment design, fieldwork and interpretation of findings.

¹ UNOCHA, 12 February 2013
² IRIN, 9 January 2013
³ Philippine Information Agency, 20 December 2012
⁴ Philippine Banana Growers and Exporters Association
⁵ Philippine Banana Growers and Exporters Association, Manila Bulletin Publishing Corporation, December 6, 2012
⁶ Municipal Agriculture Offices (MAO) and Municipal Planning Departments (MPD)
Key Findings
The assessment results include the following key findings on Typhoon Bopha’s devastation to agricultural and fishing livelihoods:

- **Dependence on food aid** – 63% of respondent households were dependent on aid as one of their top three primary sources of food
- **Dependence on cash aid** – 37% of respondent households were reliant on aid in the form of cash-for-work or cash grants as their top source of income.
- **Agricultural laborer unemployment** – 45% of surveyed agricultural laborers were unemployed.
- **Livelihood recovery challenges** – Farmers, laborers and fisherfolk rank their top three recovery challenges:
  - **Farmers** – 1) Fallen coconut trees and debris on farms, 2) Inability to purchase inputs and 3) Lack of tools and inability to hire labor
  - **Laborers** – 1) Insufficient cash, 2) Fallen coconut trees and debris on farms and 3) Inadequate hiring of labor
  - **Fisherfolk** – 1) Damaged and destroyed boats, 2) Lack of tools and equipment and 3) Inability to purchase inputs

- **Farmer cultivation recovery objectives** – With very little exception, farmers plan to cultivate the same crops after Bopha as they did before the typhoon.
- **Status of markets** – Agricultural buyers, traders, processors and input providers are ready to re-engage in market activities and are eager for relief efforts to support the recovery of the agricultural sector so that they can duly restore their livelihoods.
- **Role of input vendors in recovery** – Input vendors are also keenly aware of the needs of farmers for short-term transitional recovery crops and are planning to stock up on vegetable seeds, rice seed, fertilizers and other inputs once the demand is clearly demonstrated.

Summary Recommendations
The key to agricultural livelihood recovery will be a coordinated approach based on some fundamental principles across responding actors. Assessment team recommendations for fundamental response principles include:

- **Immediate needs** – Immediate response is needed for short-term agricultural livelihood recovery with a secondary response to follow, addressing longer-term recovery. Immediate needs are:
  - **Farmers and laborers** – support to clear fallen coconut trees and debris from farmland and access roads, along with inputs for short-term recovery crops like vegetables, root crops, rice and corn
  - **Fisherfolk** – provide grants and loans to purchase and repair boats, nets and other equipment

- **Longer-term needs** – Once immediate livelihood needs are addressed, the response can address longer-term needs, including replanting of coconut, fruit, cacao and other trees, rebuilding storage facilities and restoring assets

- **Use market-based approach** - The assessment found that markets are ready to resume normal activity. A voucher system, for example, would allow eligible farmers, agricultural laborers and fisherfolk to “purchase” the labor and supplies they need from vendors they trust; this not only ensures farmers get their inputs of choice, it also leverages and strengthens existing networks and puts money back into local economies.

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7 Fishing inputs include, among others, fuel for boats, storage containers and ice for cold storage.
BACKGROUND

Located in the Davao Region in the southern part of the Philippine island of Mindanao, the two provinces most heavily impacted by Typhoon Bopha are Compostela Valley and Davao Oriental. The agriculture sector is the most significant contributor to the economies of Compostela Valley and Davao Oriental, with the addition of the small-scale mining industry in Compostela Valley. In the years leading up to Typhoon Bopha, agricultural production was on the rise. The two main crops of the region have long been coconut and export banana (Cavendish), which contributed a combined 47% to the region’s agricultural output in 2011 and made the Davao Region the top producer of banana and coconut in the country. Compostela Valley was the largest producer of bananas for export and Davao Oriental contributed more coconuts to national production than any other province in the country.8

The full economic impact of Typhoon Bopha on the agricultural industry of the region and the nation as a whole is yet to be seen. Preliminary estimates of agricultural damages reported by the National Disaster Risk Reduction and Management Council (NDRRMC) are an estimated USD 230 million, including USD 180 million in losses associated with high value crops (bananas, vegetables, coconuts, and tropical fruits), USD 39 million in lost rice and corn crops, and USD 12 million in damages to livestock and fisheries.

