Tropical Storm Sendong 2011

ShelterCluster.org

Coordinating Humanitarian Shelter

RAPID SHELTER ASSESSMENT AFTER TROPICAL STORM SENDONG IN REGION 10, PHILIPPINES

SHELTER CLUSTER REPORT

FEBRUARY 2012

REACH

EUROPEAN COMMISSION

Humanitarian Aid

This document has been produced with the financial assistance of the European Commission. The views expressed herein should not be taken, in any way, to reflect the official opinion of the European Commission

Table of Contents

Figures and Tables

A house partially damaged by a falling tree in Bayug Island Iligan where 2,500 people are displaced.

Acronyms

3W	Who What Where
ACTED	Agency for Technical Cooperation and Development
CCCM	Camp Coordination and Camp Management
CRS	Catholic Relief Services
DB	Data base
DSWD	Department of Social Welfare and Development
ECHO	European Commission Humanitarian Aid Office
ERC	Early Recovery Cluster
FGDs	Focus Group Discussions
GIS	Geographic information systems
HLP	Housing Land and Property
IFRC	International Federation of the Red Cross
IOM	International Organization for Migration
KKKP	(Xavier University) Kristiyanong Kabataan sa Pilipinas
LDS	Church of Latter Day Saints
MIRA	Multi-cluster Initial Rapid Assessment
NGO	Non-governmental organization
NHA	National Housing Authority
SEP	Socio-Economic Profile
UNHCR	United Nations High Commissioner for Refugees
UNOCHA	United Nations Office of Coordination of Humanitarian Affairs
UNOSAT	United Nation's Operational Satellite Applications Program
WASH	Water Sanitation and Hygiene Promotion
XU	Xavier University
XU-ERC	Xavier University Engineering Resource Centre

Geographic Classifications

English Name Used in Report	Meaning
Region	Highest form of governance below the national level
Province	Sub division of a region where many government agencies reside
Municipality	A collection of Barangays that comprise a broader 'city'
Barangay	An area formed of 10,000 voters, lowest administrative boundary
Sitio / Purok	Neighborhood or area that is informal and not classified for administrative purposes

1. Executive Summary

1.1. Context of Tropical Storm Sendong

According to the NDRRMC, Tropical Storm Sendong (a.k.a. Topic Storm Washi) entered the Philippine Area of Responsibility as a tropical depression on 15 December 2011 and shortly intensified into a tropical storm. As it crossed the Philippines, the storm affected seven regions: 4-B (MIMAROPA), 7 (Central Visayas), 9 (Zamboanga Peninsula), 10 (Northern Mindanao), 1 (Davao), 13 (Caraga) and ARMM (Autonomous Region in Muslim Mindanao). Region 10 includes the most heavily affected areas of Cagayan de Oro City and Iligan City.

As of 24 January 2012, the Department of Social Welfare and Development (DSWD) estimated the total number of affected persons from Sendong in Region 10 at 384,857 people or 69,755 households. Specifically, around 284,515 people have been displaced – with capacity in the evacuation centers being stretched to 21,862 people or 4,738 families. The remaining displaced persons remained in makeshift shelters, with host families, renting of properties, or without access to any shelters. A total of 39,400 households were damaged in Region 10, mainly in Cagayan de Oro and Iligan cities (Totally – 11,427 / Partially – 27,973). This accounted for nearly all the shelter damage across all the regions from Sendong.

1.2. Assessment Methodology

The assessment was conducted by the Shelter Cluster under the supervision of dedicated assessment and Geographical Information Systems/Database (GIS/DB) experts. The Shelter Cluster requested additional support to undertake a comprehensive assessment with mapping support to better inform the humanitarian response.

The key objective of the assessment was to **contribute towards the effective and equitable provision of emergency shelter assistance to the affected population by ensuring that shelter actors have adequate information for designing and funding programs**. Specifically, the assessment identifies the needs of those that are affected to enable contrasting of 3W (who, what where) to identify gaps and opportunities. Moreover, it provides detailed information to operational staff to assist in designing and implementing emergency shelter and longer term recovery projects.

The shelter assessment includes four components of data collection and analysis. First, there are the secondary data sources of governments and agencies. Second there are the household surveys that serve as the backbone of the assessment. Thirdly, there was focus group discussions in each of the communities visited. And finally, there is the GIS and mapping component which included remote sensing – the use of pre and post satellite imagery to identify individual houses affected in hard to reach or highly affected areas – as well as static and web-based interactive mapping of all data collected, collated and analyzed.This assessment focuses on Region 10 of the Philippines, the area where the majority of the impact of Sendong was experienced. The process for selecting the communities included reviewing the list of affected municipalities by DSWD in their Disaster Reports (December-January 2012). Initially, the assessment targeted affected barangays where (a) there was a high level of impact and little assessment information existing, and (b) where organisations had identified that they would be operating. This was to support existing programs while also aiming to identify gaps. However, the assessment scaled up to ensure that all accessible areas were assessed to some degree.

In total, this assessment included 3,945 household surveys representing over 19,000 affected persons, and an additional 185 focus groups with over 3,000 community representatives. The data collection tools included socio-economic as well as technical assessment information, supporting the Shelter Cluster as well as Early Recovery, Food Security, Protection, Water Sanitation and Hygiene Promotion, and other Clusters. This ensured that the information would be representative of the broader issues while also providing local-level knowledge for those implementing the projects.

Throughout this process, **two municipalities were completely removed from the shelter response** as on-ground assessors identified that no shelter damage had occurred despite some secondary data stating otherwise. . Specifically, in Malitbog and El Salvador City municipalities, both administrations noted that there was no shelter damage within their area. The Macasandig Barangay was excluded from household surveys, and only evacuation centres and temporary shelters were assessed. This is due to the fact that Catholic Relief Services (CRS) (the only implementing agency in the area) had already undertaken an assessment in Macasandig.

Security and transportation challenges unfortunately rendered some areas inaccessible to the assessment team, particularly in Iligan City. Mainit, Lanipao, Dulag and Kalingangan barangays were simply inaccessible due to roads being washed out, bridges collapsing, fear of kidnapping, and the like.

Full Sets of Data and Maps from the Project

All of the research's raw data, including databases, reports, web-maps, static maps, government and other secondary data, questionnaires, fact sheets and more can be accessed through the Shelter Cluster at https://www.sheltercluster.org/Asia/Philippines/TropicalStormSendong2011/Pages/default.aspx and the REACH portal of IMPACT Initiative: http://www.reach-initiative.org

1.3. Assessment Results

Demographic and Vulnerabilities

The age profile of respondents highlights the relative young nature of the Philippines in general, but also the number of children that have directly been affected. This includes 11% being children under the age of five and 3% being infants. Moreover, the vast majority of those affected are of working-age, **highlighting the intricate relationship of livelihoods as well as shelter needs**.

A large number of those affected are considered vulnerable households. Surveys showed that there were a hundreds of households with mentally disabled, physically disabled, pregnant and or lactating women. In addition, partially as a result of the Sendong, there were a significant portion of respondents (11%) that are single-headed households, including women headed households (6%). This was supported by the focus group information, highlighting the need for projects to target those considered most vulnerable and least able to reconstruct or rehabilitate their own homes.

It is worthwhile noting that the assessment includes a larger proportion of those in evacuation centres and temporary shelters (approximately 27% of respondents). As such, the sample has particularly focused on vulnerable households. Firstly, they are most likely to have had their houses completely destroyed or at least unlivable even if it may be possible to rehabilitate. **Moreover, those in temporary shelter arrangement are less likely to have alternative coping mechanisms such as being able to rent, live with relatives, etc.** It is these households that have the greatest need as well as being less capable of self-managed support.

Socio-Economic Profile

The primary livelihoods of affected persons is agriculture and skilled / unskilled labour, while 13% of all respondents claim to have no income. Of the households surveyed, **77% claim to be living below the poverty threshold**. The extreme levels of poverty of those affected were further exacerbated by the loss income that many households faced as a result of

the displacement. **Specifically, 64% of households who reported an income stated that their income had declined by over 50%, while only 11% reported that their income remained unaffected.**

The above information is supported and emphasized by **the significant number of affected households that stated they are not completely able to meet the family's basic needs**. While before Sendong 554 (13%) households noted that they could only partially cover basic family needs, this number has almost tripled to 1430 (36%) after Sendong, reflecting the fact that incomes have been severely affected. This emphasizes the need for cash for work and immediate early recovery projects to be implemented in consortium with other types of programming.

Technical assessment

As of 20th of January there were approximately 4,700 households in evacuation centres - about 12% of those with affected houses. While reports have indicated that many families have opted to live with family and friends, the findings of this assessment is that **there is a significant portion that are living in temporary shelters or damaged houses on their own property**. According to key stakeholders and cluster members, his is often due to informal property rights resulting in families unwilling to leave their land for fear of not being able to return, or because they have no alternative coping mechanism.

Sendong created significant floods and mud flows in particularly urban areas of Cagayan de Oro and Iligan, as well as impacting on remote and rural communities – including those in higher altitudes that were more likely to be affected by flash floods or landslides. **The most significant impacts were felt by those with inadequate housing, such as wooden shacks (57%) and wooden/concrete houses that typically have concrete foundations with coco-lumber walls (29%).**

This assessment has identified that most of the 27,973 partially damaged houses have relatively minor impacts, requiring smaller levels of support. This typically includes cleaning of mud damage, small repairs of flooring and roofing (where the water level was very high), and rehabilitation of fixtures such as doors and windows. **Only 13% of partially damaged houses were assessed as requiring major rehabilitation**, such as walls, floors, roofs, and potentially support structures. There is also significant variation of the type of damage based on the type of house.

One of the defining aspects of the Sendong shelter challenge is the Government-declared No Build Zones[1]. Government calculations state that approximately 2700 households in Cagayan de Oro are within the No Build Zones. Asked during the assessment, a very low number of respondents in Iligan stated that their houses were in No Build Zones as they have not been clearly demarcated nor have households been made aware of their locations at the time of the assessment[2]. The impact of the No Build Zones means that households are required to relocate – regardless of whether they are completely damaged, partially damaged, or even unaffected. However, despite GPS coordinates being undertaken during this assessment of the No Build Zones, the political reality is that there is a lot of uncertainty around the defined areas. The purpose for the No Build Zones is to prevent the scale of this type of disaster in the future, however the immediate need is for relocation sites (some of which have been identified) and for reconstruction of houses for affected persons.

The **presence and scale of debris** was included in the assessment, on the behest of those involved in the cleaning, as well as the Early Recovery Cluster, in order to highlight the nature and location of cash for work opportunities. The main type of debris creating a significant challenge for the recovery and relief effort was mud, boulders and logs; however 'other' issues associated with the debris highlighted by respondents was one month after Sendong typically corpses that have not been able to be located causing significant concerns for nearby families as well as potential health hazards.

[1] These have been referred to incorrectly in some publications as No Go Zones.
[2] At the time of writing, a protest in Iligan City was underway in relation to demands to rebuild houses on their existing sites. This has culminated in households setting up temporary shelters on a bridge into the city with signs.

Finally, over half of those affected currently lacked access to electricity, largely due to damage to household networks and/ or to public networks.

Support Need and Provided

The level of humanitarian support requested by respondents was particularly high (over 95%), unsurprising considering the number of households in evacuation centres and the fact that 77% of those surveyed were at or below the poverty line. **The type of support requested by households provides a greater reflection of the immediate needs,** such as food as well as water. In addition, health, sanitation and hygiene kits were also requested and are areas where significant provisions have been provided by the relief efforts. Moreover, livelihood support seems insufficient relative to the level of requests placed by households.

With regards to shelter needs, requests for financial support were considerable as a result of household income having been highly affected (64%). This was coupled however with the need of construction material for their houses. Those that noted 'other' support required were typically focused on land for relocation, a significant concern for those in No Build Zones.

1.4. Conclusion and Recommendations

1. The incidence of poverty in the directly affected areas is considerably high and much greater than the general communities - 77% of those affected compared to around 32-39% for Iligan and Cagayan de Oro municipalities. This has been exacerbated by Sendong, with up to 64% of households' income being highly affected. Therefore any **effective program needs to target the potential income-generating activities** of beneficiaries.

2. **Debris removal and clearing is a priority of utmost importance** to ensure access to houses and communities, while also preventing public health issues from worsening – such as the Leptosorosis outbreak. **Solid waste management plans are recommended** where necessary. This can incorporate a livelihood component through cash or food for work programs, providing livelihood opportunities for the most vulnerable within communities.

3. **Common understanding should be promoted** on the definition of damage to houses, as well as coordinated approaches to designing rehabilitation and reconstruction packages to ensure equitable distribution of support.

4. **Those in temporary shelters and evacuation centres ought to be prioritized for relocation, reconstruction and rehabilitation projects**. This is for two reasons. Firstly, they are the more vulnerable and less capable of those affected. And secondly, the sites are typically schools which should return to their normal operations as soon as possible for the sake of the children. This appears to have been recognized by Government actions.

5. **The No Build Zones need to be clearly demarcated and communicated to those affected**. Moreover, any program that addresses reconstruction and rehabilitation ought to adhere to these boundaries in an effort to improve disaster risk reduction and resilience to future water-related events.

6. **Programs ought to prioritize households that are below the poverty line with rehabilitation needs (approximately 13,851) and all totally destroyed houses (11,427), a total of approximately 25,278 households**. This should happen in a timely manner as individuals are willing to work and build their own homes (if possible), though lack the materials and financial resources to implement their own reconstruction and rehabilitation projects.

7. **Reconstruction and rehabilitation works should as best as possible incorporate disaster risk reduction components.** This may involve 'building back better' solutions including concrete foundations; supporting early warning mechanisms to reduce the likelihood of significant impact from floods or other disasters in the future (baring

in mind that origin of the disaster for many areas were in faraway places upstream); and include community mobilization approaches within the construction programs for sustainable outcomes.

8. **Coordination across Clusters is essential** to a holistic program that benefits the household and the community, including food, livelihood, shelter and other support. This should be coordinated at the overall level as well as within regions. It is worthwhile noting that by and large this seems to be well underway.

9. **Further assessments in currently inaccessible areas needs to be undertaken** to ensure a comprehensive set of information is used for planning and prioritization.

10. **Disaggregation of existing data at the Barangay level is necessary** to provide greater guidance to those implementing programs – be it through formal reports or informally through data-mining of the extensive data sets generated through this assessment.

2. Context of Tropical Storm Sendong

According to the NDRRMC, Tropical Storm Sendong (a.k.a. Topic Storm Washi) entered the Philippine Area of Responsibility as a tropical depression on 15 December 2011 and shortly intensified into a tropical storm. As it crossed the Philippines, the storm affected seven regions: 4-B (MIMAROPA), 7 (Central Visayas), 9 (Zamboanga Peninsula), 10 (Northern Mindanao), 11 (Davao), 13 (Caraga) and ARMM (Autonomous Region in Muslim Mindanao). Region 10 includes the most heavily affected areas of Cagayan de Oro City and Iligan City.

The Cagayan, Agus and Mandulog rivers rose rapidly in the early hours of 17 December 2011, with fast flowing muddy waters surging over riverbanks and sweeping away buildings from a swathe of land on either side. The rivers' rapid speed and rise - in some areas rising by 3.3 meters in less than an hour - caused devastation, with entire neighborhoods and villages swept away. The flash floods struck in the early hours of the morning, giving residents little warning and killing many people as they slept. Compacting the physical nature of Sendong, in many areas nobody had seen floods to anywhere near this scale in their entire lives, which are more commonly experienced north of Mindanao on other islands exposed to greater risks of tropical storms.

According to Department of Social Welfare and Development (DSWD), as of 24 January 2012, the totals number of affected persons from Sendong in Region X was of 384,857 people or 69,755 households. Specifically, around 284,515 people were displaced – with capacity in the evacuation centers being stretched to 21,862 people or 4,738 families. The remaining displaced persons remained in makeshift shelters, with host families, renting of properties, or without access to any shelters. A total of 39,400 households were damaged in Region 10, mainly in Cagayan de Oro and Iligan cities (Totally – 11,427 / Partially – 27,973).

Therefore, the Shelter Cluster has become a priority for international organizations responding to Sendong, with the Government of Philippines (DSWD) playing a particularly active role. The Shelter Cluster was initially led by the International Organization for Migration (IOM), though the International Federation of the Red Cross (IFRC) provided support and became the lead as of 7th of January 2012.

In response to this, on the 11th of January 2012 IMPACT Initiatives and its partners were requested by IFRC to provide support in undertaking assessments and providing database and GIS support to the Shelter Cluster. Specifically, a REACH team[3] was deployed by IMPACT Initiatives to undertake an assessment of the scale, type and location of shelter damage. ACTED facilitated the deployment of REACH staff in the field, with an Assessment expert arriving in Cagayan de Oro on the 13th of January 2012, followed by a GIS / Database Manager on the 17th of January 2012. In addition, oversight and support was provided by IMPACT Initiatives and the United Nations Office of Satellite Imagery (UNOSAT) from their Gneeva offices[4].

The purpose of the deployment and this assessment was to provide agencies with information to inform the Revised Flash Appeal, and to better plan and prioritize shelter related programs across Sendong-affected areas. Household level surveys were undertaken to verify and provide additional detail (particularly in terms of technical assessments) to information that had been collected through various government agencies and international organizations; focus group discussions were held with communities to understand broader issues; static maps were created based on requests from humanitarian agencies needs to support their programming; and a webmap with interactive functions was developed to enable any interested parties to get a better picture of the scale and location of damage, the relief assistance being provided, and various other baseline social, economic and technical information.

[3] Please refer to Impact & REACH overview at the end of this report
[4] Within the United Nations Institute of Training and Research (UNITAR).

3. Assessment Methodology

This section describes the methodology developed and implemented in undertaking the shelter assessment. The short timelines due to the emergency meant that not all households could be assessed despite the significant capacity of the assessment teams. A sample of affected households across all accessible areas was therefore taken.

It is the belief of the authors that the approach used here provides the greatest level of directive and informational support for key stakeholders, and confirms to best practice methodologies across the range of tools used and the process undertaken.

This section highlights the overall objectives of the research; coordination in planning and implementing the assessment; the general methodology of the assessment including the use of focus groups and household surveys; the coverage of the assessment in terms of households and effected areas; and the scale of the assessment such as the number of household surveys and focus groups undertaken.