Leading up to Typhoon Bopha, 80% of residents of the affected provinces relied on small-scale agriculture for their livelihoods, either as farmers, laborers, fisherfolk or a combination thereof. For the majority of agricultural households, income generated from crop cultivation is typically augmented by other activities like small livestock rearing, fishing, and both skilled and unskilled labor. The main tree crops are coconut, banana, abaca, cacao, coffee, palm, rubber and other fruits like durian and mango. Rice, corn and vegetables are also widely cultivated for both market and household consumption.

Approximately 4,500 households are estimated to rely on fishing for their livelihoods along the four most devastated municipalities of the Davao Oriental coast – Boston, Cateel, Baganga and Caraga.9 Fish are the staple product for these households, supplemented by seaweed, shellfish and other marine products. Most fisherfolk own their own boats, which range from one-person manual boats at a value of PHP 3,000 (USD 75) to PHP 70,000 (USD 1,720) motorboats. The type of boat owned depends on the households’ resources, but also on the part of the coast they fish and the type of marine products they harvest. Because fishing is seasonal work, fisherfolk supplement their income off-season with skilled or unskilled labor opportunities. Many fisherfolk work in carpentry (primarily for boats), a skill that is developed through their construction and repair of their own boats.

Both women and men work in the agricultural sector in Compostela Valley and Davao Oriental. In the Davao Region10 as a whole, the agriculture sector directly employs 746,000 people, 76% of whom are male according to official reports.11 Many more women may be engaged unofficially. In 2011, the Philippine Bureau of Agricultural Statistics cited the daily agricultural wage in Davao Oriental as PHP 183 (USD 4.51) for men and PHP 180 (USD 4.43) for women nominally, and PHP 102 (USD 2.51) and PHP 101 (USD 2.48) in real terms.

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8 Philippines Bureau of Agricultural Statistics
9 Government of Davao Oriental Province
10 Davao Region, designated as Region XI, is one of the regions of the Philippines located on the southeastern portion of Mindanao. Davao Region consists of four provinces, namely Compostela Valley, Davao del Norte, Davao Oriental, and Davao del Sur.
11 Philippine Bureau of Agricultural Statistics
METHODOLOGY

CRS and partners carried out a rapid assessment from 28 January through 8 February 2013 in the provinces of Davao Oriental and Compostela Valley in Mindanao, Philippines. Within the two provinces, the assessment team selected six municipalities for assessment based on the criterion that they were the most heavily affected municipalities according to the Philippine government and UN-sponsored livelihood cluster (Figure 1).

Figure 1: Map of Typhoon Bopha Affected Area and Population

The assessment team created a spreadsheet listing all barangays within the selected districts and utilized secondary data and partner knowledge to rank them based on the following selection criteria:

1) Percentage of shelters in the barangay damaged or destroyed
2) Percentage of farmland in the barangay damaged or destroyed
3) Ranking of agriculture as the primary contributor to livelihoods in the barangay
4) Accessibility (potentially hindered by insecurity or damage to roads and bridges)
5) No strong presence of other actors carrying out or planning to carry out livelihood recovery activities in the barangays

The districts and barangays selected for assessment are presented by province in Table 1. Before carrying out the assessment, the teams field-tested the tools in New Bataan, covering two barangays. In Barangay Cogonon the household survey was field-tested with eight respondents and in San Roque with 10 respondents. After testing, the team leaders refined and finalized all tools.

In Compostela Valley Province, Typhoon Bopha affected an estimated 127,592 families (508,084 individuals) and in Davao Oriental, another 53,309 (190,198 individuals).12 In Davao Oriental, where Bopha made landfall, the storm’s damage is more geographically condensed and a majority of aid is being focused. In Compostela Valley, storm-triggered landslides and flooding have created an environment of more geographically dispersed affected populations and more diverse livelihood

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12 Philippines Disaster Response Operations Monitoring and Information Center
challenges, but nonetheless devastating (Figure 1). In order to cover the range of livelihood challenges, opportunities and populations in the two provinces, the assessment targeted an equal number of barangays in each province. Two barangays were surveyed in each of the four selected municipalities in Compostela Valley Province and four barangays were surveyed in each of the two municipalities targeted in Davao Oriental Province, plus one additional barangay in Davao Oriental for a focus group discussion.

Table 1: Assessment Geography

<table>
<thead>
<tr>
<th>Province</th>
<th>Municipality</th>
<th>Barangay</th>
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<tbody>
<tr>
<td>Compostela Valley</td>
<td>Compostela</td>
<td>Tamia</td>
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<td></td>
<td></td>
<td>Mangayon</td>
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<tr>
<td></td>
<td>New Bataan</td>
<td>Andap</td>
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<tr>
<td></td>
<td></td>
<td>Kahayag</td>
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<tr>
<td></td>
<td>Monkayo</td>
<td>Baylo</td>
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<tr>
<td></td>
<td></td>
<td>Tubo-Tubo</td>
</tr>
<tr>
<td></td>
<td>Laak</td>
<td>Kapatagan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kaligutan</td>
</tr>
<tr>
<td>Davao Oriental</td>
<td>Cateel</td>
<td>Abejod</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Taytayan</td>
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<td></td>
<td></td>
<td>Alegria</td>
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<tr>
<td></td>
<td></td>
<td>San Antonio</td>
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<tr>
<td></td>
<td>Baganga</td>
<td>Ban-a0</td>
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<td>Mahan-up</td>
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<td></td>
<td></td>
<td>Kinablangan</td>
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<tr>
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<td></td>
<td>Lucon</td>
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</tbody>
</table>

In order to carry out fieldwork in the two provinces, one team based itself in Nabunturan, Compostela Valley and a second team was based in Bislig, Surigao del Sur, where CRS temporarily set up its office for activities in Davao Oriental, while awaiting the rehabilitation of an office in Cateel damaged by the typhoon. The CRS assessment teams included one CRS Philippines team leader for each of the two teams. In Davao Oriental, the team was comprised of four CRS staff, three staff from DAR, three MFI staff, one MAO staff person, four enumerators and two data encoders. The Compostela Valley team was comprised of 4 CRS staff, 8 staff from municipal DAR, 2 MFI staff, 8 enumerators and 2 data encoders. All enumerator groups included both women and men, who conducted interviews in the local language of Cebuano.

The assessment was carried out using three tools – a household survey, focus group discussion (FGD) and key informant interview (KII) focusing on market actors. The assessment team carried out three versions of the household survey and FGD – one for farmers, one for agricultural laborers and another for fisherfolk. The KII was conducted using one tool for input providers and another for buyers, traders and processors.

In each barangay, the assessment team targeted 25 households for household surveys, for a total of 400 households across the two provinces, at least one FGD and one KII. Households were selected based on the criteria that:

1) The household’s primary source of income is farming, agricultural labor or fishing
2) If the respondent is a farmer, s/he owns three hectares or less
3) Respondent is a household head
The assessment targeted a sample of 40% women respondents based on the estimated representation of women in the agricultural and fishing sector. Households were targeted to represent the range of potential respondent demographics, including:

1) Cultivating upland, lowland rainfed and lowland irrigated farms
2) Farmers who own, rent and sharecrop
3) Agrarian reform beneficiaries (ARBs) and non-ARBs
4) Indigenous people (IP) and non-IPs