3.1. Objectives of the Research

The key objective of the assessment is be to **contribute towards the effective and equitable provision of emergency shelter assistance to the affected population by ensuring that shelter actors have adequate information for designing and funding programs**. Specifically, the assessment identifies the needs of those that were affected by Tropical Storm Sendong in order to enable contrasting of 3W (who, what where) and to identify gaps and opportunities. Moreover, it provides detailed information to operational staff to assist in designing and implementing emergency shelter and longer term recovery projects. While focusing on shelter needs, this interagency rapid assessment also aims to inform other clusters, particularly where shelter is inter related such as early recovery (ERC), protection, water sanitation and hygiene promotion (WASH), camp coordination and camp management (CCCM) and housing land and property (HLP). Finally, the information contained within this report and throughout the research has and will continue to be used for informing the Flash Appeal process coordinated by UNOCHA.

3.2. Coordination with Clusters, Agencies

Throughout the planning and implementation of the shelter assessment, coordination with key stakeholders has been a priority focus. The author and the Shelter Cluster have contributed directly to the Multi-cluster Initial Rapid Assessment (MIRA), informing the shelter component as well as partaking in the analysis. Furthermore, questions that could not be addressed by the MIRA were incorporated into the shelter assessment where appropriate, such as scale of debris and requirement of cleaning services to assist the ERC.

Shelter cluster members have been directly engaged through various forums. Cluster member agencies have had opportunities to provide feedback and input on the design of household surveys and focus group discussions, input on training / simulations for improved technical assessments, as well as identify areas of interest for the assessment. This includes Department of Social Welfare and Development (DSWD), National Housing Authority (NHA), International Organization for Migration (IOM), UN Habitat, Catholic Relief Services (CRS), All Hands Volunteering, as well as Shelterbox, Plan International, Habitat for Humanity, Oxfam, Church of Latter Day Saints (LDS) and others on the Shelter Cluster list. .

Local based organizations have also been directly engaged to support the shelter assessment. Xavier University has provided logistics, volunteers and informational support through the Engineering Resource Centre (XU-ERC) and Kristiyanong Kabataan sa Pilipinas (KKKP).

Finally, the Government of Philippines and its agencies have provided access to secondary data sources to support the Shelter Cluster broadly as well as the mapping and shelter assessment more directly. This includes but is not limited to: National Statistical Coordination Board (NSCB), National Economic Development Authority (NEDA), and the aforementioned DSWD and NHA. Thanks go directly to all the organizations involved in this shelter assessment.

3.3. General Methodology

The shelter assessment includes four components of data collection and analysis. First, there are the secondary data sources of governments and agencies. Second there are the household surveys that serve as the backbone of the assessment. Thirdly, there was focus group discussions in each of the communities visited. And finally, there is the GIS and mapping component which included remote sensing – the use of pre and post satellite imagery to identify individual houses affected in hard to reach or highly affected areas – as well as static and web-based interactive mapping of all data collected, collated and analyzed.

Secondary data: The project team reviewed the existing shelter related information, predominantly from Cagayan de Oro and Iligan. This was collected directly from agencies and organizations, and includes information on shelter damage, environmental / flood related data, social economic context information, and whatever else was available considered of value.

Household surveys: The project team designed a household survey for affected households with the support of Shelter Cluster members. This includes demographic information on the households, technical assessment of the shelters they are currently residing / that have been affected, as well as identification of needs. *See Appendix 1* for the assessment template. The purpose was to generate specific data as to the type of projects required in different areas, to assess the level of vulnerability of households affected, and to inform or support the verification of beneficiary lists for project operations.

Focus group discussions (FGDs): The focus group discussions were designed with support from the Shelter Cluster members. This includes information on how communities have been affected and how support can best be provided or targeted. *See Appendix 2.* The purpose was to generate information from key stakeholders within communities to garner a broader understanding of impacts and community needs. Gender balance of the FGDs has been taken in account during key informants' identification.

GIS and mapping: Multiple scales of mapping have been undertaken to inform the shelter assessment, to use the information from the shelter assessment, as well as to support the Shelter Cluster in large. In partnership with a team of technical experts from UNOSAT, satellite imagery has been used for incorporating into static and web based maps, as well as pre and post satellite imagery for identifying affected households and areas. Static maps have also been created within this report, and have been directly provided to agencies in the field. A web-based interactive map is also being made available for consolidating all data (see www.sheltercluster.org).

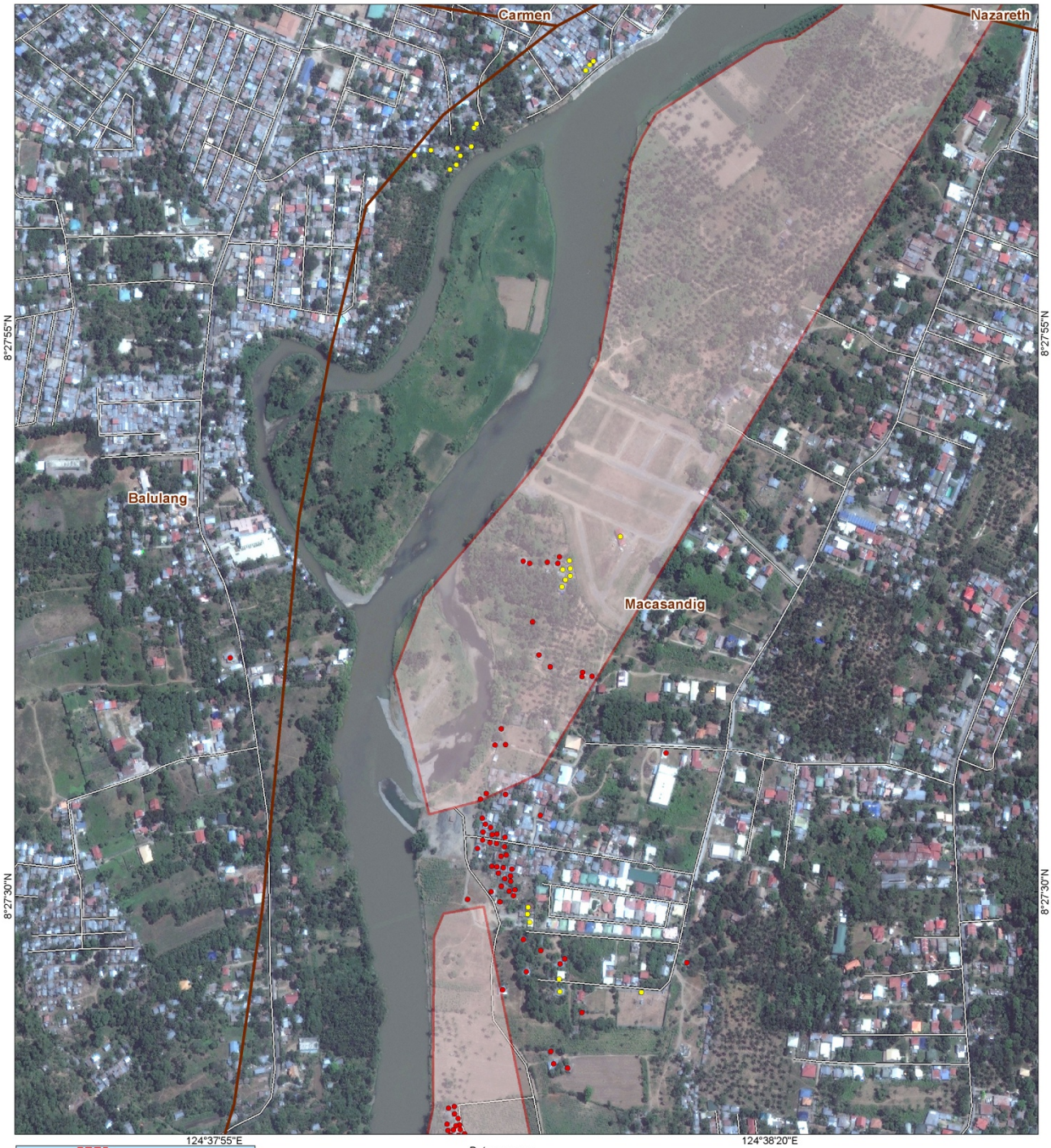
Tropical Storm Sendong 2011
ShelterCluster.org
Coordinating Humanitarian Shelter

Cagayan de Oro - Satellite assessment map 3/6

Damage assessment of the urban area affected by TS Sendong (16 to 18 Dec 2011): this analysis following damage analysis is based on satellite imagery from 19.12.2011 and pre-disaster satellite imagery from 05.03.2010 provided by UNOSAT.
The figures on building damages likely represent minimum estimates. Actual damages could be higher.This is an initial damage assessment and has not yet been validated on the ground.

For humanitarian relief purpose only

Production date: 25 january 2012



Roads
Barangays

Shelter Damage rating
- Destroyed
- Severe Damage
- Possible Damage

No-build zones (indicative)

Data sources:
Satellite imagery: Worldview-2, 5th March 2010
Damage analysis: UNOSAT
No-build zones: MGB/MapAction
Roads: OSM
Administrative boundaries: GADM 2009
Projection: WGS 1984 UTM Zone 51N
GLIDE number: FL-2011-000204-PHL
File: REACH_PHL_WASHI_DAM3_25JAN2012_V1
Contact: reach.mapping@impact-initiatives.org

Map Scale for A3: 1:5 000
0 0.1 0.2 0.3 Kms

Note:
Data, designations and boundaries contained on this map are not warranted to error-free and do not imply acceptance by the REACH partners mentioned on this map.
This document has been produced with the financial assistance of the European Commission. The views expressed herein should not be taken, in any way, to reflect the official opinion of the European Commission.

A product of REACH www.reach-initiative.org
A program of IMPACT Initiatives
In partnership with unitar UNOSAT ACTED
Funded by European Commission

3.4. Assessment Area

This assessment focuses on Region 10 of the Philippines, the area where the majority of the impact of Sendong was experienced. While in Region 7 there were up to 7,000 households affected (not necessarily shelters), this remains outside the scope of the coordinating groups as there were few shelters affected and shelter cluster members were not operating there nor requesting information from outside of Region 10.
The areas selected to be included in this assessment are based on three criteria.

2. Samples from all areas that were affected by Sendong;
3. Communities that are directly being engaged by members of the Shelter Cluster; and
4. Regions that have not been adequately assessed in a detailed manner.

The process for selecting the communities included reviewing the list of affected municipalities by DSWD in their Disaster Reports (December-January 2012). As the lowest level of administration is the Barangay level, it was noted that additional information would be required to identify specific Barangays of CDO and Iligan cities where the majority of the damage and impact of Sendong had occurred. Initially, every single Barangay of CDO and Iligan was included.

As part of the process, at least one day prior to assessments in the communities, members of the assessment team visited the Barangay Captains within CDO and Iligan, and the Mayor's Office within ten other municipalities that were affected. This was supported directly by a local IFRC staff, as well as volunteers.

The questions of the key contacts focused on:

- Most affected areas;
- Communities that have the least amount of support (Sitio / Purok level);
- Are considered to be the most vulnerable; and
- Communities that the administrators believe may require shelter or housing assistance.

Throughout this process, two municipalities were removed due to existing statistics not reflecting the on-ground reality. Specifically, in Malitbog and El Salvador City municipalities, both administrations noted that there was no shelter damage within their area. While an assessment team was still sent to Malitbog to confirm this, no assessment team was sent to El Salvador City.

In addition, members of the Shelter Cluster were asked which areas they would like prioritized as part of the assessment. All areas put forward by cluster members were included. The Macasandig Barangay was excluded from home-based surveys, and only evacuation centres and temporary shelters were included. This was because CRS had undertaken a technical assessment in Macasandig, and as the only implementing agency there it was not required to be reassessed. Despite this, a large number of surveys in evacuation centres were still undertaken due to it being the most affected region within CDO.

In Iligan City, all evacuation centres were approached for inclusion in the assessment, with the exception of the evacuation centre at the Upper Hinaplanon Elementary School. This was not able to be accessed due to an ongoing dispute between the Barangay Captain and DSWD. Information on the inaccessibility for the assessment team as well as relief goods was passed on to appropriate organizations for follow-up, including IOM and United Nations High Commissioner for Refugees (UNHCR).

Security and transportation challenges unfortunately rendered some areas inaccessible to the assessment team, particularly in Iligan City. Mainit, Lanipao, Dulag and Kalingangan were simply inaccessible due to roads being washed out, bridges collapsing, and the like. Alternative methods of transportation were considered – such as a scouting team on

motorcycles and on foot to see if that would be better than four wheel drives – however, efforts in some areas still proved futile. Moreover, Panoroganan was considered insecure after advice from UN security agencies and field based staff due to ongoing inter-community tensions. It is worthwhile noting that these Barangays had very limited damage reported from Sendong, and, while verifying this data is valuable for future assessments, the impact on the validity of this assessment is considered minimal.

Generalizing Results and Statistical Analysis

A non-random sampling method was used to identify households and communities that were included (see above for how communities were selected). Therefore, it is important to note that the results are not able to accurately be generalised across all affected communities. This was a strategic decision to better support the Shelter Cluster members that are currently planning or implementing in specific areas. Moreover, without a comprehensive beneficiary list available at the time of the rapid shelter assessment, it was not possible to randomly select survey respondents. Therefore, this assessment does not include a statistical analysis. In total, over 10% of affected households were surveyed. This is sufficient for results to be considered indicative – particularly for those in evacuation centres and transitional shelters where a greater sample size was collected – and for general issues, challenges and opportunities to be identified. Agencies are encouraged to verify all information.

3.5. Training, Logistics and Human Resourcing of Rapid Assessment

The shelter assessment formally began on the 14th of January 2012. Initially, planning and designing was undertaken in a collaborative manner as mentioned above. During this time, the logistics of fleet management and recruitment of enumerators was also undertaken. Shelter Cluster resources were utilized such as sites for simulations as part of training, briefing/debriefing venues, recruitment of assessors, data entry officers, and GIS support staff. ,

The first training was conducted on the 20th of January 2012 at Cagayan de Oro (CDO). A total of 54 assessors participated in the day long training session. The morning session included a detailed training and review of through the household survey and the focus group discussions. A brief training session was also conducted on using GPS enabled cameras, and the requirements of photography for the web based map: https://picasaweb.google.com/lh/albumMap?uname=112683396311107494951&aid=5717091116715107265#map.

The afternoon session included a simulation exercise at an All Hands Volunteers site known as Emily Homes. This included separating the enumerators into three groups and providing hands-on technical training of how to do technical assessments of houses, as well as practice on conducting the surveys. On the 23rd of January, further 52 paid-volunteers were trained in the above manner in Iligan City. An additional team from CDO attended the training to provide tips and lessons as well as to support the group. The simulation exercise was supported by IOM at a site nearby to Villaverde. Again, on the following day data collection began (and again supported by a team from CDO) at evacuation centres.

Teams of three were formed for assessors – one leader who coordinated the focus groups, and two individuals who undertook household surveys one of whom would support the focus group during its implementation. In CDO, assessments began in evacuation and transitional sites on the 21st of January. On the 24th of January, assessments also

begin with evacuation and transitional sites. After this, assessors either completed the evacuation centers, or went to the affected communities.

To support the coordination, two people were identified in CDO and a further three in Iligan. One in each city would support the logistics of fleet management in particular and identifying the following days' itinerary. This included visisting Barangay Captains to receive suggestions for assessment areas and receive approvals. A second person would support with participation sheets, payments of all staff, tracking of cameras, etc. The third person in Iligan was used due to distances between Barangays to receive approvals and support the difficult fleet management situation there.

On the 23rd of January in CDO, training was also provided to encoders at Xavier University. This was provided on an ongoing basis so that surge capacity could be added later in order to ensure that all encoding would be completed in a timely manner. In total, 21 further persons were trained in encoding, and another individual was trained in cataloguing all photographs.

Moreover, on the 20th of January a further three individuals who had experience in using GPS were trained for data collection to inform the mapping. All three were engineers at XU-ERC, who spent their times visiting resettlement sites and No Build Zones.

Data collection was completed on the 27th of January. Data encoding was completed on the 28th of January.

3.6. Scale of Assessment

The table below shows the areas that were assessed.