Household selection was carried out using purposeful sampling to meet the targeting criteria and answer the assessment questions. The assessment team first met with each Barangay Captain, obtained a list of households from each barangay and together with the Barangay Captain created a list of 40 to 50 households. Households were shortlisted if they met the household selection criteria, represented the above-mentioned respondent categories and were present in the barangay at the time of the assessment. From the list of approximately 40 to 50 households, the assessment team interviewed 25 to 30 households and crosschecked to meet the selection criteria and respondent categories. Due to displacement and the disruption of household routines after Typhoon Bopha, barangay leaders supported the assessment team to identify and locate households. All household interviews were carried out one-on-one, some at respondents’ place of residence and others in communal centers.
RESULTS

Demographics
The assessment interviewed 482 respondents using household surveys – 295 farmers, 150 agricultural laborers and 37 fisherfolk. Detailed numbers of respondents by municipality and sector are shown in Table 2. The average age of farming and labor respondents was 49 and among fisherfolk the average age was 45. Household size averaged five persons across all sectors.

Table 2: Assessment Respondents by Municipality and Sector

<table>
<thead>
<tr>
<th></th>
<th>Compostela Valley</th>
<th>Davao Oriental</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Compostela</td>
<td>New Bataan</td>
<td>Monkayo</td>
</tr>
<tr>
<td>Number of Farmers</td>
<td>39</td>
<td>46</td>
<td>40</td>
</tr>
<tr>
<td>Percentage of Farmers</td>
<td>13%</td>
<td>16%</td>
<td>14%</td>
</tr>
<tr>
<td>Number of Laborers</td>
<td>17</td>
<td>22</td>
<td>13</td>
</tr>
<tr>
<td>Percentage of Laborers</td>
<td>11%</td>
<td>15%</td>
<td>9%</td>
</tr>
<tr>
<td>Number of Fisherfolk</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Percentage of Fisherfolk</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Among farmers, 62% of respondents were male and 38% female. Labor respondents were inversely proportional with 67% female and 33% male respondents (Figure 2). In focus group discussions, respondents shared that many of the male agricultural laborers were out looking for work opportunities during the day whereas male farmers were more likely to be home tending to farm rehabilitation. Of fisherfolk respondents, 89% were male and 11% female, representative of the sector in the target area.

Figure 2: Gender Distribution of Respondents - Farmers, Laborers and Fisherfolk
Agrarian reform beneficiaries (ARBs) represented approximately half of farmer respondents, 17% of agricultural laborers and 11% of fisherfolk (Figure 3).

**Figure 3: Agrarian Reform Beneficiary Distribution of Respondents - Farmers, Laborers and Fisherfolk**

Among agricultural labor respondents, 92% had received some form of assistance since Typhoon Bopha. All farmer and fisherfolk respondents had received aid. The primary type of assistance across sectors was food, followed by shelter and non-food items (NFIs). Assistance was more varied in Davao Oriental, whereas in Compostela Valley, the huge majority of aid was in the form of food (Figure 4).

**Figure 4: Assistance Received Since Typhoon Bopha by Farmers, Laborers and Fisherfolk**

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13 Shelter support here refers to anything from distribution of a tarpaulin to temporary housing assistance.
Migration patterns among farmer and labor respondents demonstrated a different pattern than is often found in countries after natural disasters. Major shocks to the natural environment often lead to migration out of the affected areas as people leave to search out emergency income-generation opportunities. Rather than experiencing increased outmigration following Bopha, surveyed households demonstrated the reverse migration pattern wherein previously migrated family members returned to family residences after the typhoon to support their families’ rehabilitation. Fisherfolk are the exception; their households more than doubled their outmigration in the aftermath of Bopha (Figure 5). With the loss of their boats, fisherfolk reported that some household members have traveled to seek earning opportunities, while other members remain near their residences to access relief.

Figure 5: Migration Before and After Typhoon Bopha Among Farmers, Laborers and Fisherfolk

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14 International Organization for Migration (IOM), Migration Research Series, No. 30
Impacts of Typhoon Bopha on Households’ Ability to Meet Basic Needs

The assessment asked respondents to rank their top three sources of food before and after Typhoon Bopha. Before Typhoon Bopha, respondent households on average sourced their food nearly half from their own production (farming and fishing) and half from purchase. Unable to resume their livelihood activities, farmers and fisherfolk cannot produce the food their households require and all respondents suffer shortages of cash to purchase food (Figure 6). Two months after the landfall of Typhoon Bopha, 63% of farmers, laborers and fisherfolk cited food aid as one of their top three sources of food (Figure 7).