Region	Municipality	Barangay	Estimated # of Sub-Districts	# of Surveys	# of FGD
10	CAGAYAN DE ORO CITY	AGUSAN	1	25	2
10	CAGAYAN DE ORO CITY	BAGONG SILANG	1	2	1
10	CAGAYAN DE ORO CITY	BAIKINGON	1	10	2
10	CAGAYAN DE ORO CITY	BALULANG	11	188	6
10	CAGAYAN DE ORO CITY	BARANGAY 1 (POB.)	2	10	1
10	CAGAYAN DE ORO CITY	BARANGAY 10 (POB.)	1	7	0
10	CAGAYAN DE ORO CITY	BARANGAY 13 (POB.)	3	163	3
10	CAGAYAN DE ORO CITY	BARANGAY 15 (POB.)	2	22	1
10	CAGAYAN DE ORO CITY	BARANGAY 17 (POB.)	2	27	4
10	CAGAYAN DE ORO CITY	BARANGAY 6 (POB.)	1	24	1
10	CAGAYAN DE ORO CITY	BARANGAY 7 (POB.)	3	27	1
10	CAGAYAN DE ORO CITY	BARRA	1	15	1
10	CAGAYAN DE ORO CITY	BONBON	4	88	3
10	CAGAYAN DE ORO CITY	BULUA	3	48	3
10	CAGAYAN DE ORO CITY	CANITO-AN	3	48	2
10	CAGAYAN DE ORO CITY	CARMEN	8	510	12
10	CAGAYAN DE ORO CITY	CONSOLACION	7	256	1
10	CAGAYAN DE ORO CITY	CUGMAN	3	58	2
10	CAGAYAN DE ORO CITY	DANSOLIHON	2	17	0
10	CAGAYAN DE ORO CITY	GUSA	3	38	3
10	CAGAYAN DE ORO CITY	IPONAN	5	168	6
10	CAGAYAN DE ORO CITY	KAUSWAGAN	3	149	16
10	CAGAYAN DE ORO CITY	MACABALAN	2	70	2
10	CAGAYAN DE ORO CITY	MACASANDIG	7	377	10
10	CAGAYAN DE ORO CITY	NATUMOLAN	1	2	0
10	CAGAYAN DE ORO CITY	NAZARETH	1	17	1
10	CAGAYAN DE ORO CITY	PAGALUNGAN	1	16	1
10	CAGAYAN DE ORO CITY	PAGATPAT	3	47	0
10	CAGAYAN DE ORO CITY	PIGSAG-AN	1	1	1
10	CAGAYAN DE ORO CITY	PUNTOD	3	94	1
10	CAGAYAN DE ORO CITY	SAN SIMON	1	5	0
10	CAGAYAN DE ORO CITY	TABLON	1	24	2
10	CAGAYAN DE ORO CITY	TIGNAPOLOAN	2	0	1
10	CAGAYAN DE ORO CITY	UBALDO LAYA	1	1	2
10	ILIGAN CITY	ABUNO	1	20	1
10	ILIGAN CITY	BAGONG SILANG	3	43	1
10	ILIGAN CITY	BONBONON	3	74	7
10	ILIGAN CITY	DIGKILAAN	5	90	10
10	ILIGAN CITY	HINAPLANON	6	240	8
10	ILIGAN CITY	MAHAYAHAY	3	57	2
10	ILIGAN CITY	MANDULOG	2	35	8
10	ILIGAN CITY	PALAO	2	47	4
10	ILIGAN CITY	POBLACION	1	20	7
10	ILIGAN CITY	PUGAAN	2	40	1
10	ILIGAN CITY	ROGONGON	2	31	2
10	ILIGAN CITY	SAN ROQUE	3	42	1
10	ILIGAN CITY	SANTA FILOMENA	2	56	1
10	ILIGAN CITY	SANTIAGO	1	79	3
10	ILIGAN CITY	TAMBACAN	3	96	2
10	ILIGAN CITY	TIBANGA	1	-38	2
10	ILIGAN CITY	TUBOD	2	38	2
10	ILIGAN CITY	UBALDO LAYA	2	53	2
10	ILIGAN CITY	UPPER HINAPLANON	2	48	2
10	ILIGAN CITY	VILLA VERDE	1	25	1
10	LANAO DEL NORTE	DIGKILAAN, HINAPLANON, UPPER HINAPLANON	3	9	NA
10	LIBONA	CROSSING, PONGOL	2	28	NA
10	LUGAIT	POBLACION	1	80	NA
10	MANOLO FORTICH	AGUSAN CANYON, DALIRIG	2	18	NA
10	MANTICAO	POBLACION	1	26	NA
10	NAAWAN	LINANGKAYAN, PATAG, TAGBALOGO	3	38	NA
10	TAGOLOAN	NATUMOLAN, SANTA ANA	2	15	NA
10	VALENCIA CITY	BATANGAN, CATUMBALON, POBLACION	3	65	NA
10	CAGAYAN DE ORO CITY	AGUSAN	1	25	NA
10	CAGAYAN DE ORO CITY	BAGONG SILANG	1	2	NA
Total	**10**	**62**	**158**	**3949**	**159**

Table 1: Data Collected by Location

4. Assessment Results

This section includes the results from the household surveys and the FGDs. Firstly, the household survey results will be presented, followed by the FGDs. The analysis will highlight the summary level information, with detailed breakdowns accessible through the database subject to the removal of any confidential information.

The results will highlight summary information, with Barangay / Municipality specific analysis to be done in the near future. It is worthwhile noting that the information included here has some significant variations across sites. This is for a range of reasons, such as:

- The nature of the damage in Cagayan de Oro (floods and mud flow) differs significantly to areas of Iligan City (predominantly floods);
- The urban-rural nexus means that the scale of impact on communities differs – while an urban setting may have more damage in aggregate numbers and cost of impact, a rural setting may be more affected as a proportion; and
- Those in evacuation centres or transitional shelters differ in their needs significantly from those that are home based, either on their own properties or being hosted by others.

This section will first consider demographic information of those surveyed and affected, including identification of vulnerable groups. This is followed by socio-economic information of affected people and respondents, a considerable influence on households' coping mechanisms. Technical assessments and the scale and type of impact is summarized, highlighting the variation within existing statistics on 'partially damaged' as well as providing information on mud, flood, debris and cleaning related issues. The type of support needed and being provided is highlighted. Finally, community based issues from the FGDs are summarized to support the quantitative analysis with qualitative information.

The assessment has collected a significant amount of information across a range of data sources. Moreover, as a rapid assessment the amount of time available for in depth analysis and reporting is limited.

This report provides a synopsis of the key issues and summary of the data that has been collected. It is not intended or able to provide detailed programmatic information in its current form - rather, the assessment is designed to be useful for a broader audience. Where it is of value, specific case studies are identified as well as the Top / Bottom 5 Barangays which may differ from the summary information.

In addition, the database of information is available to interested parties, with confidential information removed where necessary. This includes Barangay specific data as well as information at the Sitio / Purok level.

This can be accessed through:
www.sheltercluster.org

4.1. Demographics

A total of 3,945 households were surveyed as part of this assessment, over 10% of families with houses that have been affected. This represents over 19,000 individuals. The age profile of respondents highlights the relative young nature of the Philippines in general, but also the number of children that have directly been affected. This includes 11% of children under the age of five and 3% of infants. Moreover, the vast majority of those affected are working-age people, highlighting the intricate relationship of livelihoods needs as well as shelter needs. No significant gender variation was identified.

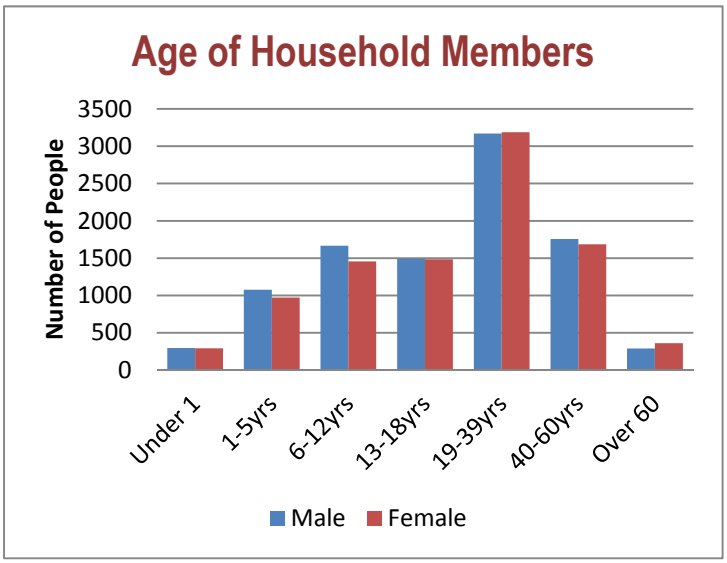


Figure 1: Age Profile of Affected Households Surveyed

It is worthwhile noting that this assessment has a larger proportion of those in evacuation centres and the like. This means that the sample has particularly focused on vulnerable households. Firstly, they are most likely to have had their houses completely destroyed or at least unlivable even if it may be possible to rehabilitate. Moreover, as they are in this sort of shelter arrangement, they are less likely to have alternative coping mechanisms such as being able to rent, live with relatives, etc. It is these households that have the greatest need as well as being less capable of self-managed support.

A large number of those affected are considered vulnerable households, exacerbated by the disaster. There is a high number of single-headed households (11% of all respondents), pregnant and lactating women are present in 13% of all affected households as well as mentally or physically disabled (6.5%) or indigenous (8%). This highlights the need for shelter and other programs to cognoscente of vulnerable households, particularly those that would not be capable of constructing their own shelters and would require technical and labour assistance.

Women single-headed households seem to be slightly more prevalent if compared to male single-headed household. It is likely that women single-headed households are more vulnerable than other households in the aftermath of the crisis – particularly if they are unable rehabilitate their own homes – and therefore their needs in terms of assistance should be ranked as high priority. Households with mental/physical disable members should also be closely monitored. If targeted by shelter interventions, these households should have the access to services and further assistance maintained or promoted according to pre-Sendong situation.

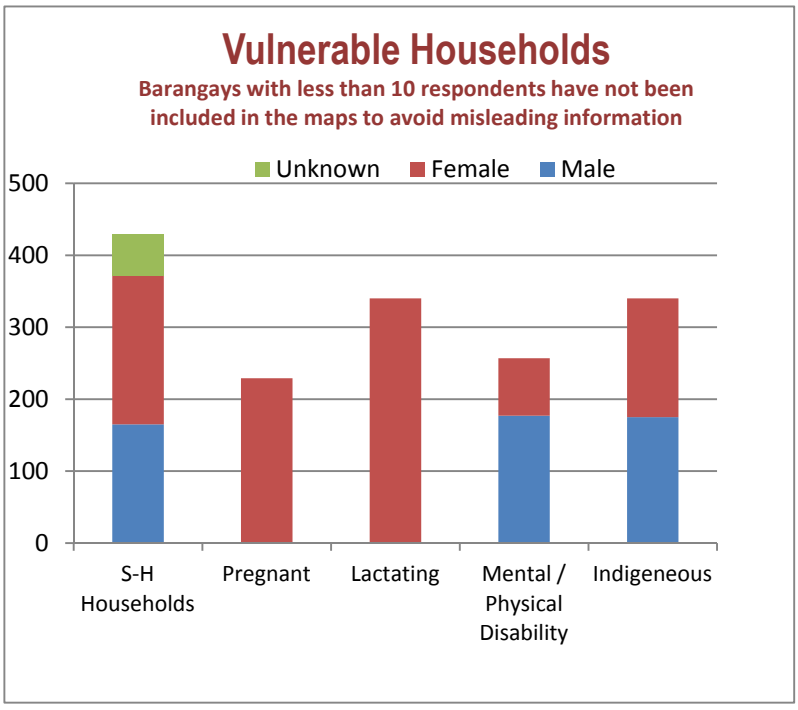
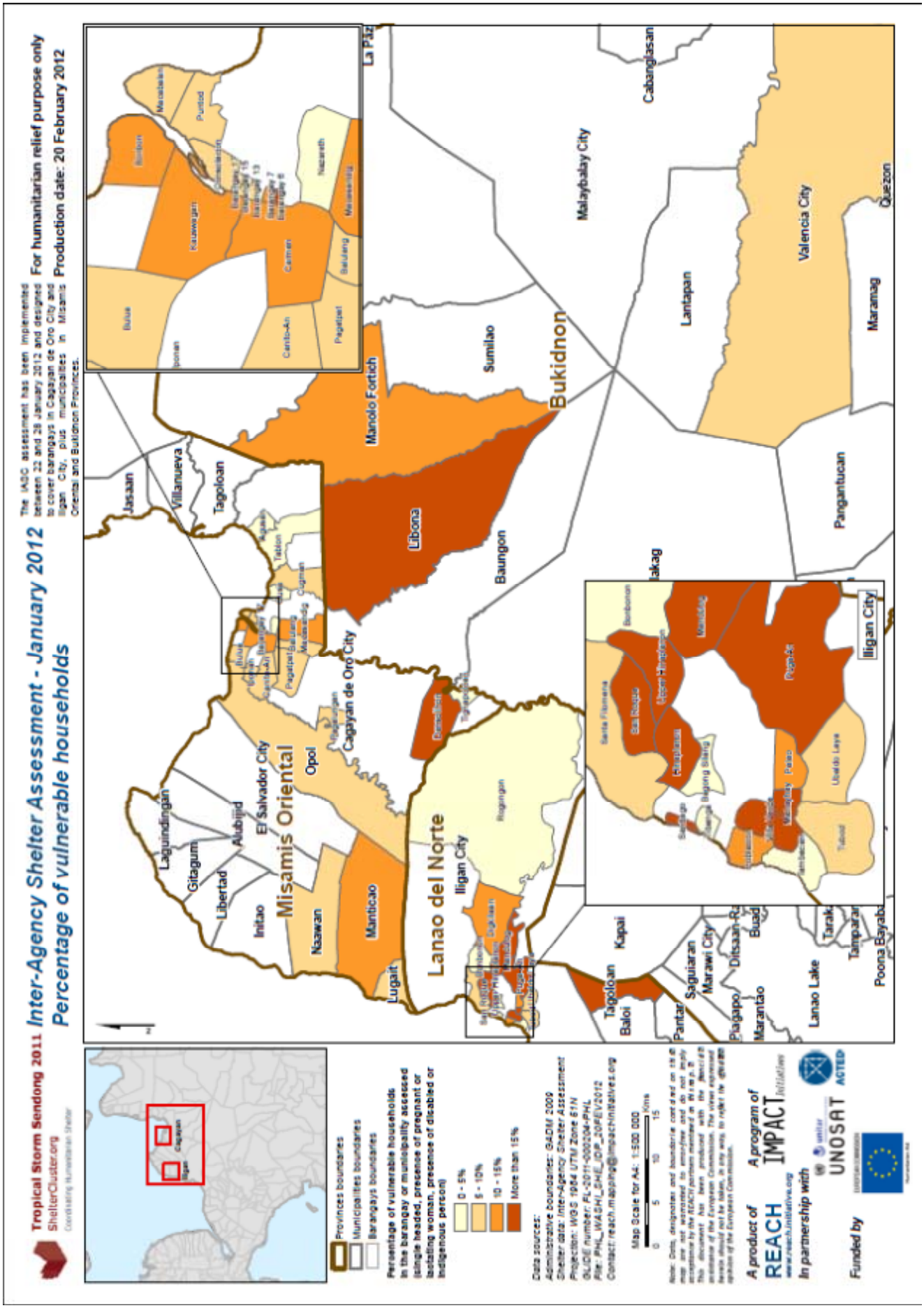


Figure 2: Vulnerable Households and Persons


Tropical Storm Sendong 2011
ShelterCluster.org
Inter-Agency Shelter Assessment - January 2012
Percentage of vulnerable households
The IASC assessment has been implemented between 22 and 28 January 2012 and designed to cover barangays in Cagayan de Oro City and Iligan City, plus municipalities in Misamis Oriental and Bukidnon Provinces.
For humanitarian relief purpose only
Production date: 20 February 2012
Misamis Oriental
Lanao del Norte
Bukidnon
Cagayan de Oro City
Iligan City
El Salvador City
Opol
Laguindingan
Gitagum
Libertad
Alubijid
Initao
Naawan
Manticao
Lugait
Jasaan
Villanueva
Tagoloan
Manolo Fortich
Libona
Sumilao
Baungon
Malaybalay City
Cabanglasan
Lantapan
Valencia City
Maramag
Quezon
Pangantucan
La Paz
Kapai
Tagoloan
Baloi
Pantar
Saguiaran
Marawi City
Ditsaan-Ramain
Buadi
Plaipo
Marantao
Lanao Lake
Tamparan
Poona Bayabao
Provinces boundaries
Municipalities boundaries
Barangays boundaries
Percentage of vulnerable households in the barangay or municipality assessed (single headed, presence of pregnant or lactating woman, presence of disabled or indigenous person)
0 - 5%
5 - 10%
10 - 15%
More than 15%
Data sources:
Administrative boundaries: GADM 2009
Shelter data: Inter-Agency Shelter Assessment
Projection: WGS 1984 UTM Zone 51N
GLIDE number: FL-2011-000204-PHL
File: PHL_WASHI_SHE_IDP_20FEV2012
Contact: reach.mapping@impact-initiatives.org
Map Scale for A4: 1:500 000
A product of REACH
A program of IMPACT Initiatives
In partnership with
UNOSAT
Funded by

4.2. Socio Economics

The primary livelihoods of those that have been affected and surveyed are agriculture and skilled / unskilled labour. While under employment remains an issue in the Mindinao context, only 13% of all respondents claim to have no income. However, there are very few salaried jobs or formal sector jobs, with many working in what could be considered high risk industries (those where there could be significant latency or fluctuating incomes). This is exacerbated for many households that do not have a secondary source of income (93%).

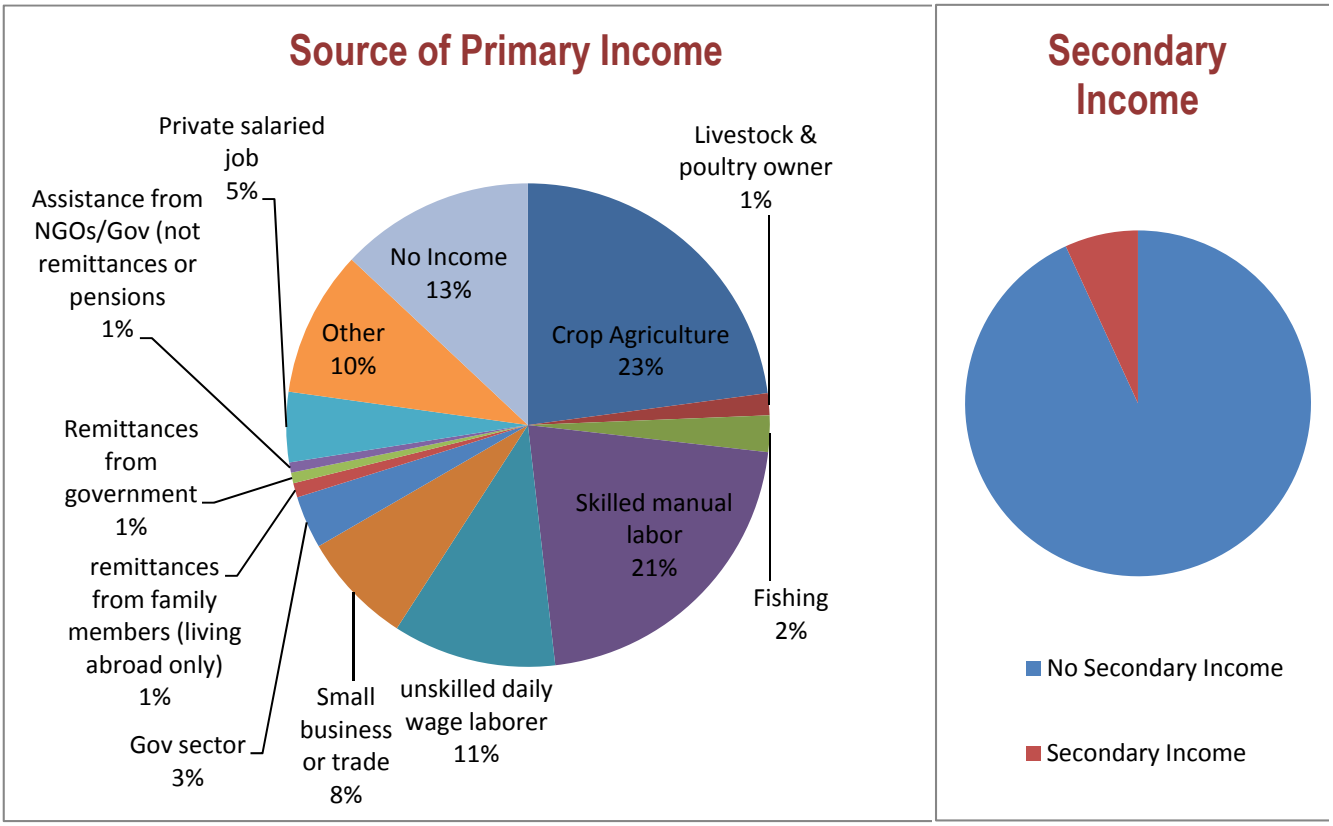


Figure 3: Source of Primary and Secondary Income

According to NSCB's most recent poverty reports[5], Region 10's incidence of poverty has declined but remains stubbornly high at over 32%, and 39% in Lanao del Norte (Iligan). This actually belies the truth, as there is a high standard of deviation (11%), implying that there is a dichotomy of poor and wealthier families. **Of the households surveyed, approximately 77% claim to be below the poverty threshold.**

The extreme levels of poverty of those affected are contributed to by the fact that many households have lost income as a result of the displacement. According to the Socio-Economic Profile (SEP) of Cagayan de Oro city of 2010, Cagayan de Oro area is classified as highly urbanized. However, 33% of the land is used for agricultural purpose (19,335.2741 ha.) with a third of it dedicated to crops (6,659.4000 ha.). It would require further and more specific assessments to verify the information, but it is likely that Sendong storm and its consequent floors have disrupted ongoing agriculture activities and that part of the land may need reclamation interventions.

Therefore those households that rely on agriculture as source of income will probably need to be assisted immediately in terms of livelihood support. Field observations highlighted the destruction to some crops and fields, which are likely to have an ongoing impact on families' resilience.

[5] NSCB, 2011, "Incidence and Thresholds of Poverty, 2009", http://www.nscb.gov.ph/poverty/2009/table_1.asp

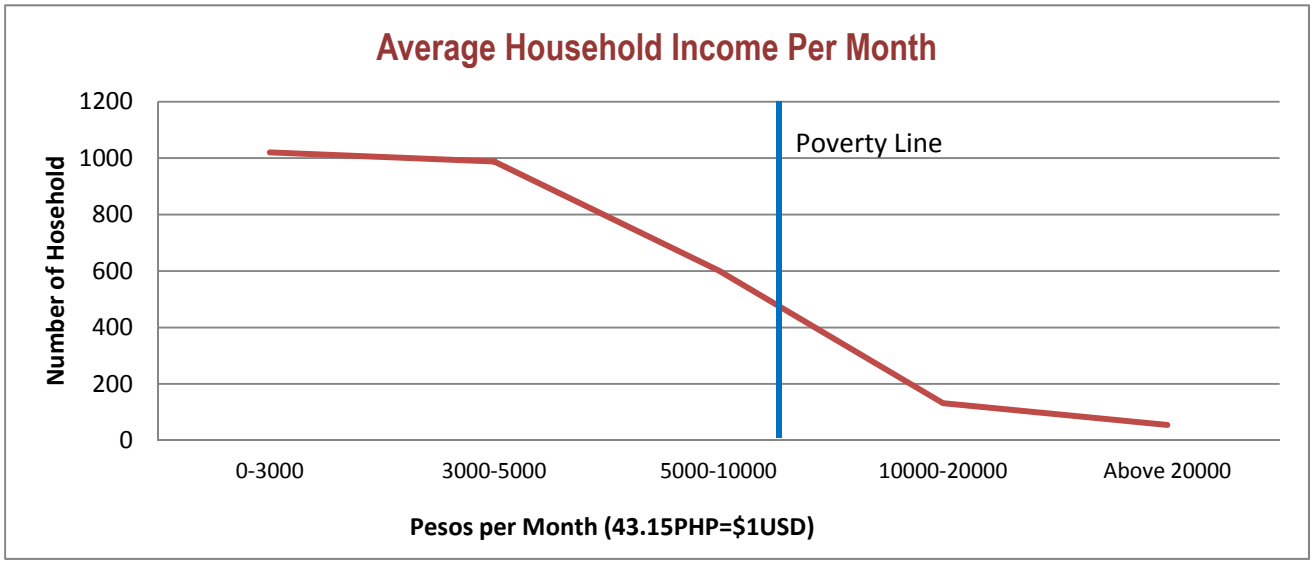


Figure 4: Average Household Income, Poverty Incidence

64% of households who reported an income stated that it had declined as a result of Sendong storm by over 50%, while only 11% reported that their income remained unaffected. As previously mentioned, this is likely to be due to loss of agriculture products as well as of the fluctuating and informal wages that they normally rely on. This highlights the need for incorporating income-generating activities, or cash interventions, as part of shelter or other reconstruction works

The above information is supported and emphasized by the significant number of affected households that state they are not completely able to meet the family's basic needs. While before Sendong 554 (14%) households noted that they could only partially cover basic family needs.

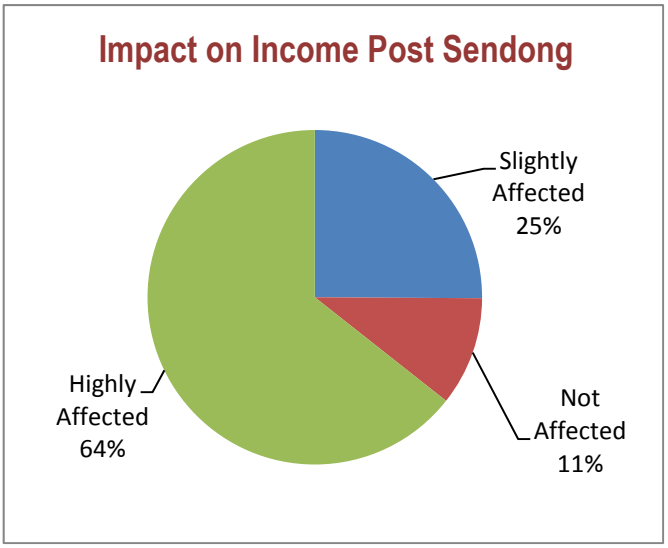


Figure 5: Impact of Sendong in Households' Income

This number has almost tripled to 1430 (36%) after Sendong, reflected by the fact that incomes have been severely affected.

FGDs results confirmed data and figures collected through households' surveys: houses damages, livelihood and financial losses have been highlighted as main Sendong impact and communities concerns. In the specific, 73% of the FGDs declared that Sendong impacted severely on the houses and shelters of the community; 67% of them added that their livelihood has been significantly affected by the storm; while almost 57% were concerned by the huge financial losses. Financial losses are an immediate major concern, according to FDGs, hampering their efforts to autonomously recover from the disaster. Finally Water and Sanitation issues, as well as Health services and property rights, were brought forward by less than one third of the FGDs

Households' Income Sufficient for Covering Basic Family Needs		Before Sendong			
		Completely	Sufficiently	Partially	**Total**
After Sendong	Completely	112	72	78	**262**
	Sufficiently	159	328	150	**637**
	Partially	293	811	326	**1430**
	Total	**564**	**1211**	**554**	**N=2329**

Table 2: Capacity for Households to Cover Basic Needs, Before and After Sendong

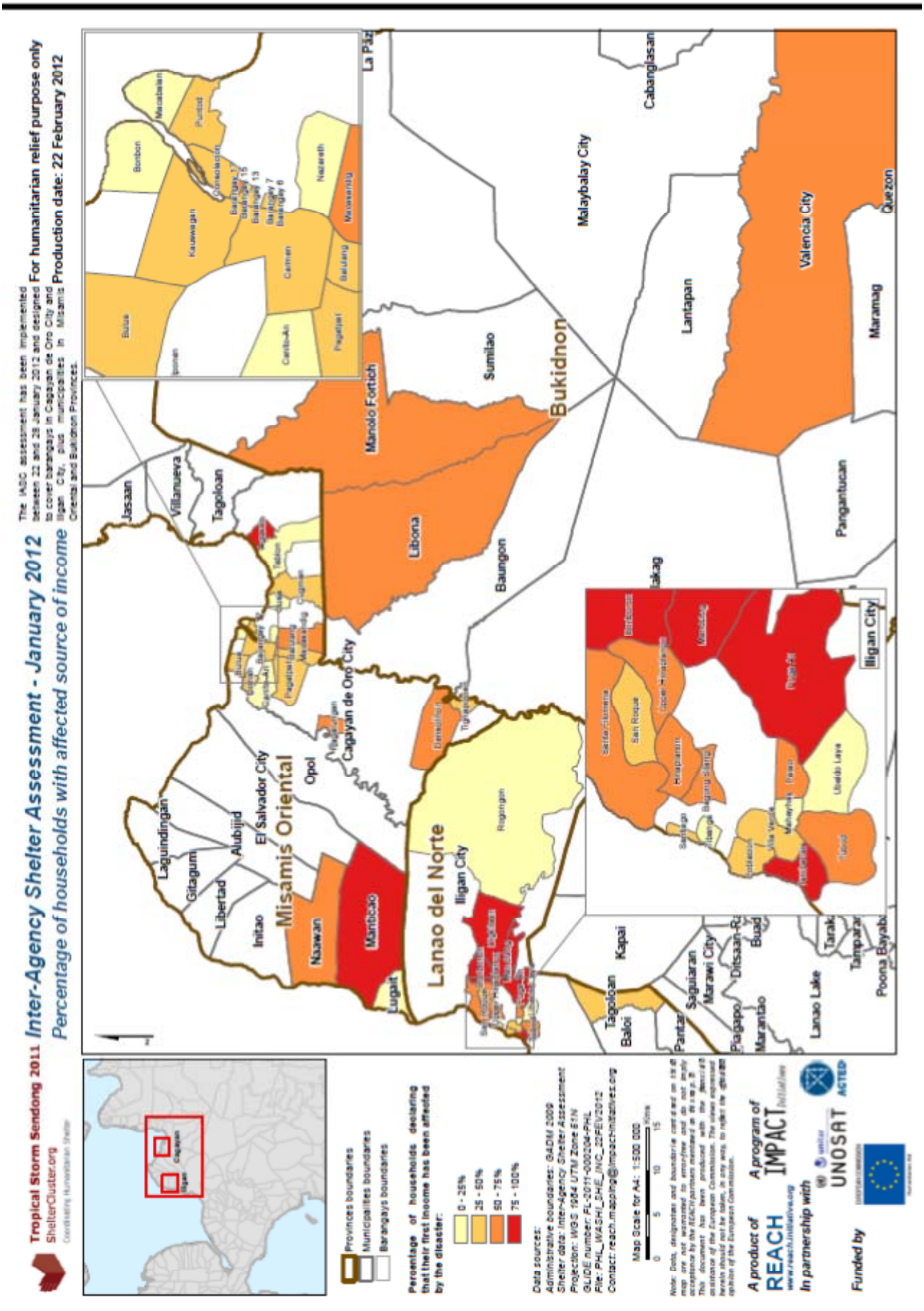
Demographic (4.1) and Socio-economic (4.2) Key facts:

According to HHs surveys, the Barangays with the **highest percentage of vulnerable households** among those surveyed are the following:

- *In Bukidnon*: Libona
- *In Misamis Oriental* : Dansohilon
- *In Lanao del Norte*: Santiago, Hinaplanon, San Roque, Upper Hinaplanon, Mandulog, Puga-An, Mahayhay, Villa Verde.

According to HHs surveys; the Barangays with the highest incidence of households that had their **primary source of income significantly affected** by Sendong are the following:

- *In Misamis Oriental* : Agusan, Manticao
- *In Lanao del Norte*: Pug-an, Digkilaan, Bonbonon, Mandulog and Tambacan


Tropical Storm Sendong 2011
ShelterCluster.org
Inter-Agency Shelter Assessment - January 2012
Percentage of households with affected source of income
The IASC assessment has been implemented between 22 and 28 January 2012 and designed to cover barangays in Cagayan de Oro City and Iligan City, plus municipalities in Misamis Oriental and Bukidnon Provinces.
For humanitarian relief purpose only
Production date: 22 February 2012
Provinces boundaries
Municipalities boundaries
Barangays boundaries
Percentage of households declaring that their first income has been affected by the disaster:
0 - 25%
25 - 50%
50 - 75%
75 - 100%
Misamis Oriental
Lanao del Norte
Bukidnon
Cagayan de Oro City
Iligan City
Valencia City
Malaybalay City
Lanao Lake
Data sources:
Administrative boundaries: GADM 2009
Shelter data: Inter-Agency Shelter Assessment
Projection: WGS 1984 UTM Zone 51N
GLIDE number: FL-2011-000204-PHL
File: PHL_WASH_SHE_INC_22FEB2012
Contact: reach.mapping@impact-initiatives.org
Map Scale for A4: 1:500 000
A product of REACH
A program of IMPACT Initiatives
In partnership with
UNOSAT
Funded by

4.3. Technical Assessment

The current shelter arrangements for affected families were not been widely known It is clear that as of 20th of January there were approximately 4,700 households in evacuation centres or about 12% of those with affected houses. While reports have indicated that many families have opted to live with family and friends, the findings of this assessment is that there is a significant portion that are living in temporary shelters or damaged houses on their own property. Anecdotal evidence suggests some many informal property owners are refusing or unwilling to leave their properties in fear of land rights issues – this assessment supports those findings, with 60% of those remaining on their property not having formal rights, slightly higher than the overall level of households without formal property rights.

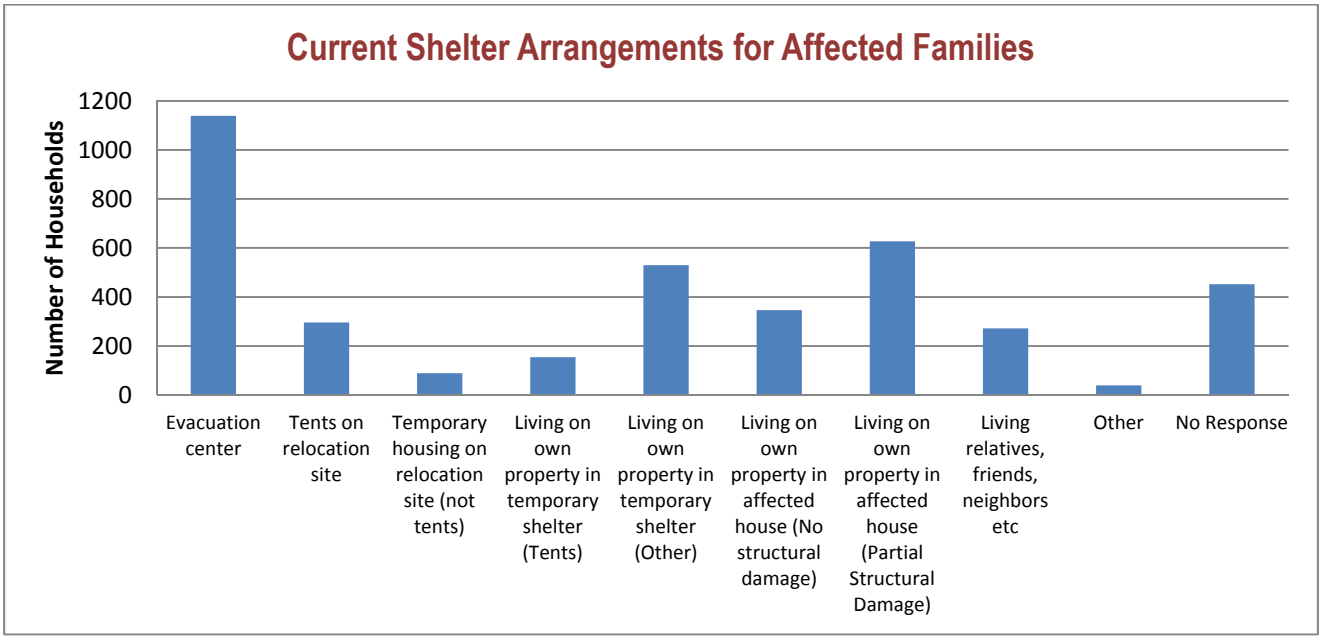


Figure 6: Current Shelter Arrangements of Respondents

Sendong created significant floods and mud flows particularly in urban areas of CDO and Iligan, as well as impacting on remote and rural communities – including those in higher altitudes that were more likely to be affected by flash floods or landslides. The most significant impacts were felt by those that did not have adequate housing, such as wooden shacks (57%) and wooden/concrete houses that typically have concrete foundations with coco-lumber walls (29%). This data is underlining once more that low income populations have been among if not the most affected by the storm. Those with houses made from concrete were also affected (13%), although it will be shown that this was typically of lesser impact (flooded, mud flows) as they are more resilient.

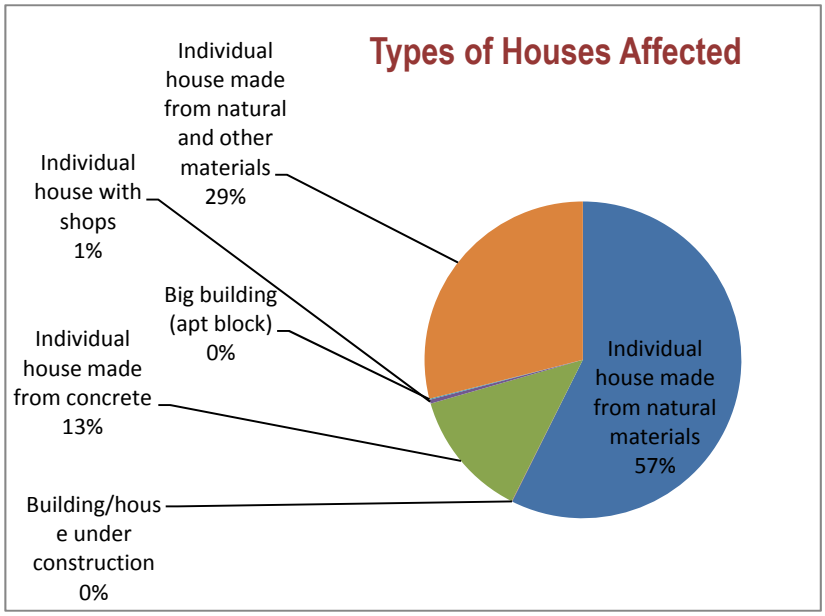


Figure 7: Types of Houses Affected

As discussed, official statistics highlighted that of the 39,400 houses that have been affected, 11,427 have been totally destroyed and a further 27,973 have been partially damaged. However, the type of programs to be implemented by agencies for partially damaged houses varies substantially: for instance, UN Habitat anticipates rehabilitation of 3,000pesos, while IOM anticipates packages of 7,000 and 20,000 pesos. Therefore, it is essential to understand to a higher degree of certainty the type of damage and the extent of damage to partially damaged houses. The project designs were used to inform the assessment design to better disaggregate existing data into something more tangible for program implementation.