![Figure 6: Two Months After Typhoon Bopha Families Still Unable to Resume Livelihood Activities](image)

Photo by Arielle Moinester/CRS

Figure 7: Primary food sources for farmers, laborers and fisherfolk before and after Typhoon Bopha

![Pie charts showing food sources before and after Typhoon Bopha]

15 Laborers relied more heavily on purchased food than farmers or fisherfolk.
Households’ own food production plummeted after Bopha, with only 3% of respondents ranking their own production as a top three source of food, down from 41%. Purchased food diminished by nearly two thirds and reliance on friends increased by a factor of eight.

Along with dependence on relief for meeting food requirements, respondents are also experiencing a major shift in their sources of income from income generated through work in their given sector to reliance on relief in the form of cash-for-work and cash grants. The household survey asked farmers to rank their top three sources of income before and after Typhoon Bopha. All sectors have shifted away from their main sector of income toward reliance on relief and alternative income generation activities (Figure 8). The figures below compare respondents’ first-ranked income sources before and after Bopha.

Figure 8: Primary income source for farmers, laborers and fisherfolk before and after Bopha
Since the typhoon, farmers have shifted from 94% earning the majority of their income from farming activities, to only 42%, with 32% relying primarily on relief and the remainder from alternative coping activities like farm and off-farm labor, remittance and livestock. The agricultural labor sector has seen a shift from 63% relying primarily on farm labor income to nearly half dependent on relief due to the dearth of farmers and plantation owners able to hire laborers since Bopha. All fisherfolk respondents cited fishing as their top source of income before the storm; now 33% cite relief as their main income source and only 47% are primarily reliant on fishing (Figure 9). The change in percentage of respondents relying on productive activities as their primary income sources before and after the typhoon reflects a change in ranking and composition; it does not speak to the absolute value of earnings, which are a fraction of their previous worth due to affected households’ loss of assets and earning potential from Bopha.

**Figure 9: Damaged and Destroyed Boats Prevent Fisherfolk from Restoring their Livelihoods**
Impacts of Typhoon Bopha on Livelihood Sectors and Activities

In light of agricultural laborers’ diminished work opportunities in the wake of Bopha’s destruction of farms and plantations, the assessment investigated in which agricultural sectors the laborers primarily worked before Bopha and in which sectors they are working now. Findings, presented in Figure 10, varied between the two provinces, with 56% of laborers in Compostela Valley working on plantations before Bopha, while 99% of laborers in Davao Oriental worked in crop agriculture and none worked on plantations. Typhoon Bopha has cut laborers’ work in crop agriculture and plantations in half and unemployment among surveyed laborers in the two provinces averaged 45%, corresponding with the 51% of laborers relying primarily on relief for household income.

Figure 10: Sector of Work Among Laborers Before and After Typhoon Bopha

The household survey investigated which crops laborers cultivated before Typhoon Bopha and, if they are currently working, which crops they are cultivating now. Results are presented in Figure 11. In the wake of Bopha, fewer laborers are employed in absolute numbers. Of those who are employed, higher percentages are working on banana and oil palm plantations, with fewer working in rubber. No surveyed laborers worked on plantations in Davao Oriental, either before or after Bopha. Across both provinces, work on coconuts decreased and rice cultivation increased. Banana and oil palm trees in the path of Bopha were damaged and some destroyed completely. More affected banana and oil palm trees with sustained damage can be rehabilitated compared to damaged coconut trees, many of which fell and are beyond restoration. Rice cultivation is higher among laborers after Bopha, in part because rice cultivation is seasonal and corresponds with the time of assessment, and in part because damaged rice fields can be cultivated and resume productivity much more quickly than a coconut tree farm.
Livestock is an important asset for agricultural households in the two provinces, providing a source of food, income and security in the face of shocks. Livestock losses among typhoon-affected populations have impacted households’ ability to meet their basic needs. The household survey inquired about the number of animals that respondents owned before the typhoon and how many they own now. Losses of livestock include deaths due to Bopha, as well as their consumption and sale (Figure 12). As indicated in Figure 8, despite significant livestock losses, respondent households are more dependent on remaining animals for their livelihoods since their primary livelihood sources were destroyed.