The assessment included three categories for disaggregating partially damaged houses. Firstly, category 2 whereby there is flood and mud damage but no structural damage to the house. Secondly, category 3 whereby there is minor damage to the shell of the house but the main supports remains intact. And thirdly, category 4 whereby the house is currently unlivable and there is significant damage with some support damage but the house itself can be rehabilitated. Note that category 1 included unaffected housing structures but affected households, while category 5 was clearly demarcated as completely destroyed houses.

This assessment has identified that most of the partially damaged houses have relatively minor impacts, requiring smaller levels of support. This typically includes cleaning of mud damage, small repairs of flooring and roofing (where the water has been extremely high), and rehabilitation of fixtures such as doors and windows. Only 13% of partially damaged houses were assessed as requiring major rehabilitation, such as walls, floors, roofs, and potentially support structures. There is also significant variation of the type of damage based on the type of house.

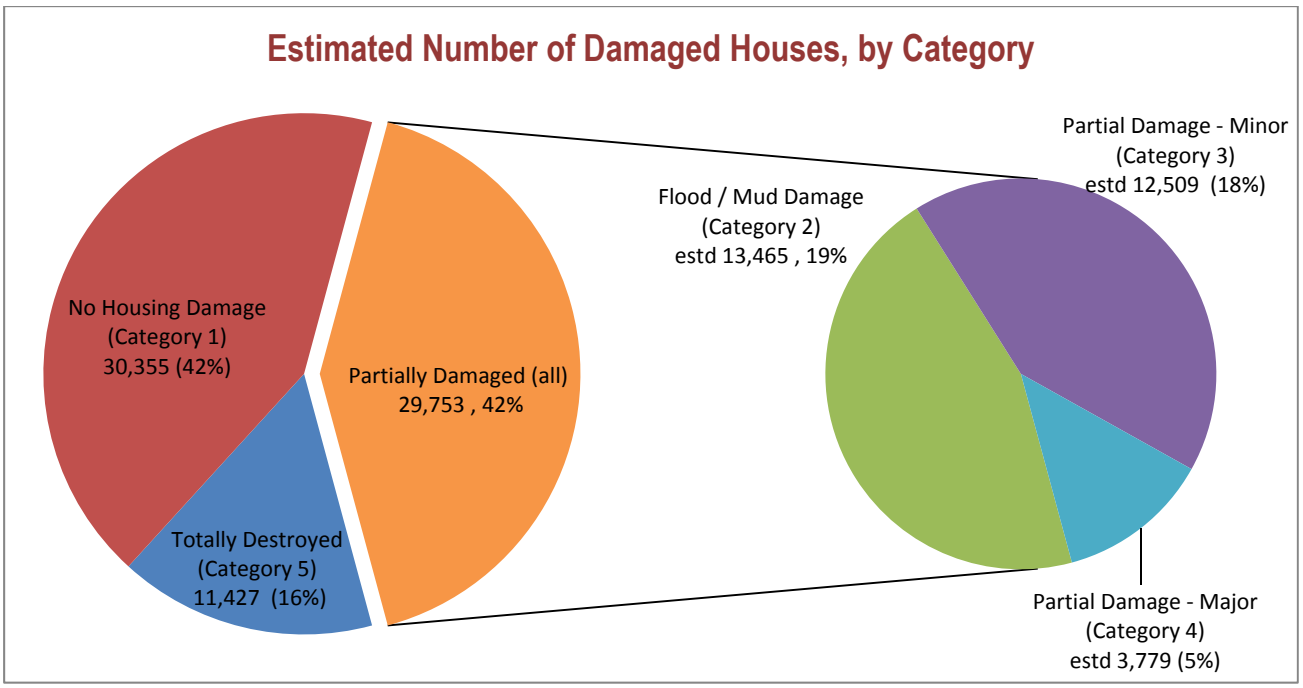
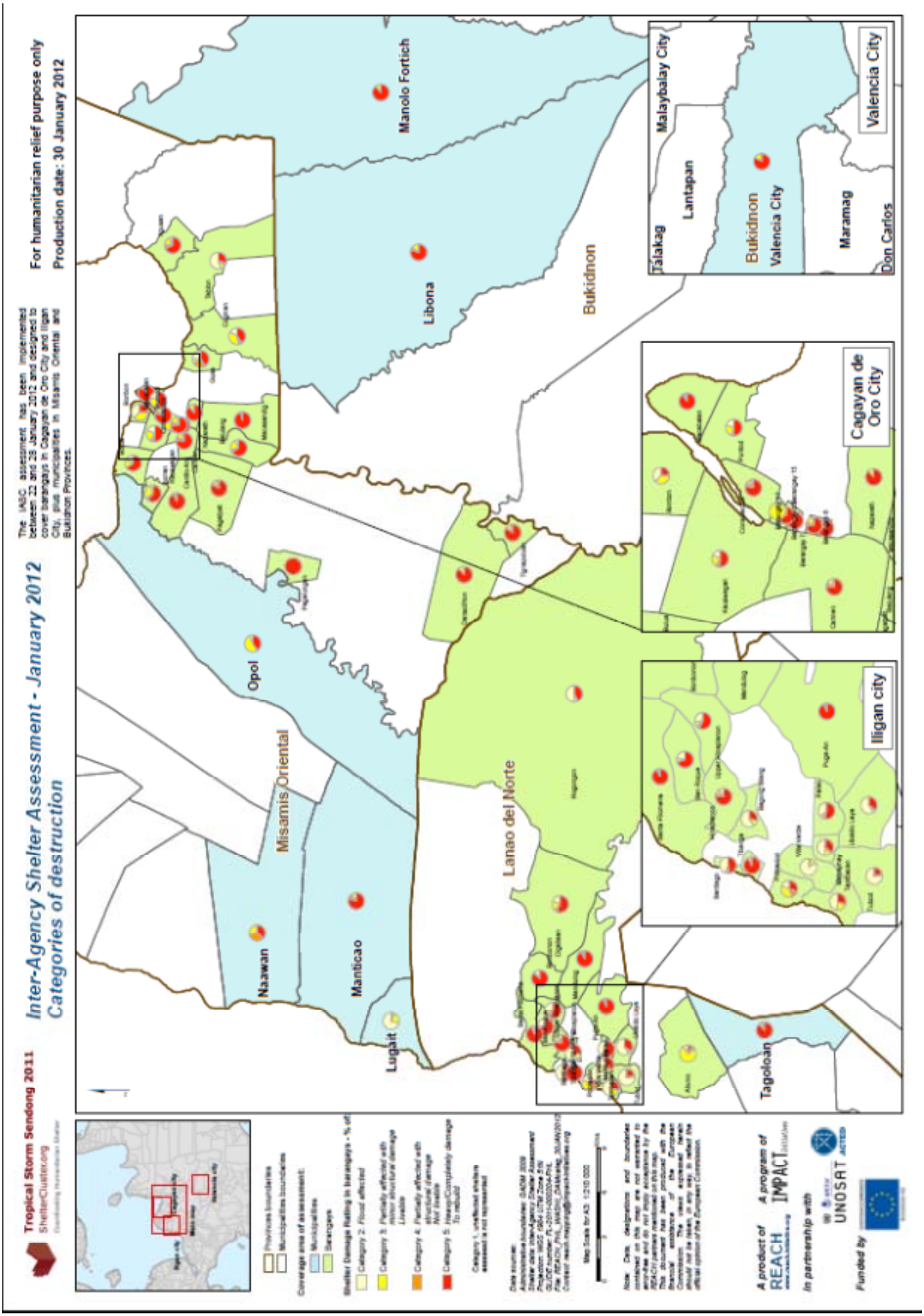


Figure 8: Categorizing Partially Damaged Houses To Reflect Minor Infringements

Category of Damage by Type of House		Category of Destruction					
		No Significant	Flood / Mud	Partial – Minor	Partial – Major	Totally Destroyed	**Total**
Type of House	Wooden	7	271	244	75	1548	**2145**
	Wood / Concrete	2	160	159	31	728	**1080**
	Concrete	1	114	109	41	222	**487**
	Larger Buildings	0	5	6	0	8	**20**
	Total	**10**	**550**	**518**	**148**	**2506**	**N=3732**

Table 3: Categorizing Damage by Type of House


Tropical Storm Sendong 2011
ShelterCluster.org
Inter-Agency Shelter Assessment - January 2012
Categories of destruction
The IASC assessment has been implemented between 23 and 28 January 2012 and designed to cover barangays in Cagayan de Oro City and Iligan City, plus municipalities in Misamis Oriental and Bukidnon Provinces.
For humanitarian relief purpose only
Production date: 30 January 2012
Manolo Fortich
Libona
Bukidnon
Opol
Misamis Oriental
Nawan
Manticao
Lugait
Lanao del Norte
Tagoloan
Malaybalay City
Talakag
Lantapan
Bukidnon
Valencia City
Maramag
Don Carlos
Cagayan de Oro City
Iligan city
Provinces boundaries
Municipalities boundaries
Coverage area of assessment:
Municipalities
Barangays
Shelter Damage Rating in barangays - % of
Category 2: Flood affected
Category 3: Partially affected with minor structural damage
Livable
Category 4: Partially affected with structural damage
Not livable
Category 5: Heavy/Completely damage
To rebuild
Category 1: unaffected shelters assessed is not represented
A product of REACH
A program of IMPACT
In partnership with
UNOSAT
Funded by

Of the houses affected and assessed, approximately 86% of respondents stated their houses were made to a larger extent in wood. Of those, around 75% were category 5 and considered totally destroyed. This was verified by site visits, showing the nature of the damage and who it affected. In contrast, the concrete houses fared better with only a half requiring complete reconstruction and the majority requiring some form of rehabilitation support such as cleaning of debris.

One of the defining aspects of the Sendong shelter challenge is the Government-declared No Build Zones[6]. The impact of the No Build Zones means that households are required to relocate – regardless of whether they are completely damaged, partially damaged, or even unaffected. However, despite GPS coordinates being undertaken during this assessment of the No Build Zones, the political reality is that there is a lot of uncertainty around the defined areas. The purpose for the No Build Zones is to prevent the scale of this type of disaster in the future, however the immediate need is for relocation sites (some of which have been identified) and for reconstruction of houses for affected persons.

This has been mapped by the REACH team in CDO; however they have not been sufficiently identified in Iligan. Despite being identified in CDO, it was not clear whether individual households have been adequately informed or are aware of the location of No Build Zones. Government calculations state that there are approximately 2700 households in CDO within the No Build Zones. It is worthwhile noting that No Build Zones have been declared previously but not necessarily enforced, which is why so many houses were located very near to the river systems, particularly in build up urban areas.

The assessment asked respondents whether their houses are located in the No Build Zone. Unsurprisingly, a very low number of respondents in Iligan stated that their houses were in No Build Zones as they have not been clearly demarcated nor have households been made aware of their locations[7]. However, in CDO there were a large number of respondents that stated they were in No Build Zones – this is greater portion of all affected households due to the high level of sampling in evacuation sites and temporary shelters.

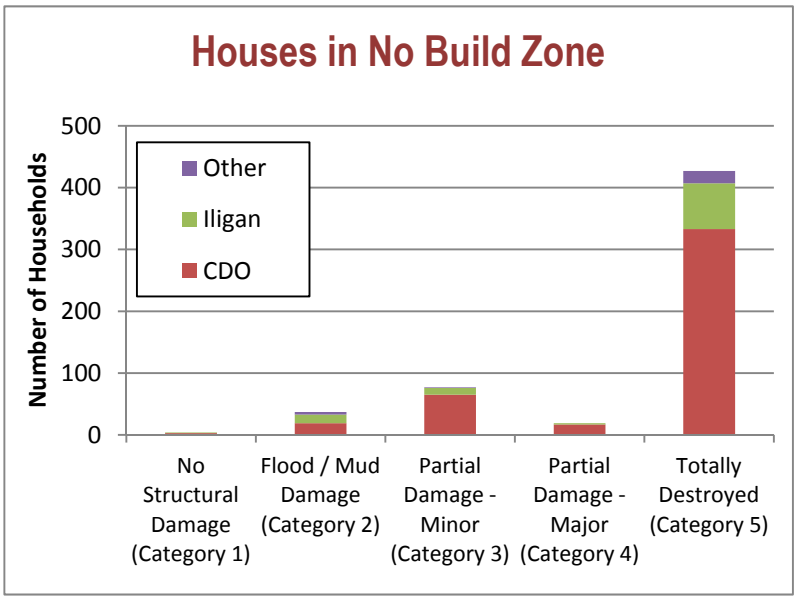


Figure 9: Houses in No Build Zones, by Location and Category of Damage

While many of these are houses that have been completely destroyed, queries remain as to whether those with partially damaged houses will be allowed to rehabilitate with the same sort of construction standards.

There has been significant discussions about the potential to map the flood and mudflow levels across areas, and compare that with the level of damage and type of clean up provided.. The graph below highlights the nature of damage and destruction that has taken place as a result of the flood waters and mudflows. Generally these are experienced in combination – that is, one may have flood water of 3m+ and mudflows of 0.5-1m, and the house is destroyed by the combined effects. Regardless of the inter dependencies, it can be seen that a small amount of mud can do a lot of damage, and where flood waters are greatest the impact is more devastating. It can also be seen that in most cases, the

[6] These have been referred to incorrectly in some publications as No Go Zones.
[7] At the time of the assessment, a protest in Iligan City was underway in relation to demands to rebuild houses on their existing sites. This has culminated in households setting up temporary shelters on a bridge into the city with signs.

flood waters were extremely high – when the flood waters were lower, or houses were further away / higher up, the house tended to escape significant damage.

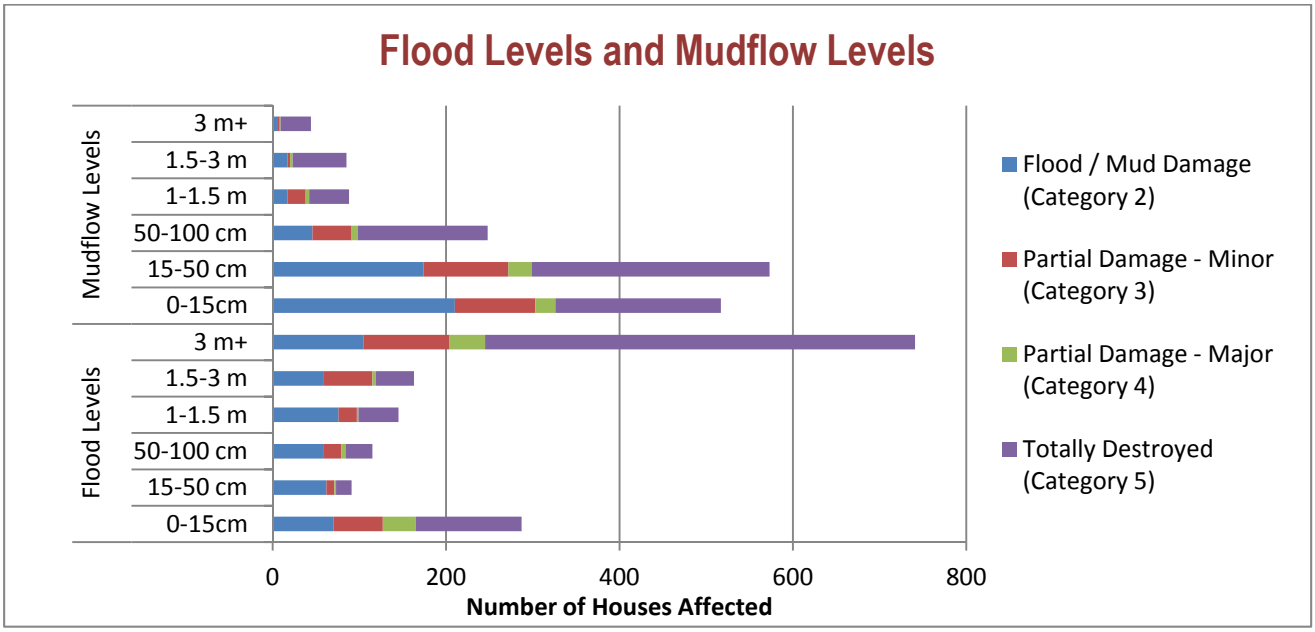
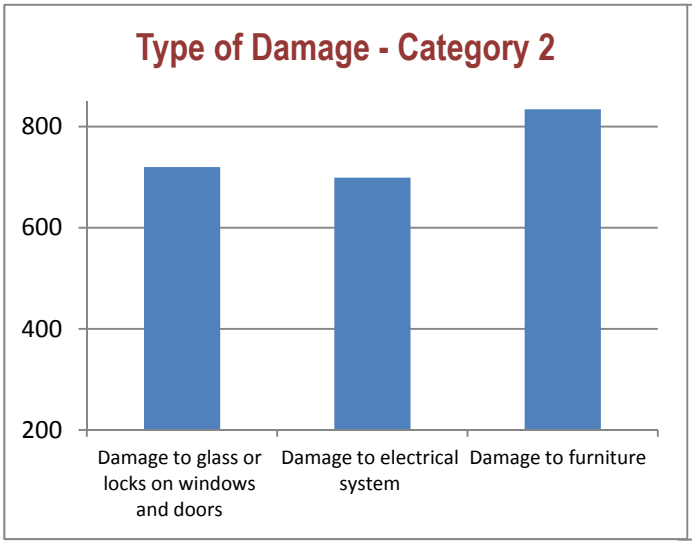


Figure 10: Flood Levels and Mudflow Levels, by Category of Damage



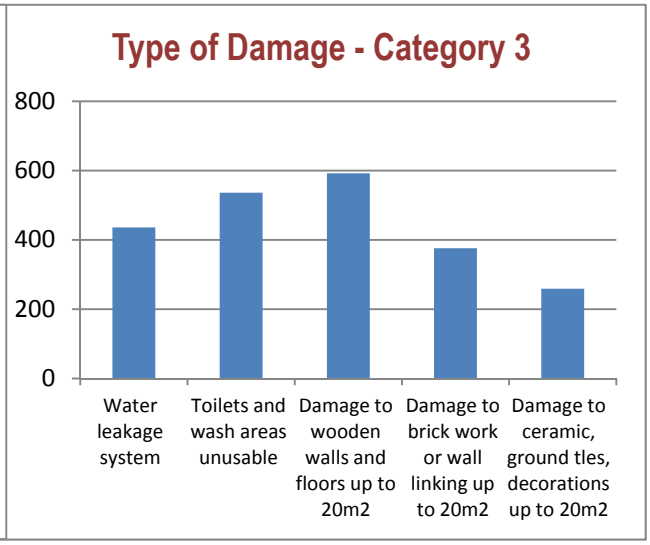
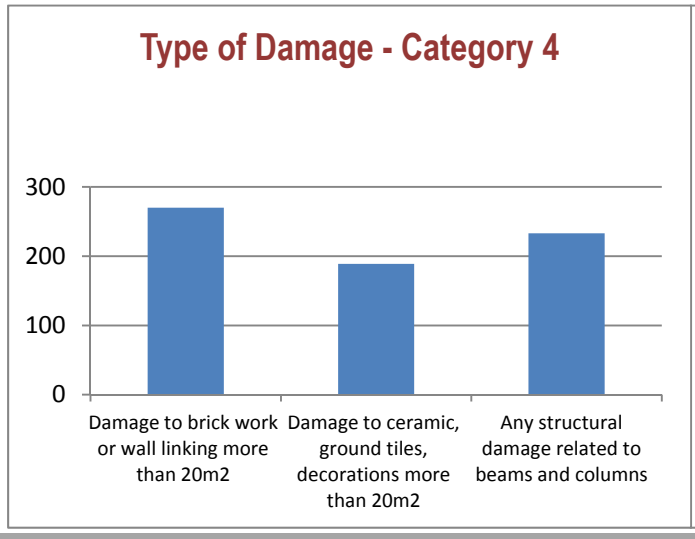
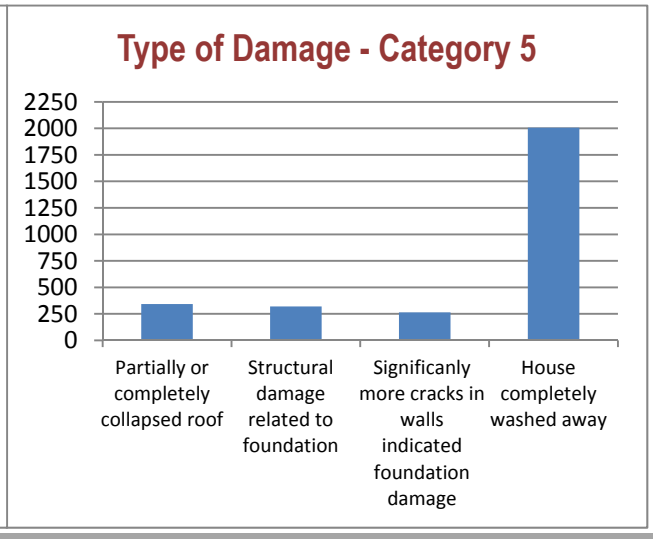
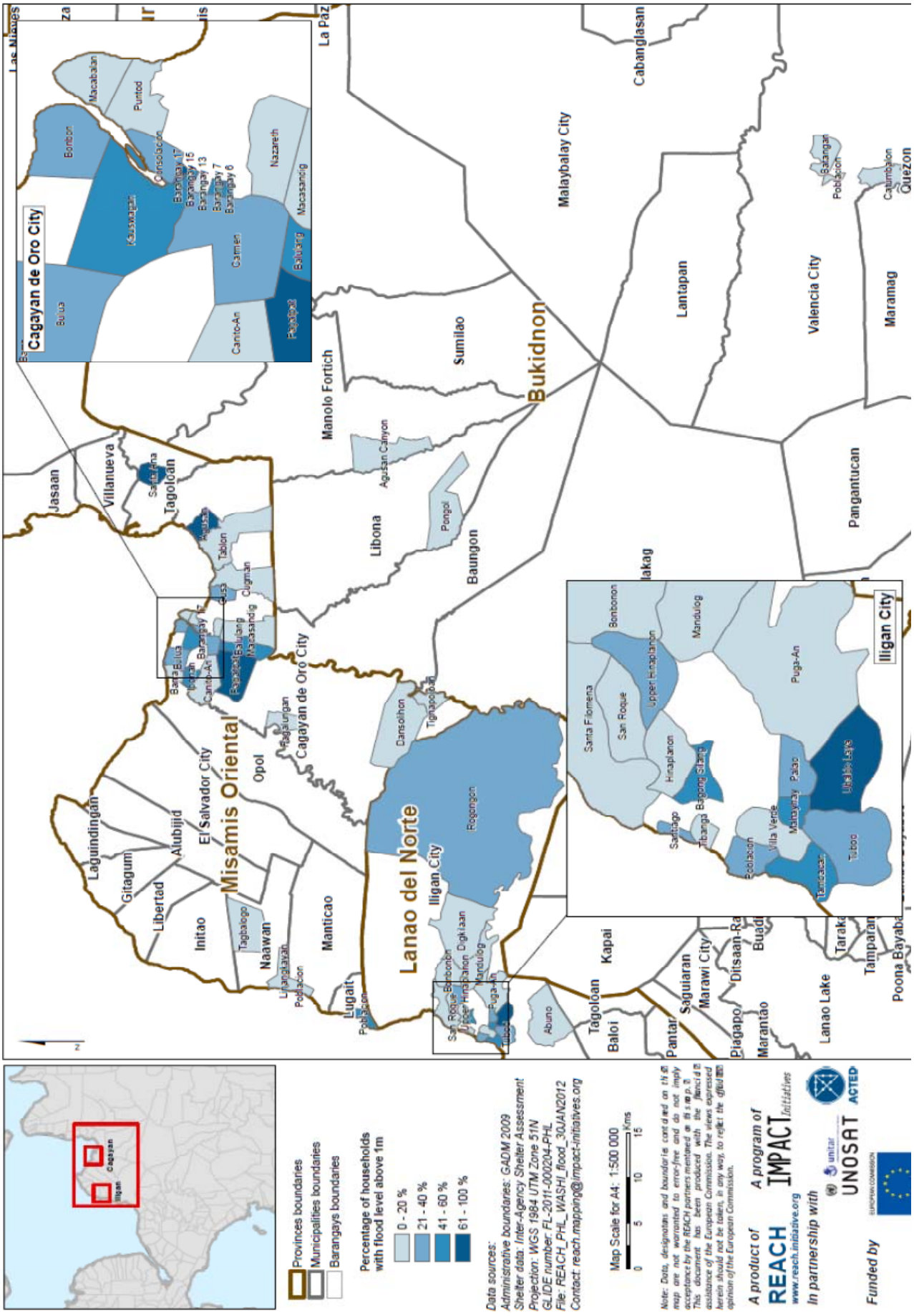


Figure 11: Type of Damage, by Category of Damage






Tropical Storm Sendong 2011
ShelterCluster.org
Coordinating Humanitarian Shelter
Inter-Agency Shelter Assessment - January 2012
Percentage of households with flood level above 1 meter
For humanitarian relief purpose only
Production date: 30 January 2012
Cagayan de Oro City
Misamis Oriental
Lanao del Norte
Iligan City
Bukidnon
Provinces boundaries
Municipalities boundaries
Barangays boundaries
Percentage of households with flood level above 1m
0 - 20 %
21 - 40 %
41 - 60 %
61 - 100 %
Map Scale for A4: 1:500 000
Kms
Data sources:
Administrative boundaries: GADM 2009
Shelter data: Inter-Agency Shelter Assessment
Projection: WGS 1984 UTM Zone 51N
GLIDE number: FL-2011-000204-PHL
File: REACH_PHL_WASH_flood_30JAN2012
Contact: reach.mapping@impact-initiatives.org
A product of REACH
www.reach-initiative.org
A program of IMPACT Initiatives
In partnership with
unitar
UNOSAT
ACTED
Funded by
EUROPEAN COMMISSION

Debris from floods is caused by inundation and high-velocity water flow mainly. As soon as flood waters recede, their disposal should begin to allow better access to aid actors as well as eliminate health and safety hazards. This is why the presence and scale of debris was included in the assessment on the behest of those involved in the cleaning, as well as the Early Recovery Cluster to highlight the nature and location of cash for work opportunities. Debris removal is an opportunity to link post floods rehabilitation with livelihoods programs.

The main type of debris that is creating a significant challenge for the recovery and relief effort is mud, as demonstrated in Emily Homes as part of the simulation exercise in CDO where enumerators could barely reach the houses. Furthermore, there is a significant presence of garbage and logs which also block access to households. 'Other' debris typically included corpses that have not been able to be located among other debris, causing significant concerns for nearby families.

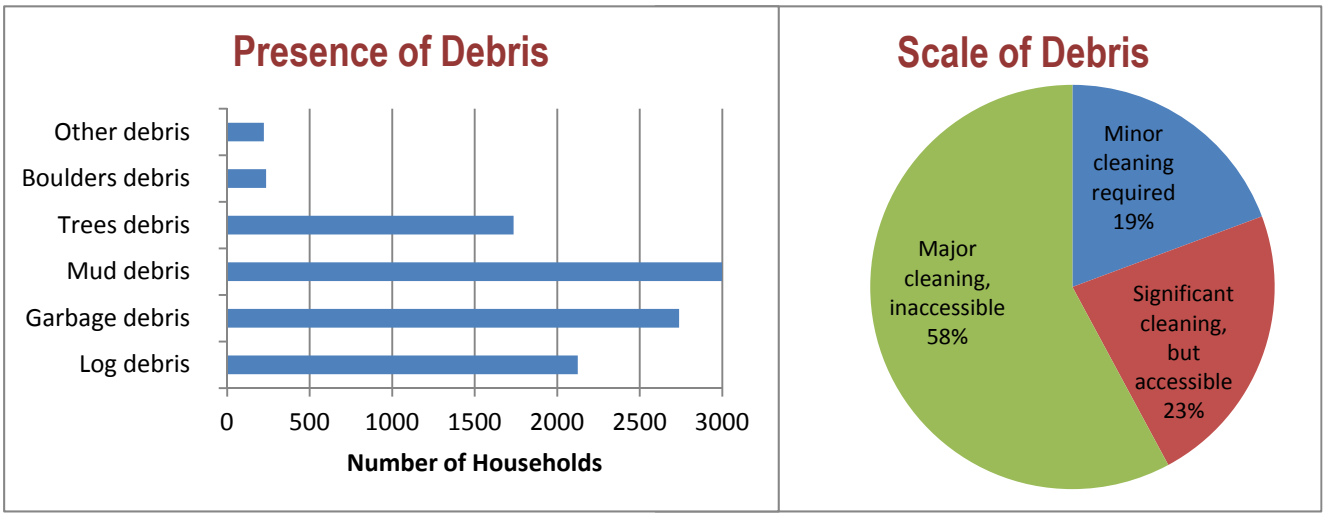
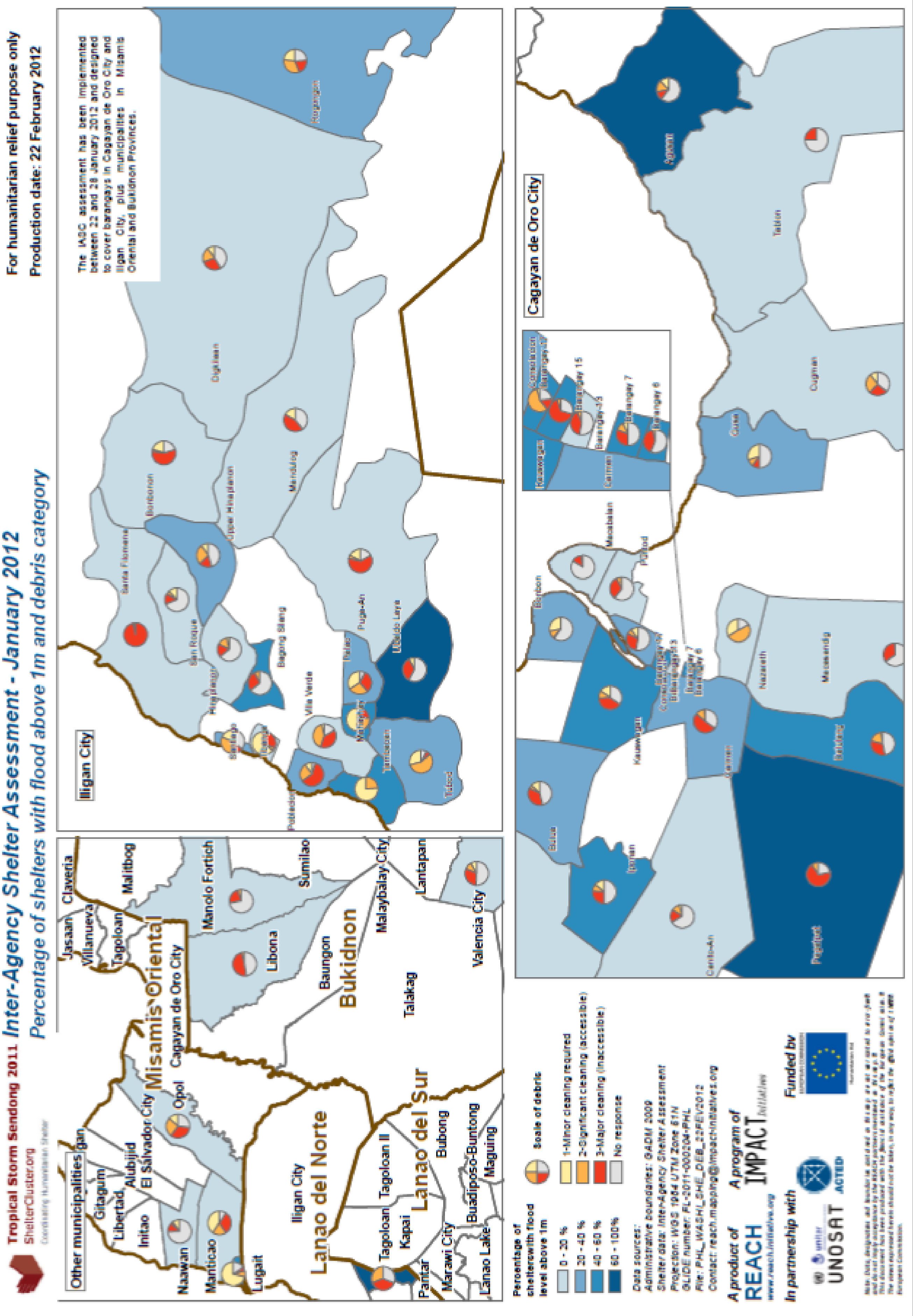


Figure 12: Type and Scale of Debris

Community level or Barangay level debris assessments should be done, when relevant, in order to quickly spot sites with hazardous or health-threatening debris and then segregate it from other typologies off debris and waste. **The potential public health impact means that debris removal ought to be a priority**. However; debris disposal has to be done according debris typology with a particular attention to hazardous debris and waste. This kind of waste should be properly managed and properly dumped in order to not affect the communities in the longer terms. Local authorities in terms of public health and environment need to be involved in these removal interventions.

It is suggested to revise communities' solid waste management plans and select new appropriate disposal site if necessary. Communities may need support in terms of quick access to specialized personnel, trainings, gears and/or equipments. This was often requested during the assessment, highlighting frustrations from the communities of the perceived delays in the clean up. It is suggested also, when possible and relevant, to include recycling or re-using program in the debris management and disposal. At the end of the emergency response, a long term debris management plan should be included in existing communities emergency planning


Tropical Storm Sendong 2011 Inter-Agency Shelter Assessment - January 2012
Percentage of shelters with flood above 1m and debris category
For humanitarian relief purpose only
Production date: 22 February 2012
ShelterCluster.org
The IASC assessment has been implemented between 22 and 28 January 2012 and designed to cover barangays in Cagayan de Oro City and Iligan City, plus municipalities in Misamis Oriental and Bukidnon Provinces.
Iligan City
Cagayan de Oro City
Other municipalities
Misamis Oriental
Lanao del Norte
Lanao del Sur
Bukidnon
Percentage of shelterswith flood level above 1m
0 - 20 %
20 - 40 %
40 - 60 %
60 - 100%
Scale of debris
1-Minor cleaning required
2-Significant cleaning (accessible)
3-Major cleaning (inaccessible)
No response
Data sources:
Administrative boundaries: GADM 2009
Shelter data: Inter-Agency Shelter Assessment
Projection: WGS 1984 UTM Zone 51N
GLIDE number: FL-2011-000204-PHL
File: PHL_WASH_SHE_DEB_22FEV2012
Contact: reach.mapping@impact-initiatives.org
A product of
REACH
A program of
IMPACT
In partnership with
UNOSAT
ACTED
Funded by

Technical Assessment (4.3) Key facts:

The Barangays with the **highest incidence of category 5 damage** are the following:

- *In Misamis Oriental:* Manticao, Dansolihon, Tignapoloan, Pagalungan, PagatPat, Canito An, Macansandig, Nazareth, 6, 7, 1,15, Consolacion, Carmen Macabalan and Agusan
- *In Lanao del Norte*: Hinaplanon, San Roque, Upper Hinaplanon, Mandulog, Puga-An, Bonbonon, Tibanga, San Filomena

The Barangays with **highest incidence of category 4 damage** are the following:

- *In Misamis Oriental*: Bonbon, 17 and Tablon
- *In Lanao del Norte*: Abuno and Poblacion

The most affected Barangays **in terms of Debris** are the following:

- *In Bukidnon*: Libona
- *In Misamis Oriental*: Pagatpat, Carmen, 6,13 and Kauswagan
- *In Lanao del Norte:* Santa Filomena, Poblacion, Bonbonon and Puga-An

Access to public services such as electricity and water is crucial in times of emergency. Over half of those affected did not have access to electricity, largely due to damage to household networks but also because of damage to public networks. Similarly, there are many households and communities that do not have access to water. In the evacuation centres and transitional shelters, it is likely that standards are being met though perceived access may be an issue for some. This was highlighted by CCCM members, noting that many grievances in terms of public service access within sites have been assessed and remediated if required