Figure 12: Percentage Livestock Losses for Farmers and Laborers

16 For farmers, there was actually an 11\% gain in livestock among respondents for whom the typhoon and associated flooding carried livestock to their homesteads and the original owners could not be located.
Needs for Recovery
The assessment asked farmers, laborers and fisherfolk to prioritize challenges that need to be resolved in order to restore their agricultural livelihoods (Figure 13). Among farmers, the top two challenges across both provinces were the fact that their fields are damaged with fallen coconut trees and debris and their inability to purchase inputs17 (Figure 14). In Compostela Valley, the third challenge was lack of tools and in Davao Oriental, it was the inability to hire labor. Laborers also ranked the damage of fallen coconut trees and debris on farms and plantations as one of the top three challenges preventing them from resuming labor activities, along with insufficient cash and an inadequate number of people hiring laborers. Results varied slightly across provinces, but the top three priorities remained the same. Among fisherfolk, the top three recovery challenges were damaged boats, inability to purchase inputs and lack of tools and equipment.

Figure 13: Top Livelihood Recovery Challenges for Farmers, Laborers and Fisherfolk

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17 Seed, saplings, fertilizer and pesticide
Infrastructure damage inflicted by Typhoon Bopha inhibits livelihood restoration in the form of access roads, storage and processing facilities, electricity and irrigation. For farmers across the two provinces, obstructed roads, lack of storage facilities and lack of processing facilities were ranked as the top three livelihood challenges. For laborers, the top three challenges were obstructed roads, damage to employers’ assets and lack of electricity. For fisherfolk, the primary infrastructure challenge to livelihood restoration was lack of storage facilities in the form of refrigerated storage (Figure 15). The assessment distinguished whether infrastructure challenges were due to Bopha or pre-existing and found that an overwhelming majority was due to losses incurred from Bopha.

18 These are primarily the roads going from the main roads to privately owned farms. These roads are generally privately owned passing through multiple farms and privately owned land.

*Figure 14: Fallen Coconut Trees Hinder Cultivation and Access to Farms Two Months After Bopha*

*Photo by Arielle Moinester/CRS*

*Figure 15: Top Infrastructure Recovery Challenges for Farmers, Laborers and Fisherfolk*
In spite of myriad livelihood recovery challenges, farmers reported that they were planning to resume cultivation in upcoming planting seasons once they overcome infrastructure and general livelihood obstacles. The household survey asked farmers what three main crops they cultivated before Bopha and what three main crops they plan to cultivate when they are able to resume farming. With very little exception, farmers plan to cultivate the same crops after Bopha as they did before. However, for farmers cultivating tree crops like coconut, this will take years before harvests are possible. Focus group discussions revealed a need for short-term crop alternatives like vegetables, root crops, corn and rice while restoration of longer-term crops is underway. In Compostela Valley, farmers cultivate primarily banana and coconut. In Davao Oriental, the main crops are coconut and rice (Figure 16).