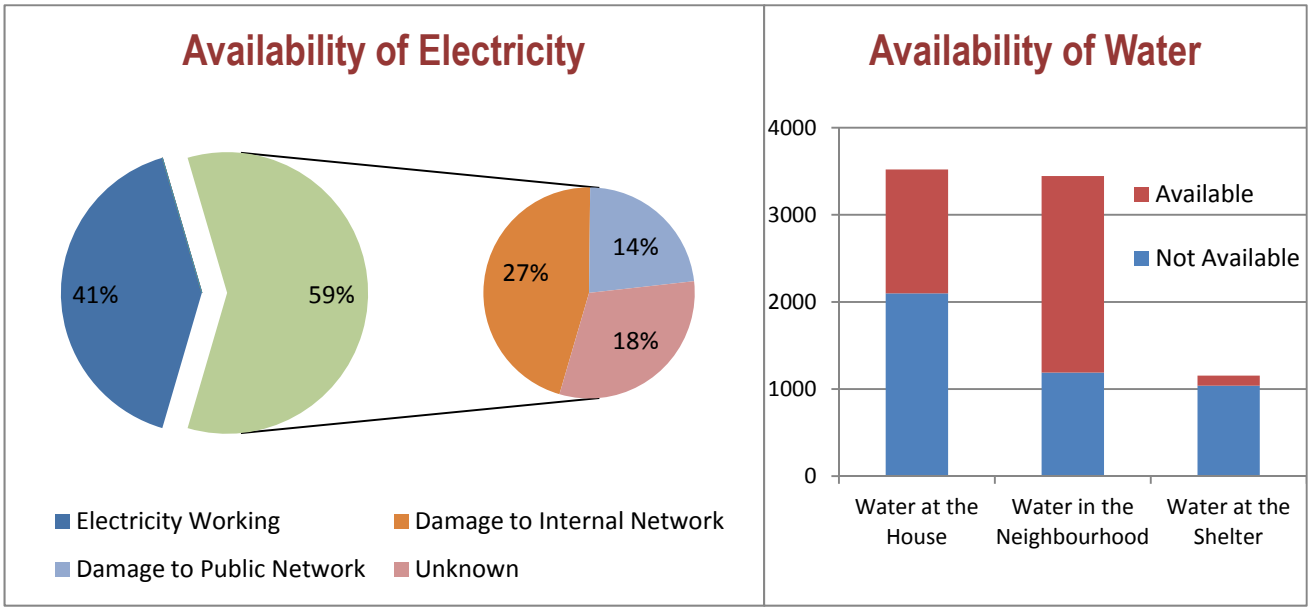
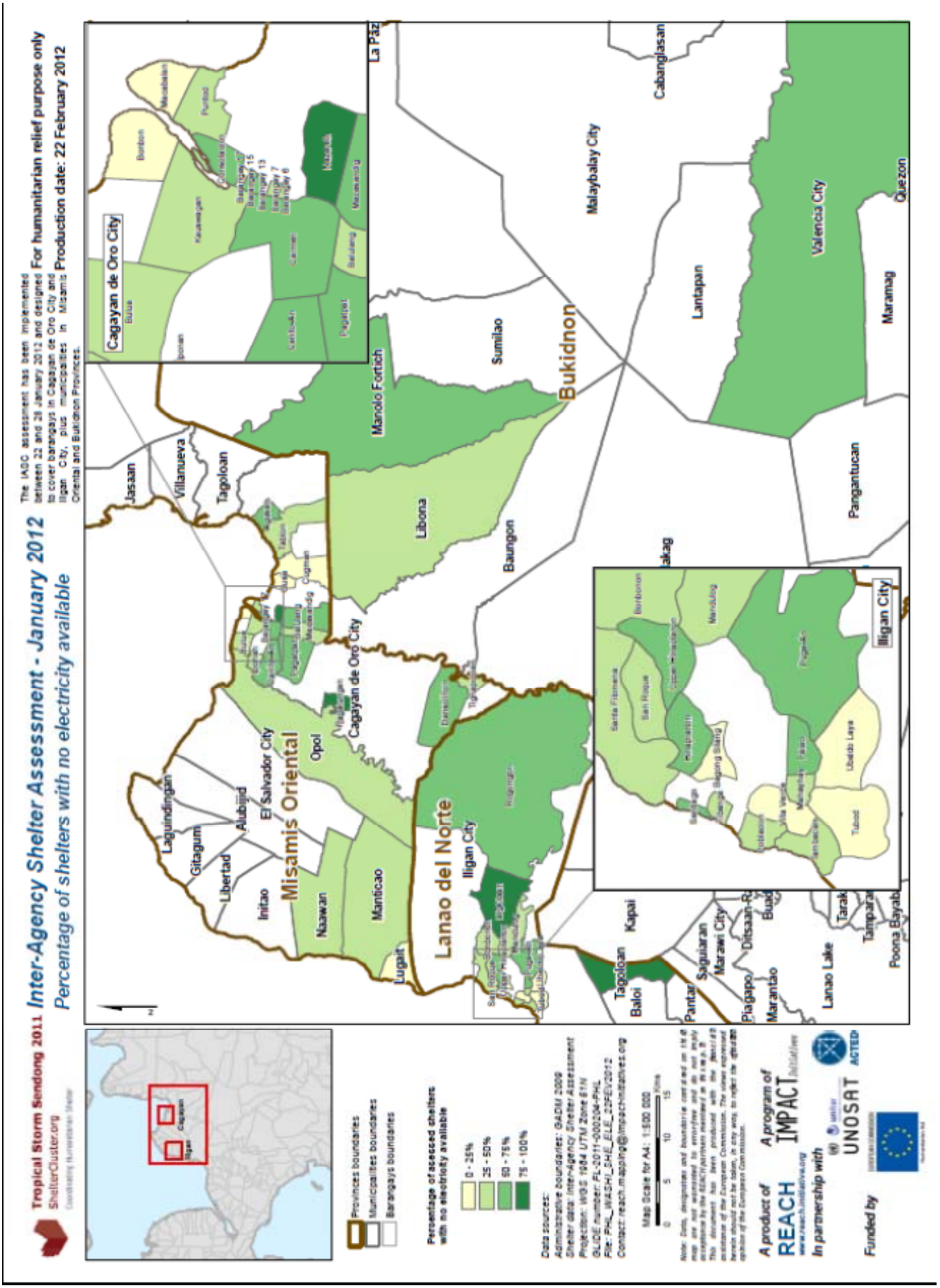


Figure 13: Access to Services: Electricity and Water

Volunteers trek through the jungles of Valencia to find communities with damaged houses from Sendong floods and landslides.

A temporary shelter built in trees after the families house was destroyed by floods.

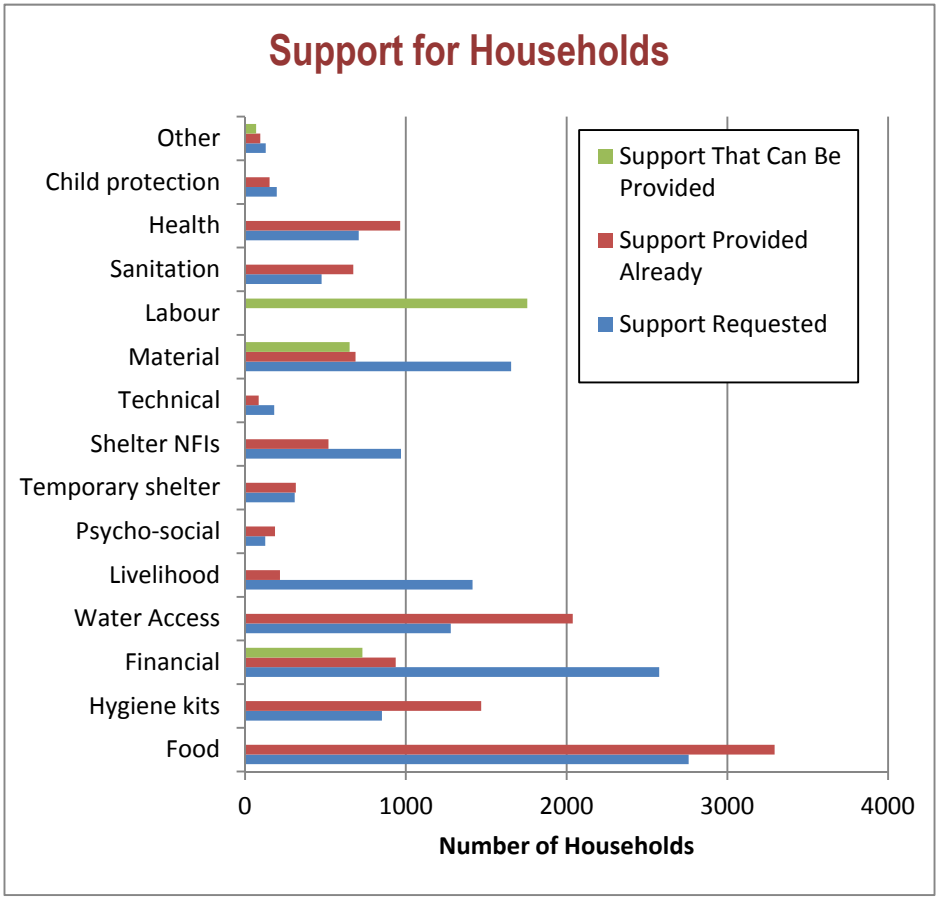

Tropical Storm Sendong 2011
ShelterCluster.org
Inter-Agency Shelter Assessment - January 2012
Percentage of shelters with no electricity available
The IASC assessment has been implemented between 22 and 28 January 2012 and designed to cover barangays in Cagayan de Oro City and Iligan City, plus municipalities in Misamis Oriental and Bukidnon Provinces.
For humanitarian relief purpose only
Production date: 22 February 2012
Cagayan de Oro City
Iligan City
Misamis Oriental
Lanao del Norte
Bukidnon
Jasaan
Villanueva
Tagoloan
Laguindingan
Gitagum
Alubijid
Libertad
Initao
El Salvador City
Opol
Cagayan de Oro City
Manticao
Naawan
Lugait
Manolo Fortich
Libona
Baungon
Sumilao
La Paz
Malaybalay City
Cabanglasan
Lantapan
Valencia City
Quezon
Maramag
Pangantucan
Kapai
Tagoloan
Baloi
Pantar
Saguiaran
Marawi City
Piagapo
Marantao
Lanao Lake
Provinces boundaries
Municipalities boundaries
Barangays boundaries
Percentage of assessed shelters with no electricity available
0 - 25%
25 - 50%
50 - 75%
75 - 100%
Data sources:
Administrative boundaries: GADM 2009
Shelter data: Inter-Agency Shelter Assessment
Projection: WGS 1984 UTM Zone 51N
GLIDE number: FL-2011-000204-PHL
File: PHL_WASHI_SHE_ELE_25FEV2012
Contact: reach.mapping@impactinitiatives.org
Map Scale for A4: 1:500 000
A product of REACH
A program of IMPACT Initiatives
In partnership with
UNOSAT
Funded by

4.4. Support Needed and Provided

The level of support requested was particularly high (over 95%), unsurprising considering the number of households in evacuation centres and the fact that 77% of those surveyed were at or below the poverty line. The type of support requested by households provides a greater reflection of the immediate needs, such as food as well as water. In addition, health, sanitation and hygiene kits were also requested and are areas where significant provisions have been provided by the relief efforts. Moreover, livelihood support at the time of the assessment seemed underwhelming relative to the level of requests placed by households.

With regards to shelter needs, requests or financial support were considerable as a result of household income having been highly affected (64%). This is coupled with the need for materials for their houses – something that was regularly observed and requested during the assessment. However, in some communities, particularly the more remote areas, communities are not willing to wait for assistance and have already begun creating temporary shelters on their property or rebuilding their permanent shelters. Moreover, labor support is indicated as the asset that respondents would be most able to contribute to their own needs. Technical assistance for low-tech housing was a notable absence in terms of support required, highlighting the capacity of communities to build back the same houses if so desired.

Those that noted that 'other' support was required were typically focused on land for relocation, a significant concern for those in No Build Zones.



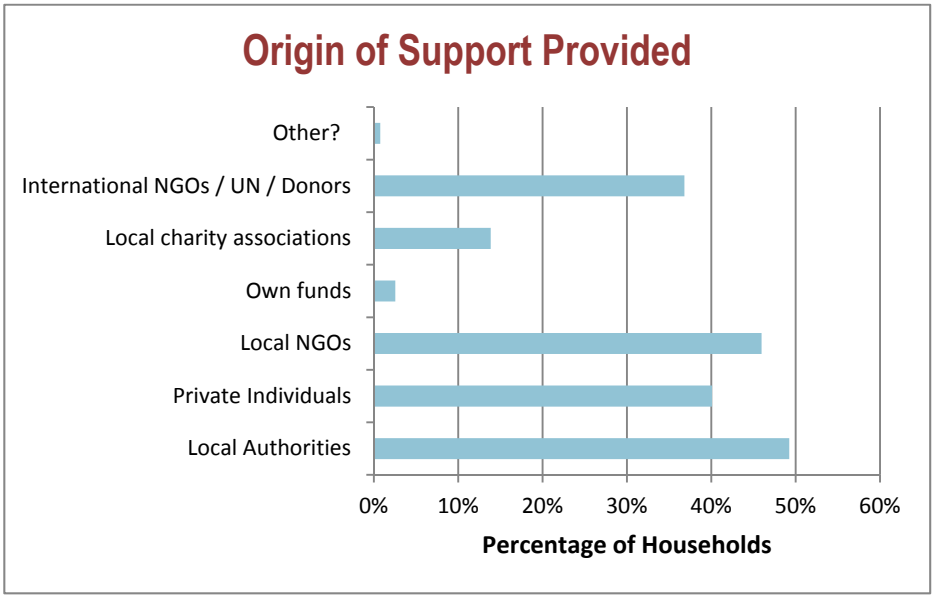


Figure 14: Type of Support Requested, Provided, Offered and Source

Looking at the above graphics, it is important to acknowledge few caveats:

- Support requested values are a fairly reliable tool in order to forecast communities' expectations in terms of assistance.
- If the support requested and support provided reaches the same value in the graphic, this doesn't mean at all that sector needs are covered and there are no gaps. On the contrary, beneficiary perception and ground reality might be different particularly if one considers the spatial variation.
- Origin of support provided has not been possible to verify in cases where INGOs/UN support and LGNOs support were indeed the same, one being channeled through the second.
- Some needs, I.e. child protection or psycho-social support, could be under-represented due to the fact that beneficiaries understanding of this kind of assistance is low or under reported.

The level of risk perceived by households is considerably high, with around half of the respondents in each category noting some concerns. Neighborhood safety is worrisome for many households, particularly those in evacuation centres; meanwhile conflict is a perceived threat to those largely in Iligan. In terms of shelter related risks, there are concerns by households in terms of being evicted, an issue that has dogged those in and around No Build Zones particularly. Finally, the risk for their house in general as a result of damage – in terms of being able to rehabilitate it and it not being further damaged through for example moisture related concerns – is the most significant issue raised by around 70% of respondents.

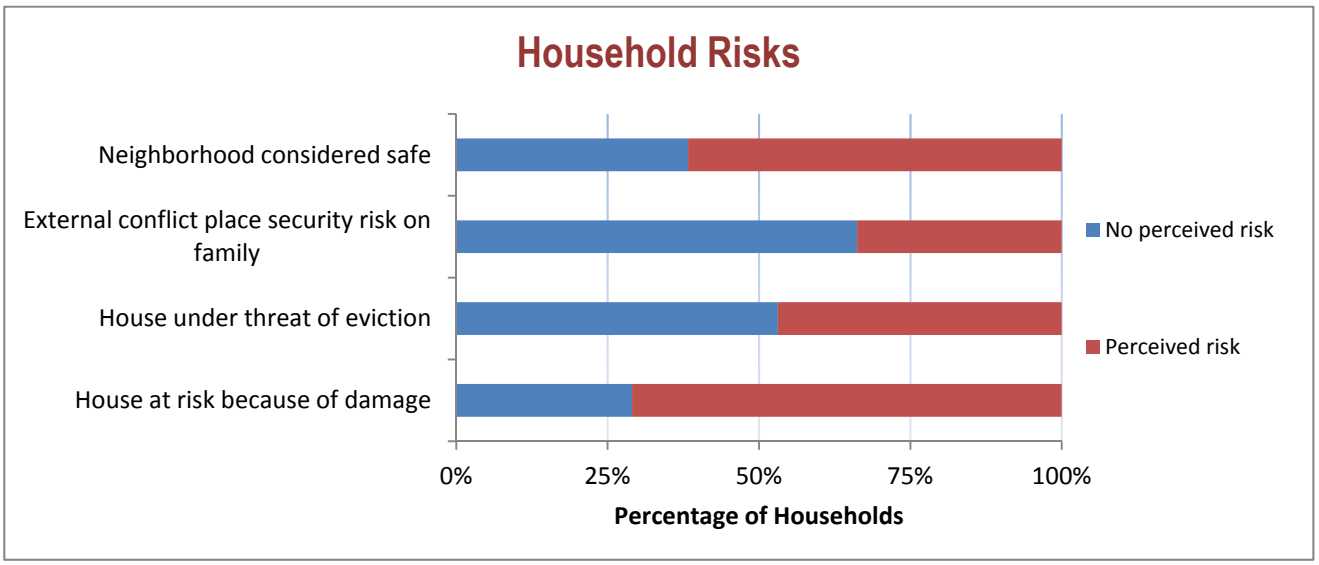


Figure 15: Perceived security risks to households

A household survey being undertaken at an evacuation centre in a school 3 hours drive from Cagayan de Oro.

FGDs enumerators have been able to set up different FGDs with HHs in the evacuation centers, with some living in tents and with other affected household living in temporary shelter. These three FGDs profiles have been particularly useful when the discussion agenda focused on their housing needs. Respondents were asked to answer and elaborate the most significant issues/constraints in meeting their community housing needs. It is interesting to remark that while general trends are common to each FDG profile, there are still some relevant differences in their answers.

Generally speaking, the main issues for all these groups are 1) new housing access 2) livelihoods opportunities 3) water facilities and sanitation facilities. These findings reflect those in the household surveys, reiterating the results. Access to new housing is particularly relevant for those who had their houses completely destroyed or severely damaged by the floods and for those who previously lived in the no build zones. The loss of livelihoods opportunities is significantly slowing down communities recover. Most of the affected people have seen their primary source of income damaged by the storm and may not be willing to return to their location of origin without any livelihood support. Many households have indeed relocated to urban areas where they felt to have more chance to earn their livings on a daily basis while many of the FDGs participants are benefitting from some kind of humanitarian assistance. Finally, water and sanitation services are seen has an obstacle because they are no more available and there aren't enough resources both at household and community level to rehabilitate or rebuild related infrastructure.

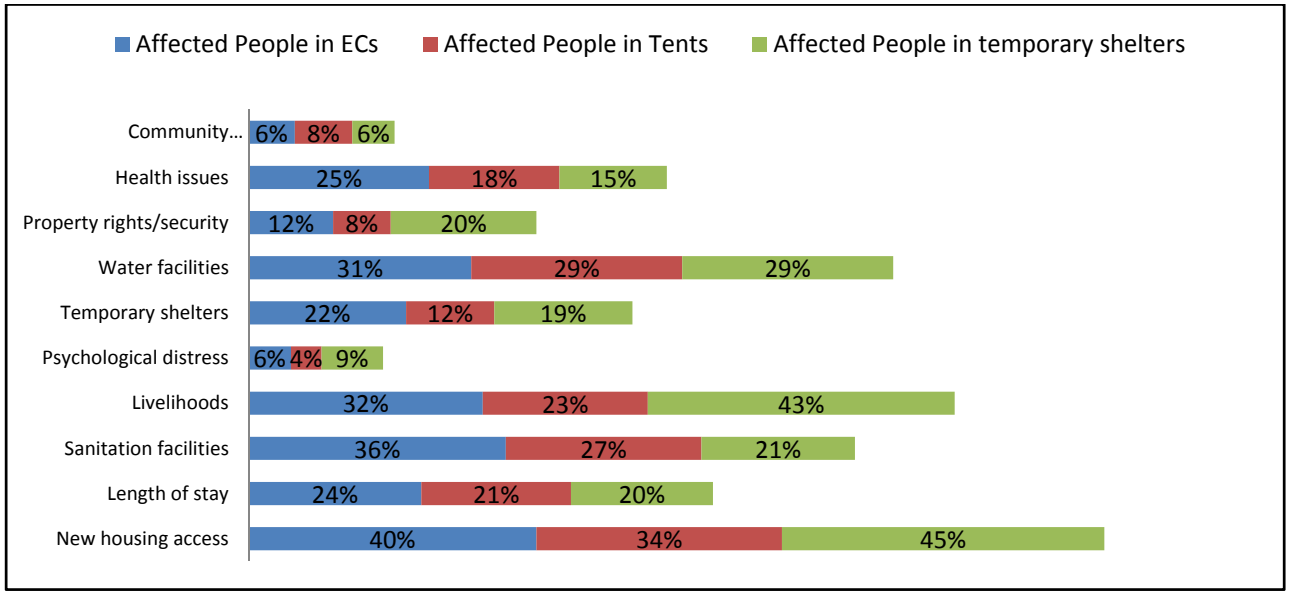


Figure 16: Most significant issues for meeting housing needs

It is interesting to focus on some figures of specific FGD profile. Health issues and sanitation facilities have more incidences in FGDs with participants from affected people in evacuation centers. Again, more qualitative data could help us to clarify further; however, it is fair to assume that these figures are linked with living conditions and the level of support provided in the centers. While being foreseen for hosting people only for short period, longer stays could overstretch infrastructure capacities and resources. More interestingly and regarding affected people in temporary shelters, it seems that property rights/security is a bigger concern for them than it is for the other profiles. Unfortunately, additional comments or observations do not provide sufficient insight to elaborate more on the data; additional research could be useful especially for medium term interventions. However, to reiterate it can be stated that many of the FDG responses outlined again access to land (60%) and property rights/security (30%) when the discussion shifted to the biggest concerns in terms of permanent housing. Besides the typically noted issues (livelihood, financial losses and material), specific challenges of land access and property rights seems to be more prevalent than in the households survey. It remains unclear if this issue was there before the Sendong or not and how far this is linked with no build zones.

Nevertheless, shelters interventions need to coordinate with the appropriate stakeholders on land access and properties in order to avoid recovering efforts are defused by unclear patterns of land ownerships.

4.5. Estimating Number of Priority Houses Rehabilitation and Reconstruction

A key question that was posed as part this shelter assessment is to identify the scale and scope of support required for rehabilitation and reconstruction of shelters. A significant gap previously mentioned has been the disaggregation of partially damaged houses, but in addition to that understanding the socio-economic context of target households. This section summarizes the above information, generating an estimate of the scale of the shelter program required to meet the needs of priority households.

While it is not encouraged to generalize the findings in this assessment too significantly, the sample of partially damaged houses is more representative than other type of data collected. This is because many of those in evacuation centres, which have been more heavily sampled, have totally destroyed homes. Therefore, if we remove the Category 5 houses from the assessment for a moment, we can get a good cross section from the community of what type of partially damaged houses they have – particularly from homebound affected populations living with relatives, on their own properties in make shift shelters, etc.

Based on government data and the assessment findings, approximates for the 27,943 partially damaged houses have been generated based on the assessment findings[8]. After discussions with key actors in how to prioritize the relief effort, it has been decided that reasonable assumptions are:

- Category 2 houses are not included, as debris clearing is being undertaken by households, government actors, and can be formed as part of cash for work programs;
- Only vulnerable partially affected (category 3 and 4) households should be included, specifically those living below the poverty line;
- All totally damaged houses are to be included in a large scale relief program; and

Therefore, using the assessment findings and DSWD data, a prioritization process can be initiated to identify the number of households that meet these criterion.

	Number of Households	Percentage of All Damaged Houses
All Affected Households in Region X	39,400	100%
Partially Damaged Houses (DSWD)	27,973	71%
Category 3 & 4 Households (Assessment)	15,385	39%
Category 3 Households At or Below Poverty Line (Assessment)	*10,577*	*27%*
Category 4 Households At or Below Poverty Line (Assessment)	*3,274*	*8%*
Category 3 & 4 Households At or Below Poverty Line (Assessment)	**13,851**	**35%**
Category 5 Households (DSWD)	**11,427**	**29%**
Total Support	**25,278**	**64%**

Table 4: Estimated Number of Priority Houses to Rehabilitation and Reconstruction

[8] The Philippine Red Cross at the time of writing released their estimates for the number of houses affected by Barangay in CDO (Disaster Statistical Report, CDO, 23rd January 2012). This totaled 4,959 houses completely destroyed (20% less than DSWD figures) and 7,317 for partially damaged – focusing only on those with structural impacts. If we added Category 3 and 4 together to get similar parameters, the estimate still remains about 50% of the number issued by Government. Official Government updates for CDO at the Baragay level are still pending – during this assessment while discussing the scale of damage with Barangay Capatains and communities, the broad consensus is that Government data has been accurate despite not being sufficiently detailed. .

Overall, the number of households that have been prioritized is 25,278 out of the 39,400 households that have been affected. This includes the 11,427 houses that have been completely destroyed. However, this number from DSWD also needs to be better verified. While figures have proven to be generally reliable, in some cases municipalities / Barangays that had been identified as having damaged houses were assessed and no damage could be identified (e.g. Malitbog, El Salvador City).

With regards to partially damaged houses, the estimated number of households to support is 13,851. It will be noticed that the prioritization of only supporting the rehabilitation of households at or below the poverty level has not reduced significantly the number of households to support. As previously discussed, this is a result of the fact that the incidence of poverty is so great for those affected. This exacerbates the existing levels of inequality and poverty, and therefore it is essential that a well developed rehabilitation program is implemented. Many of the houses are category 3, meaning that the cost of materials and support should be lower than originally anticipated.

Finally, category 2 has not been included as previously discussed. However, there may be pockets of inaccessible communities or severely affected households that are considered vulnerable which may required some support.

It is essential that prior to any program being developed and implemented, additional beneficiary surveys are undertaken by organizations involved, and that they verify not only this assessment but also the beneficiary lists.

Overall, the level of assistance that has been priorized is considerable. At the time of writing, a portion of this has already been committed by the international community though there remain gaps in terms of scale, scope and reach. In areas such as more remote Iligan and other municipalities, there are fewer organizations implementing shelter related projects. The concern is that those that are in most need though are least accessible need to be incorporated in future programming. This includes communities outside of Cagayan de Oro, in the highlands of Iligan[9] , and those outside of Region X and in ARMM or Region VII for example.

More detailed information at the Barangay level is available in the database and through the maps produced by IMPACT Initiatives.

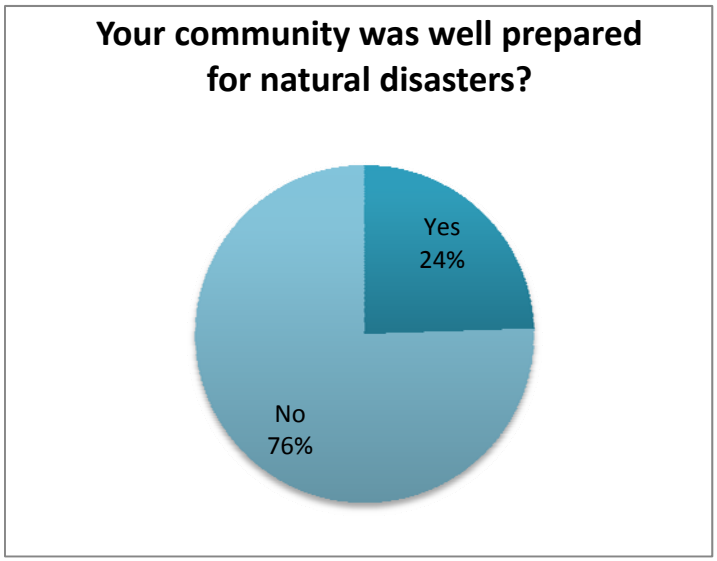
[9] Barangays of Iligan were not able to be assessed due to poor road conditions and conflict related security issues. These ought to be reconsidered for any future assessment, and should not be forgone from future work as they are not in this assessment process.

4.6. Disaster Risk Reduction & Preparedness

Disaster Preparedness

The FGD included a specific focus on disaster preparedness. The aim wasn't to objectively determine if the communities were or not prepared but their perception about their own, and of their own community, capacities in facing natural disasters. The responses provided by these FGDs should not be perceived then as an evaluation of previous or ongoing DRR programs. On the contrary, it should provide a better understanding of communities perceived weaknesses in preparation and mitigation of natural disaster impacts and suggestions, if any, on how to integrate DRR issues in the early recovery phase.

76% of the FGDs felt that their community wasn't prepared to for natural disaster. Looking at Sendong impact, its huge damage extension and the number of affected households the figure is quite self explanatory. For both responses, yes and no, FGDs have been then asked to elaborate their answers. Among the few FGDs which felt to have been prepared for natural disasters, 41% of them linked their preparedness to previous experiences in facing such kind of emergencies. Building on what they witnessed in the past, they managed to mitigate some of the affects of the storm.



Despite previous experience being the most common answer for being well prepared, a minority (22%) responded as having good DRR community plans. It make sense however to consider that if lessons learned have been acquired during previous disasters, it should help them more in behaving correctly during the onset of a disaster rather than actually being prepared for it. Finally, it worth mentioning that, 22% of them were unable to answer why they felt prepared, adding a question mark about their actual preparedness perception.

Figure 167: Community preparedness for natural disaster

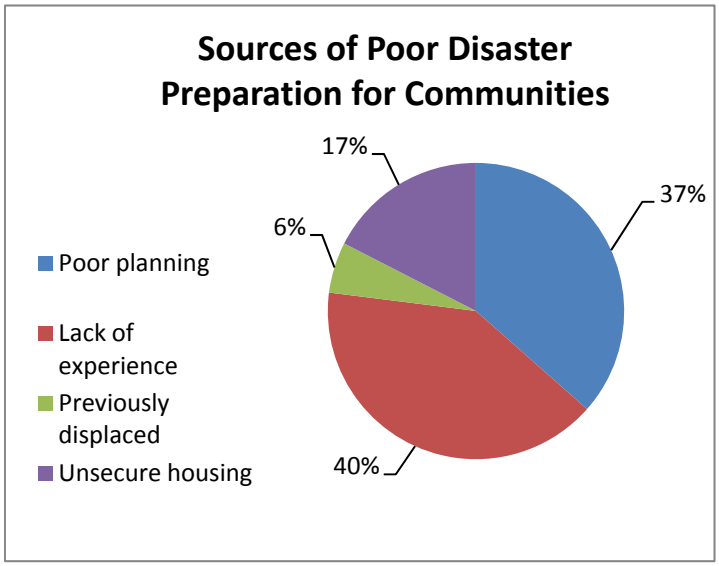


Figure 18: Sources of Poor Disaster Preparation for Communities

Among the FGDs who provided a negative answer in terms of preparedness, 40% of them linked that weakness with their lack of experience. This answer is perfectly mirroring the FGDs above were experience of previous disaster was the main reason why they felt ready to face natural disaster. 30% of the FGDs also express lack of adequate plans as reason of unpreparedness while only 17% found in the insecure housing another factor for that. In one example, a 58 year old leader of a community noted that floods of this type have never occurred in his community before, so even when the flood waters started rising people did not evacuate as they had not seen the river swell so fast and significantly in living history.

The majority of the FGDs felt that their communities were exposed to Sendong impact due to a lack of disaster preparedness. Most of the answers highlighted previous exposure(s) to natural disaster(s), and so experience in dealing with their impact, as an important aspect of community level preparedness. Indeed Mindanao North is not an area traditionally affected by tropical storms, or at least less affected then other Philippines regions and therefore its population might have felt to be ill-equipped while the tropical storm was passing through their region. For this reason, any humanitarian interventions in disaster prone areas, is it still in an emergency context or in an early recovery phase, should mainstream these components. Building on lessons learned and best practices, at community level, would be an appropriate way forward. Relying on common cultural and traditional references, it will be welcomed and easily understood by the beneficiaries. It could be also replicated from community to community, through emulation processes, generating multiplier effects. Its implementation would be faster and less resources consuming being mainly based on software activities.

However, lessons learned are not enough if the aim is to provide a comprehensive toolbox to prepare communities in front of major natural disaster. Indeed best practices are extremely useful in reducing risks and mitigating effects but proper preventive action requires broader institutional and operational frameworks. A holistic and multi-sectoral intervention is then required. It should focus on better planning and on secure housing, as expressed by the FGDs. Better planning and more secure housing programs require more resources as well as more institutional expertise and commitment. Its implementation will have a longer timeframe and would be more difficult and sensitive. Looking at shelter specific interventions, this means that how to and where to rehabilitate, relocate and/or build new houses need to be clarified, planned and enforced under a DRR perspective that takes into account floods and other natural hazards.

5. Conclusions & Recommendations

1. The incidence of poverty in the directly affected areas is considerably high, and much greater than the general communities - 77% of those affected compared to around 32-39% for Iligan and Cagayan de Oro municipalities. This has been exacerbated by Sendong, with up to 64% of households' income being highly affected. Therefore any **effective program needs to target the potential income-generating activities** of beneficiaries.

2. **Debris removal and clearing is a priority of utmost importance** to ensure access to houses and communities, while also preventing public health issues from worsening – such as the Leptosorosis outbreak. **Solid waste management plans are recommended** where necessary. This can incorporate a livelihood component through cash or food for work programs, providing livelihood opportunities for the most vulnerable within communities.

3. **Common understanding should be promoted** on the definition of damage to houses, as well as coordinated approaches to designing rehabilitation and reconstruction packages to ensure equitable distribution of support.

4. **Those in temporary shelters and evacuation centres ought to be prioritized for relocation, reconstruction and rehabilitation projects**. This is for two reasons. Firstly, they are the more vulnerable and less capable of those affected. And secondly, the sites are typically schools which should return to their normal operations as soon as possible for the sake of the children. This appears to have been recognized by Government actions.

5. **The No Build Zones need to be clearly demarcated and communicated to those affected**. Moreover, any program that addresses reconstruction and rehabilitation ought to adhere to these boundaries in an effort to improve disaster risk reduction and resilience to future water-related events.

6. **Programs ought to prioritize households that are below the poverty line with rehabilitation needs (approximately 13,851) and all totally destroyed houses (11,427), a total of approximately 25,278 households**. This should happen in a timely manner as individuals are willing to work and build their own homes (if possible), though lack the materials and financial resources to implement their own reconstruction and rehabilitation projects.

7. **Reconstruction and rehabilitation works should as best as possible incorporate disaster risk reduction components.** This may involve 'building back better' solutions including concrete foundations; supporting early warning mechanisms to reduce the likelihood of significant impact from floods or other disasters in the future (baring in mind that origin of the disaster for many areas were in faraway places upstream); and include community mobilization approaches within the construction programs for sustainable outcomes.

8. **Coordination across Clusters is essential** to a holistic program that benefits the household and the community, including food, livelihood, shelter and other support. This should be coordinated at the overall level as well as within regions. It is worthwhile noting that by and large this seems to be well underway.

9. **Further assessments in currently inaccessible areas needs to be undertaken** to ensure a comprehensive set of information is used for planning and prioritization.

10. **Disaggregation of existing data at the Barangay level is necessary** to provide greater guidance to those implementing programs – be it through formal reports or informally through data-mining of the extensive data sets generated through this assessment.

IMPACT Initiatives & REACH

The assessment was facilitated (in the framework of the shelter cluster) by REACH, an interagency program of IMPACT Initiatives (IMPACT).

REACH was born in 2010 as a joint initiative of two INGOs (IMPACT and ACTED) and one UN program (UNOSAT). Based in Geneva, REACH operates through global advocacy and country-level deployments.

REACH's **purpose** is to promote and facilitate the development of information products that enhance the humanitarian community's decision making and planning capacity.

REACH's **overall objective** is to enhance the effectiveness of planning and coordination by aid actors in countries that are in crisis or at-risk of crisis.

Since 2011 REACH has formalized a partnership with the Global Shelter Cluster (GSC) to support the strengthening of its coordination and planning capacity, with financial support from the European Commission Humanitarian Aid Office. Dedicated REACH teams (including assessment, database and mapping experts) are available to be rapidly deployed to the field in the aftermath of future emergencies in order to facilitate interagency assessments and mapping activities on behalf of the shelter cluster. Resulting information products are used to enable better planning and coordination by the cluster, and are widely disseminated.

Training of enumerators in Cagayan de Oro.

REACH's partnership with the GSC is directed by a dedicated Steering Committee including representatives from ACTED, IFRC (as GSC co-lead), IMPACT, the European Commission's Joint Research Centre and UNOSAT.

www.reach-initiative.org

IMPACT HEAD OFFICE

4-6 Rue Neuve du Molard
1204 Geneva – Switzerland
Phone: +41 (0) 22 566 29 63
geneva@impact-initiatives.org
www.impact-initiatives.org

ACTED HEAD OFFICE

33, rue Godot de Mauroy
75009 Paris - France
Phone: + 33 (0)1 42 65 61 23
paris@acted.org
www.acted.org

List of Annexes to this Report

Appendix 1: **Household Survey**

Appendix 2: **Focus Group Discussions**

REACH - RAPID SHELTER ASSESSMENT AFTER TROPICAL STORM SENDONG IN REGION 10, PHILIPPINES

A program of

In partnership with

Funded by

With