**Figure 16: Crops Farmers Cultivated Before Typhoon Bopha and Plan to Cultivate After**

<table>
<thead>
<tr>
<th>Compostela Valley</th>
<th>Before Bopha</th>
<th>After Bopha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>Corn (White)</td>
<td>11%</td>
<td>2%</td>
</tr>
<tr>
<td>Corn (Yellow)</td>
<td>5%</td>
<td>1%</td>
</tr>
<tr>
<td>Banana (Export)</td>
<td>21%</td>
<td>2%</td>
</tr>
<tr>
<td>Banana (Local)</td>
<td>21%</td>
<td>6%</td>
</tr>
<tr>
<td>Coconut</td>
<td>21%</td>
<td>6%</td>
</tr>
<tr>
<td>Vegetable</td>
<td>2%</td>
<td>12%</td>
</tr>
<tr>
<td>Fruit</td>
<td>12%</td>
<td>6%</td>
</tr>
<tr>
<td>Other</td>
<td>19%</td>
<td>15%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Davao Oriental</th>
<th>Before Bopha</th>
<th>After Bopha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>23%</td>
<td>20%</td>
</tr>
<tr>
<td>Corn (White)</td>
<td>12%</td>
<td>13%</td>
</tr>
<tr>
<td>Corn (Yellow)</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Banana (Export)</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Banana (Local)</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>Coconut</td>
<td>29%</td>
<td>27%</td>
</tr>
<tr>
<td>Vegetable</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>Fruit</td>
<td>8%</td>
<td>5%</td>
</tr>
<tr>
<td>Other</td>
<td>8%</td>
<td>9%</td>
</tr>
</tbody>
</table>
Across both provinces, banana and coconut are primarily cultivated for market and rice is cultivated for both market and consumption. After Bopha, farmers plan to resume cultivation with little change to percentages cultivated for market and consumption.

Market Response and Recovery
Since Typhoon Bopha, the diminished production and sales of agricultural outputs by affected farmers, along with their decreased purchasing power for agricultural inputs has financially debilitated local markets. Many market actors suffered severe damages to their assets in the storm, including storage and processing facilities, vehicles, product stocks and operational infrastructure. Exacerbating the situation, the influx of aid in some areas has further sidelined vendors from re-engaging in economic activity, while clearly serving the emergency needs of many families. The market-based key informant interviews surveyed two categories of vendors – 1) input providers and 2) buyers, traders and processors. The assessment found that some vendors across both categories have actually gone out of business due to damages suffered in Typhoon Bopha and its aftereffects.

For those surviving buyers, traders and processors in the agriculture industry in the two provinces, the assessment found that their gap in supply from farmers after Bopha ranged from 50% to 100% of demand. This is the combined result of damaged farms and harvests, as well as transportation challenges due to obstructed and damaged roads and bridges. The assessment found that buyers were ready and eager to purchase agricultural products. They were eager for relief efforts to support the recovery of the agricultural sector so that they can duly restore their livelihoods.

Input providers, while most suffering damage from the typhoon, were also eager to resume sales to farmers. The assessment found that the most significant challenge to livelihood recovery among input providers is that they have lost the majority, if not all, of their customer base. As previously mentioned, farmers devastated by the typhoon have few assets and little cash, many of their fields are still covered with fallen coconut trees and debris. All of these factors prevent farmers from being able to purchase inputs and cultivate their fields. Inability to purchase inputs was in the top two most significant challenges to livelihood recovery for farmers in both provinces. A significant component of this challenge is the inability of farmers and fisherfolk to procure loans since Bopha and the inability of vendors to give them.

Fishing households generally take out long-term loans to purchase their boats, nets and other equipment. They also take out short-term loans for working capital to buy fuel for boat engines and ice for daily catch, often paying back the loans the next day. Many fisherfolk are well versed in working with banks and also take loans from wealthier neighbors. Farmers also utilize loans to finance their agricultural endeavors, though they most often work through vendors rather than formally through banks. In the aftermath of Typhoon Bopha, respondents across all three sectors in all locations reported their inability to access loans due to their outstanding loans and lack of assets as collateral. Vendors also cited their inability to give loans because they have also suffered major losses and everyone is in need of large loans for recovery.

The surveyed agricultural buyers, traders, processors and input providers are ready and eager to re-engage in market activities. Buyers and traders report that despite the damage they suffered, their biggest obstacle to recovery is the lack of agricultural production available for purchase from farmers since Bopha. Among input providers, lack of inputs to sell to farmers was not cited as an obstacle to resuming market engagement. Input vendors are also keenly aware of the needs of farmers for short-term transitional recovery crops and are planning to stock up on vegetable seeds, rice seed, fertilizers and other inputs once the demand is clearly demonstrated.
IMPLICATIONS AND RECOMMENDATIONS

The principle need for farmers and laborers to commence agricultural livelihood recovery is immediate support for clearing farms and access roads of fallen coconut trees and debris, followed by input support for cultivation of short-term recovery crops. The needs of farmers and laborers are aligned. Farmers need to clear land, hire labor and get support for input procurement. Laborers need farmers to clear their land and procure inputs so that they can meet laborers’ need of more farmers being able to hire their labor and resume cultivation activities. Input providers are duly eager to sell inputs to farmers and cite the diminished purchasing power of farmers to buy inputs as their main obstacle in resuming market activities and restoring their own livelihoods. Buyers, traders and processors need a supply of agricultural products. There is a clear opportunity here for organizations providing relief to employ a currency mechanism to enable farmers, laborers, input providers and traders to all re-engage each other to meet their needs.

The needs of fisherfolk are straightforward. Fisherfolk whose boats have been damaged or destroyed cannot restore their livelihoods in earnest without repairing or purchasing new boats. This is a more expensive investment per household than supporting farmers with land clearing and inputs, but fisherfolk need boats. The option of communal ownership of boats by fishing communities as a transitional option was explored by the assessment team and found untenable due to the uniformly peak times for fishing both seasonally and daily. Until fisherfolk are able to repair or purchase boats, some who can access cash are renting boats from municipalities less affected by Bopha. Some barangay governments have committed small cash grants to support fisherfolk, but no large-scale efforts to support fisherfolks’ ability to repair or purchase boats and equipment were found in the course of the assessment. The most promising approach as recommended by the assessment team is a unified strategy between relief agencies, donors and MFIs to link matching grants and innovative financing for clusters of fisherfolk to immediately access rotational funds and repay as a group over time. Regardless of the grant and financing strategy, microfinance loans should be cautious and offer flexible repayment schedules given the overall disaster recovery needs.

Although Typhoon Bopha has had a devastating impact on rural livelihoods, markets continue to function and farmers are best placed to manage their own recovery. Issuing vouchers to eligible farmers, agricultural workers and fisherfolk would allow them to “purchase” the labor and supplies they need from vendors they trust. A voucher-based approach not only ensures farmers get their inputs of choice, it also leverages and strengthens existing networks and puts money back into local economies. The assessment found that markets are ready to resume normal activity. Well-designed market based interventions can help to revive the local economy and restore agricultural livelihoods.
### APPENDIX 1: LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARB</td>
<td>Agrarian Reform Beneficiary</td>
</tr>
<tr>
<td>CfW</td>
<td>Cash for Work</td>
</tr>
<tr>
<td>CRS</td>
<td>Catholic Relief Services</td>
</tr>
<tr>
<td>DA</td>
<td>Department of Agriculture</td>
</tr>
<tr>
<td>DAR</td>
<td>Department of Agrarian Reform</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>IOM</td>
<td>International Organization for Migration</td>
</tr>
<tr>
<td>IP</td>
<td>Indigenous People</td>
</tr>
<tr>
<td>IRIN</td>
<td>Integrated Regional Information Networks</td>
</tr>
<tr>
<td>KII</td>
<td>Key Informant Interview</td>
</tr>
<tr>
<td>LGU</td>
<td>Local Government Unit</td>
</tr>
<tr>
<td>MAO</td>
<td>Municipal Agriculture Office</td>
</tr>
<tr>
<td>MFI</td>
<td>Micro-Finance Institution</td>
</tr>
<tr>
<td>NDRRMC</td>
<td>National Disaster Risk Reduction and Management Council</td>
</tr>
<tr>
<td>NFI</td>
<td>Non-Food Items</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>PBC</td>
<td>Peoples’ Bank of Caraga</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>OCHA</td>
<td>Office for the Coordination of Humanitarian Affairs</td>
</tr>
<tr>
<td>USD</td>
<td>United States Dollars</td>
</tr>
</tbody>
</table>